



# Open Source Used In Cisco AppDynamics Cloud Alerting Baseline Compute 2.0.0-289\_Oct31

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# 1.1 libjpeg 6b

## 1.1.1 Notifications :

This software is based in part on the work of the Independent JPEG Group.

## 1.1.2 Available under license :

The Independent JPEG Group's JPEG software

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README for release 6b of 27-Mar-1998

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Serious users of this software (particularly those incorporating it into larger programs) should contact IJG at [jpeg-info@uunet.uu.net](mailto:jpeg-info@uunet.uu.net) to be added to our electronic mailing list. Mailing list members are notified of updates and have a chance to participate in technical discussions, etc.

This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the official ISO JPEG standards committee.

## DOCUMENTATION

### ROADMAP

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This file contains the following sections:

OVERVIEW        General description of JPEG and the IJG software.  
LEGAL ISSUES    Copyright, lack of warranty, terms of distribution.  
REFERENCES     Where to learn more about JPEG.  
ARCHIVE LOCATIONS Where to find newer versions of this software.  
RELATED SOFTWARE Other stuff you should get.  
FILE FORMAT WARS Software \*not\* to get.  
TO DO           Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.doc     How to configure and install the IJG software.  
usage.doc       Usage instructions for cjpeg, djpeg, jpegtran,  
                 rdjpgcom, and wrjpgcom.  
\*.1             Unix-style man pages for programs (same info as usage.doc).  
wizard.doc      Advanced usage instructions for JPEG wizards only.  
change.log      Version-to-version change highlights.

Programmer and internal  
documentation:

libjpeg.doc    How to use the JPEG library in your own programs.  
example.c      Sample code for calling the JPEG library.  
structure.doc   Overview of the JPEG library's internal structure.  
filelist.doc   Road map of IJG files.  
coderrules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.



## OVERVIEW

=====

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images.

JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

We welcome the use of this software as a component of commercial products.

No royalty is required, but we do ask for an acknowledgement in product documentation, as described under LEGAL ISSUES.

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The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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## REFERENCES

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We

highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44. (Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at <ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging \$95 for Part 1 and \$47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS

10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department  
C-Cube Microsystems, Inc.  
1778 McCarthy Blvd.  
Milpitas, CA 95035  
phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at <ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz>. There is also a plain text version at <ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme

found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from <ftp://ftp.sgi.com> or from <ftp://ftp.uu.net/graphics/jpeg/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from <ftp://ftp.sgi.com/graphics/tiff/>.

## ARCHIVE LOCATIONS

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The "official" archive site for this software is [ftp.uu.net](ftp://ftp.uu.net) (Internet address 192.48.96.9). The most recent released version can always be found there in directory [graphics/jpeg](ftp://ftp.uu.net/graphics/jpeg/). This particular version will be archived as <ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz>. If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact [help@uunet.uu.net](mailto:help@uunet.uu.net) for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only

ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (<ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/>), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups comp.graphics.misc, news.answers, and other groups. It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other news.answers archive sites, including the official news.answers archive at rtfm.mit.edu: <ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/>. If you don't have Web or FTP access, send e-mail to [mail-server@rtfm.mit.edu](mailto:mail-server@rtfm.mit.edu) with body  
send usenet/news.answers/jpeg-faq/part1  
send usenet/news.answers/jpeg-faq/part2

#### RELATED SOFTWARE

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Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making cjpeg/djpeg considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites,  
notably <ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/>. Unfortunately PBPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from <ftp://havefun.stanford.edu/pub/jpeg/>. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

## FILE FORMAT WARS

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Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read.

(For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether

SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

## TO DO

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The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG

Part 3 extensions --- principally, variable quantization and the SPIFF file format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to [jpeg-info@uunet.uu.net](mailto:jpeg-info@uunet.uu.net).

## 1.2 javax-inject 1

### 1.2.1 Available under license :

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Version 2.0, January 2004

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# 1.7 javax-json 1.0.4

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Found in path(s):

```
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/Identifier.java  
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/Pattern.java  
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/Language.java  
*  
/opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/PrintFormat.java  
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/RegExp.java
```



\* /opt/cola/permits/173667507\_1695324641.7896898/0/annotations-13-0-sources-jar/org/intellij/lang/annotations/Subst.java

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\* /opt/cola/permits/173667507\_1695324641.7896898/0/annotations-13-0-sources-jar/org/jetbrains/annotations/Nullable.java

```
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/jetbrains/annotations/NonNls.java
```

```
*
```

```
/opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/jetbrains/annotations/PropertyKey.java
```

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```
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jar/org/jetbrains/annotations/TestOnly.java
```

```
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/JdkConstants.java
```

```
* /opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/jetbrains/annotations/NotNull.java
```

```
*
```

```
/opt/cola/permits/173667507_1695324641.7896898/0/annotations-13-0-sources-  
jar/org/intellij/lang/annotations/MagicConstant.java
```

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to most

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# 1.14 ncurses 5.9-14.20130511.el7\_4

## 1.14.1 Available under license :

Upstream source <http://invisible-island.net/ncurses/ncurses-examples.html>

Current ncurses maintainer: Thomas Dickey <[dickey@invisible-island.net](mailto:dickey@invisible-island.net)>

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Files: install-sh

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This script is compatible with the BSD install script, but was written from scratch. It can only install one file at a time, a restriction shared with many OS's install programs.

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## 1.15 reflections 0.9.11

### 1.15.1 Available under license :

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Manifest-Version: 1.0

Bundle-Description: Reflections - a Java runtime metadata analysis

Bundle-License: <http://www.wtfpl.net/>, <http://www.opensource.org/licenses/bsd-license.html>

Bundle-SymbolicName: org.reflections

Archiver-Version: Plexus Archiver

Built-By: ron

Bnd-LastModified: 1490358733199

Bundle-ManifestVersion: 2  
Import-Package: com.google.common.base;version="[20.0,21)",com.google.common.collect;version="[20.0,21)",com.google.common.io;version="[20.0,21)",com.google.common.util.concurrent;version="[20.0,21)",com.google.gson;resolution:=optional,javassist;version="[3.21,4)",javassist.bytecode;version="[3.21,4)",javassist.bytecode.annotation;version="[3.21,4)",javassist.expr;version="[3.21,4)",javax.annotation;version="[3.0,4)",javax.servlet;resolution:=optional,org.dom4j;resolution:=optional,org.dom4j.io;resolution:=optional,org.reflections,org.reflections.adapters,org.reflections.scanners,org.reflections.serializers,org.reflections.util,org.reflections.vfs,org.slf4j;version="[1.7,2)";resolution:=optional  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.7))"  
Tool: Bnd-3.2.0.201605172007  
Export-Package: org.reflections;uses:="com.google.common.base,com.google.common.collect,javax.annotation,org.reflections.adapters,org.reflections.scanners,org.reflections.serializers,org.slf4j";version="0.9.11",org.reflections.adapters;uses:="javassist.bytecode,javax.annotation,org.reflections.vfs";version="0.9.11",org.reflections.scanners;uses:="com.google.common.base,com.google.common.collect,javax.annotation,org.reflections,org.reflections.adapters,org.reflections.vfs";version="0.9.11",org.reflections.serializers;uses:="org.reflections";version="0.9.11",org.reflections.util;uses:="com.google.common.base,javax.annotation,javax.servlet,org.reflections,org.reflections.adapters,org.reflections.scanners,org.reflections.serializers,org.slf4j";version="0.9.11",org.reflections.vfs;uses:="com.google.common.base,javax.annotation";version="0.9.11"  
Bundle-Name: Reflections  
Bundle-Version: 0.9.11  
Created-By: Apache Maven Bundle Plugin  
Build-Jdk: 1.8.0\_101

Found in path(s):

\* /opt/cola/permits/183118678\_1695334482.2038553/0/reflections-0-9-11-jar/META-INF/MANIFEST.MF

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<name>The New BSD License</name>

Found in path(s):

\* /opt/cola/permits/183118678\_1695334482.2038553/0/reflections-0-9-11-jar/META-INF/maven/org.reflections/reflections/pom.xml

## 1.16 gnupg 2.0.22-5.el7\_5



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/opt/cola/permits/183657586\_1695337116.0137277/0/gnupg2-2-0-22-5-el7-5-x86-64-rpm-tar-gz/gnupg2-2.0.22-5.el7\_5.x86\_64.rpm: binary file matches

Found in path(s):

\* /bin/grep

# 1.17 abego-treelayout-core 1.0.3

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# 1.18 listenablefuture 9999.0-empty-to-avoid-conflict-with-guava

## 1.19 failureaccess 1.0.1

## 1.20 gobject-introspection 1.56.1-1.el7

### 1.20.1 Available under license :

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There is also some MIT code in giscanner/. In general where applicable files should have headers denoting their license status; if they do not, please file a bug at <https://gitlab.gnome.org/GNOME/gobject-introspection/issues>.

## 1.21 gpgme 1.3.2-5.el7

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## 1.22 grep 2.20-3.el7

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## 1.35 cglib 3.2.0

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## 1.45 python-chardet 2.2.1-3.el7

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# 1.46 shadow 4.6-5.e17

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## 1.48 giflib 5.2.1

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## 1.51 kmod 20-28.e17

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## 1.60 pam 1.1.8-23.el7

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## 1.61 cryptsetup 2.0.3-6.el7

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## 1.62 feign-slf4j 8.18.0

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```

Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1041749269_1590960641.82/0/feign-slf4j-8-18-0-sources-
jar/feign/slf4j/Slf4jLogger.java
```

# 1.63 feign-core 8.18.0

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Found in path(s):

`/opt/ws_local/PERMITS_SQL/1041742352_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Types.java`

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`/opt/ws_local/PERMITS_SQL/1041742352_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Param.java`

`/opt/ws_local/PERMITS_SQL/1041742352_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/QueryParam.java`

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\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/codec/DecodeException.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Util.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/auth/BasicAuthRequestInterceptor.java  
\*  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/MethodMetadata.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/codec/EncodeException.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/FeignException.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Contract.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/RetryableException.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Feign.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/codec/ErrorDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Client.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Response.java  
\*  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/RequestTemplate.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/auth/Base64.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Request.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/ReflectiveFeign.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/codec/StringDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Logger.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Retryer.java

\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/Target.java  
\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/RequestInterceptor.java

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\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/InvocationHandlerFactory.java

\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/SynchronousMethodHandler.java

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\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-jar/feign/codec/Encoder.java

\* /opt/ws\_local/PERMITS\_SQL/1041742352\_1590954355.62/0/feign-core-8-18-0-sources-

## 1.64 feign-jackson 8.18.0

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```
*/opt/ws_local/PERMITS_SQL/1041746349_1590960627.05/0/feign-jackson-8-18-0-sources-
jar/feign/jackson/JacksonDecoder.java
*/opt/ws_local/PERMITS_SQL/1041746349_1590960627.05/0/feign-jackson-8-18-0-sources-
jar/feign/jackson/JacksonEncoder.java
```

## 1.65 feign-jaxrs 8.18.0

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\* /opt/ws\_local/PERMITS\_SQL/1041740744\_1590954450.45/0/feign-jaxrs-8-18-0-sources-jar/feign/jaxrs/JAXRSContract.java

## 1.66 jedis 3.3.0

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\* /opt/ws\_local/PERMITS\_SQL/1047560748\_1590497249.67/0/jedis-3-3-0-sources-jar/redis/clients/jedis/util/RedisInputStream.java

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\* /opt/ws\_local/PERMITS\_SQL/1047560748\_1590497249.67/0/jedis-3-3-0-sources-jar/redis/clients/jedis/util/MurmurHash.java

# 1.67 error\_prone\_annotations 2.3.4

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jar/com/google/errorprone/annotations/Immutable.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/ForOverride.java
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jar/com/google/errorprone/annotations/Var.java
*
/opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/SuppressPackageLocation.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/IncompatibleModifiers.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/CanIgnoreReturnValue.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/CompileTimeConstant.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/concurrent/LazyInit.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
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\*/

Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/DoNotCall.java  
\* /opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/concurrent/GuardedBy.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/OverridingMethodsMustInvokeSuper.java  
\* /opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/CheckReturnValue.java  
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Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/concurrent/UnlockMethod.java  
\* /opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/NoAllocation.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1059106420\_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-jar/com/google/errorprone/annotations/concurrent/LockMethod.java

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```

Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/FormatString.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/DoNotMock.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/CompatibleWith.java
*
/opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/RestrictedApi.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/MustBeClosed.java
* /opt/ws_local/PERMITS_SQL/1059106420_1592475238.99/0/error-prone-annotations-2-3-4-sources-1-
jar/com/google/errorprone/annotations/FormatMethod.java
```

## 1.68 fdisk 2.23.2

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```

```
<signature of Ty Coon>, 1 April 1989
```

Ty Coon, President of Vice

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size: 8388608, sector size: 512, PT: dos, offset: 446, id=0x8f8378c0

---

#1: 32 7648 0x83  
#2: 7680 8704 0xa5  
#5: 7936 4864 0x7 (freebsd)  
#6: 12544 3584 0x7 (freebsd)

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Initialize empty image

f1c9645dbc14efddc7d8a322685f26eb bsd.img

Create new DOS partition table

57e721e38d1266c2df055067c18f2cf9 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
--------	------	-------	-----	--------	----	--------

-----

Create 1st primary partition

ada64ace122978d00d1d1c0e5ee45d26 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
--------	------	-------	-----	--------	----	--------

__ts_dev__1		2048	4095	1024	83	Linux
-------------	--	------	------	------	----	-------

-----

Create 2st primary partition

1bebf87248e05d6e4e62b749da65d023

bsd.img

Set 2nd partition type

2d8e8dff51a88a045db233418dd73fbe bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux
__ts_dev__2		4096	20479	8192	a5	FreeBSD

-----  
Create default BSD

2e1cee529cb59c9341afef0443f196a1 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
c:	4096	20479	16384	unused	0	0	
d:	0						
	16064	16065	unused	0	0		

BSD disklabel command (m for help):

Command (m for help):

-----  
b5c121c2091b2ff26b880551feac7112 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
a:	4096	6144	2049	4.2BSD	0	0	0
c:	4096	20479	16384	unused	0	0	
d:	0	16064	16065	unused	0	0	

BSD disklabel command (m for help):

Command (m for help):

-----  
Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

0 unused      5 4.1BSD      9 4.4LFS      d boot  
1 swap  
    6 Eighth Edition a unknown      e ADOS  
2 Version 6    7 4.2BSD      b HPFS      f HFS  
3 Version 7    8 MS-DOS      c ISO-9660    10 AdvFS  
4 System V

BSD disklabel command (m for help):

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jar/io/netty/handler/codec/http/cors/CorsHandler.java
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jar/io/netty/example/http/cors/OkResponseHandler.java
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/Http2SettingsReceivedConsumer.java
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/InboundHttp2ToHttpAdapterBuilder.java
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/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/DecoratingHttp2ConnectionDecoder.java
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jar/io/netty/util/ByteProcessor.java
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jar/io/netty/handler/codec/http2/Http2PromisedRequestVerifier.java
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jar/io/netty/handler/codec/ValueConverter.java
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jar/io/netty/handler/codec/http2/DecoratingHttp2ConnectionEncoder.java
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jar/io/netty/handler/codec/CharSequenceValueConverter.java
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jar/io/netty/handler/codec/http2/Http2StreamVisitor.java
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jar/io/netty/channel/CoalescingBufferQueue.java
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jar/io/netty/handler/codec/http2/AbstractInboundHttp2ToHttpAdapterBuilder.java
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jar/io/netty/handler/codec/http2/UniformStreamByteDistributor.java
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jar/io/netty/handler/codec/http2/StreamBufferingEncoder.java
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*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/DefaultHttp2Connection.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/collection/ShortObjectHashMap.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2EventAdapter.java

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jar/io/netty/handler/codec/http2/Http2ServerUpgradeCodec.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/ObjectUtil.java

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jar/io/netty/util/collection/CharObjectHashMap.java

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jar/io/netty/handler/codec/http2/package-info.java

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 jar/io/netty/handler/codec/http2/Http2Error.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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jar/io/netty/handler/codec/http2/Http2FrameAdapter.java

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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/util/collection/IntObjectMap.java
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jar/io/netty/handler/codec/http2/Http2Exception.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/Http2Stream.java
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jar/io/netty/util/collection/LongObjectHashMap.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/buffer/search/AhoCorasicSearchProcessorFactory.java  
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jar/io/netty/buffer/search/MultiSearchProcessorFactory.java  
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jar/io/netty/buffer/search/AbstractMultiSearchProcessorFactory.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/MemcacheMessage.java
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ConnectTimeoutException.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyGoAwayFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/DefaultMemcacheContent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/Promise.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockJzlibEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/DefaultThreadFactory.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/AbstractEventExecutor.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/AbstractReferenceCountedByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/SimpleLeakAwareByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/DefaultFullHttpRequest.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/channel/ChannelProgressivePromise.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/DefaultChannelProgressivePromise.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/UdtServerChannelConfig.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/FullHttpRequest.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/DefaultFullHttpResponse.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/spdy/DefaultSpdySynStreamFrame.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/LastMemcacheContent.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/UnreleasableByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/spdy/DefaultSpdyDataFrame.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/FullHttpResponse.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socks/v5/Socks5AddressType.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/DefaultMessageSizeEstimator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/spdy/SpdyHttpDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/DefaultByteBufHolder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/AbstractMemcacheObjectAggregator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/DefaultProgressivePromise.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/FullMemcacheMessage.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/MessageSizeEstimator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/AbstractMemcacheObject.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/binary/DefaultFullBinaryMemcacheRequest.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheServerCodec.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/EmptyByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/binary/DefaultBinaryMemcacheResponse.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/ResourceLeakException.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyGoAwayFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/Crc32c.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/oio/OioSocketChannelConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/GenericProgressiveFutureListener.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheRequestEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyHeadersFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheResponseDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheOpcodes.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaders.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/SocksVersion.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/SimpleChannelInboundHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelOutboundBuffer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/group/ChannelGroupException.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/Native.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/PlatformDependent0.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/AbstractFuture.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/worldclock/WorldClockProtocol.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/helloworld/HttpHelloWorldServerInitializer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/FutureListener.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdySynReplyFrame.java  
\*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheRequestDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/SpdyHttpCodec.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/websocketx/WebSocketFrameDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/SpdyHeaderBlockZlibEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/udt/UdtChannelOption.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/AddressedEnvelope.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/concurrent/DefaultPromise.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/SpdyVersion.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socks/SocksProtocolVersion.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/SpdyFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/internal/ReadOnlyIterator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/WrappedByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/FixedCompositeByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheObjectAggregator.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/DefaultSpdyPingFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/websocketx/WebSocketClientProtocolHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/AdvancedLeakAwareByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheMessage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/ReadOnlyByteBufferBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/memcache/binary/FullBinaryMemcacheResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/DefaultSpdyStreamFrame.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http/helloworld/HttpHelloWorldServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/handler/codec/http/websocketx/WebSocketProtocolHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/AppendableCharSequence.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/ScheduledFutureTask.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/GenericFutureListener.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/ByteBufProcessor.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5CommandType.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/AbstractEventLoopGroup.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/RecyclableArrayList.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socks/SocksCmdStatus.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/AbstractEventExecutorGroup.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socks/SocksAuthStatus.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/socket/oio/DefaultOioServerSocketChannelConfig.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketFrameEncoder.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/ComposedLastHttpContent.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/ChannelProgressiveFuture.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheResponseStatus.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/Future.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/DefaultUdtServerChannelConfig.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/ConcurrentSet.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/ReferenceCountUtil.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/CompleteFuture.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/socket/oio/OioServerSocketChannelConfig.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/spdy/SpdySessionStatus.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheRequest.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/group/ChannelGroup.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksMessageType.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/DefaultFutureListeners.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/PromiseTask.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/logging/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdyRstStreamFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/group/ChannelMatcher.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyWindowUpdateFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/binary/AbstractBinaryMemcacheMessage.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/MemcacheContent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/DefaultLastMemcacheContent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyRstStreamFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/ReadOnlyUnsafeDirectByteBuffer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/ProgressiveFuture.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyCodecUtil.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/cors/package-info.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyStreamFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/Version.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksSubnegotiationVersion.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/memcache/binary/BinaryMemcacheResponse.java  
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jar/io/netty/handler/codec/socks/SocksCmdType.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/ReferenceCounted.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/bootstrap/ChannelFactory.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/memcache/AbstractMemcacheObjectEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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jar/io/netty/handler/codec/spdy/DefaultSpdySynReplyFrame.java  
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jar/io/netty/handler/codec/spdy/SpdyStreamStatus.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/ResourceLeak.java  
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jar/io/netty/util/ResourceLeakDetector.java  
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jar/io/netty/handler/codec/socks/SocksAddressType.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/AbstractDerivedByteBuf.java  
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jar/io/netty/channel/ChannelHandlerAdapter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/ThreadPoolExecutor.java  
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jar/io/netty/channel/nio/SelectedSelectionKeySet.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/socket/oio/DefaultOioSocketChannelConfig.java

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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/EmptyArrays.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/handler/codec/spdy/SpdySettingsFrame.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/ChannelProgressiveFutureListener.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/handler/codec/spdy/SpdySynStreamFrame.java
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- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelFlushPromiseNotifier.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/SingleThreadEventLoop.java
- \*
- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketFrame.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/message/MsgEchoClientHandler.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/factorial/FactorialClientInitializer.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5CommandResponse.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/FileUpload.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/logging/JdkLoggerFactory.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/rendezvousBytes/ByteEchoPeerBase.java
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- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelInboundHandler.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/timeout/WriteTimeoutException.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/ByteBufOutputStream.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/upload/HttpUploadClient.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/CompleteChannelFuture.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/package-info.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/BlockingOperationException.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/local/LocalEventLoopGroup.java
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- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/DefaultLastHttpContent.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5PasswordAuthResponse.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/logging/Log4JLoggerFactory.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/package-info.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/snoop/HttpSnoopClientHandler.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/rendezvousBytes/ByteEchoPeerOne.java

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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/rendezvousBytes/ByteEchoPeerHandler.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/marshalling/MarshallingDecoder.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/sctp/SctpEchoClientHandler.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/FailedChannelFuture.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/CodecException.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/Delimiters.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/NotSslRecordException.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/CharsetUtil.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/DefaultHttpRequest.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/HttpPostMultipartRequestDecoder.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v4/DefaultSocks4CommandRequest.java

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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksMessage.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/HttpData.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdySession.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/udt/package-info.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/factorial/FactorialClient.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/PooledDirectByteBuf.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/bytes/ByteEchoClientHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/SocketChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/VoidChannelPromise.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/oio/AbstractOioMessageChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/NetUtil.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/factorial/NumberEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/handler/codec/spdy/SpdyHttpHeaders.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker00.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/socket/ServerSocketChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/SlicedByteBuf.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/ChannelOutboundHandlerAdapter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/websocketx/PongWebSocketFrame.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/UnpooledHeapByteBuf.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/udt/echo/bytes/ByteEchoServerHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/multipart/HttpPostRequestDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/EventExecutor.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/qotm/QuoteOfTheMomentClientHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/worldclock/WorldClockServerHandler.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/socksproxy/SocksServerInitializer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/logging/InternalLogLevel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/qotm/QuoteOfTheMomentClient.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/rtsp/RtspVersions.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/DefaultHttpObject.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/serialization/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/qotm/QuoteOfTheMomentServerHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/ByteToMessageDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/spdy/SpdyHttpEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/HttpObjectEncoder.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/ByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/logging/InternalLoggerFactory.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/telnet/TelnetServerInitializer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/rtsp/RtspRequestEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/package-info.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/LengthFieldPrepender.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/telnet/TelnetServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpMessage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/upload/HttpUploadServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/serialization/ClassResolver.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/securechat/SecureChatClient.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/DefaultChannelPromise.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/MessageAggregator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/ContinuationWebSocketFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/oio/OioServerSocketChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/discard/DiscardClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/Signal.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpContentDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/message/MsgEchoServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/ByteBufAllocator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/handler/codec/compression/JZlibEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/MultithreadEventLoopGroup.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http/snoop/HttpSnoopClientInitializer.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/HttpHeaderDateFormat.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/socket/DatagramChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/CorruptedFrameException.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/serialization/SoftReferenceMap.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/AbstractChannelHandlerContext.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/SingleThreadEventExecutor.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/socket/oio/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/udt/echo/rendezvous/MsgEchoPeerOne.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/telnet/TelnetClient.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/UnpooledUnsafeDirectByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/AbstractByteBufAllocator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/DefaultEventLoopGroup.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/AbstractByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/HttpRequestEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/SucceededChannelFuture.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/oio/AbstractOioByteChannel.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/group/CombinedIterator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/ByteBufUtil.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v4/Socks4CommandResponse.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/marshalling/CompatibleMarshallingEncoder.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/bootstrap/ServerBootstrap.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/websocketx/server/WebSocketServer.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/worldclock/WorldClockServer.java

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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/sctp/SctpOutboundByteStreamHandler.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/serialization/ReferenceMap.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/CompressionException.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/rendezvous/Config.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/group/DefaultChannelGroupFuture.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksAuthResponseDecoder.java

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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/IllegalReferenceCountException.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/InternetProtocolFamily.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/AbstractServerChannel.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/group/ChannelGroupFutureListener.java

\*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/snoop/HttpSnoopServerInitializer.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/EventLoopGroup.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ServerChannel.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/DiskFileUpload.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-



jar/io/netty/handler/codec/rtsp/RtspObjectDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/EventLoop.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/AttributeMap.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/Attribute.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/udt/DefaultUdtChannelConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/ChannelInitializer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/logging/LogLevel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socksx/v5/Socks5InitialResponse.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/timeout/ReadTimeoutException.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/stream/ChunkedStream.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/MultithreadEventExecutorGroup.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/PoolArena.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/securechat/SecureChatClientHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/http/cors/HttpCorsServer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/bytes/ByteArrayDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/SslHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/FixedLengthFrameDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socks/SocksInitResponse.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/PrematureChannelClosureException.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/marshalling/ThreadLocalUnmarshallerProvider.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socksx/v4/Socks4CommandRequest.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/multipart/HttpPostBodyUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/http/upload/HttpUploadServerInitializer.java

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/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/serialization/ObjectDecoderInputStream.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/marshalling/LimitingByteInput.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/compression/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http/websocketx/server/WebSocketIndexPageHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket00FrameEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/DefaultEventExecutor.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socks/SocksCommonUtils.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/bootstrap/AbstractBootstrap.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/marshalling/MarshallingEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/socket/nio/NioDatagramChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/AttributeKey.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/DefaultChannelPipeline.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/ChannelMetadata.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/embedded/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/DefaultCookie.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/embedded/EmbeddedChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/telnet/TelnetClientInitializer.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/ChannelPipelineException.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/socket/nio/NioDatagramChannelConfig.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/AbstractConstant.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/DecoderException.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/securechat/SecureChatServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/securechat/SecureChatClientInitializer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpObject.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/ZlibCodecFactory.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/EventLoopException.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/stream/ChunkedWriteHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/logging/AbstractInternalLogger.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/snoop/HttpSnoopClient.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/ReplayingDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpObjectDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/SwappedByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/TimerTask.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/HttpDataFactory.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/JZlibDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v5/DefaultSocks5CommandResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/bootstrap/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/factorial/BigIntegerDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker07.java  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/marshalling/DefaultMarshallerProvider.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/echo/EchoClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/example/factorial/FactorialServerHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/MessageToMessageEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/DuplicatedByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/marshalling/ChannelBufferByteOutput.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/sctp/oio/OioSctpServerChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker08.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/logging/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketUtil.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/compression/ZlibDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/multipart/MixedAttribute.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/SocksMessage.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/multipart/DiskAttribute.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/ChannelFuture.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v5/DefaultSocks5PasswordAuthRequest.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/stream/ChunkedFile.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/HttpVersion.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/UnpooledDirectByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/factorial/FactorialServerInitializer.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/marshalling/UnmarshallerProvider.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http/websocketx/server/WebSocketFrameHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/handler/codec/socksx/v5/Socks5CommandRequest.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/udt/echo/message/MsgEchoServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/socksproxy/RelayHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/oio/AbstractOioChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelOption.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/ByteToMessageCodec.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/SocketChannelConfig.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/upload/HttpUploadClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/timeout/IdleStateHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v4/Socks4CommandType.java  
 \*  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/Timer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksAuthResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/snoop/HttpSnoopServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/PingWebSocketFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelPromiseAggregator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ThreadPerChannelEventLoop.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/sctp/oio/OioSctpChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpRequestDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/TooLongFrameException.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/socksproxy/SocksServerUtils.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/example/sctp/SctpEchoClient.java  
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jar/io/netty/util/Constant.java  
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jar/io/netty/handler/codec/compression/DecompressionException.java  
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jar/io/netty/handler/codec/socks/v5/Socks5PasswordAuthRequest.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/nio/AbstractNioByteChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/FileRegion.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/nio/NioTask.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/nio/NioEventLoopGroup.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/nio/AbstractNioMessageChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/localecho/LocalEchoServerHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v5/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpContent.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/objectecho/ObjectEchoClient.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/DefaultDatagramChannelConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/Timeout.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/file/HttpStaticFileServer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpConstants.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/marshalling/ContextBoundUnmarshallerProvider.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socks/SocksInitRequestDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/example/echo/EchoClient.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/securechat/SecureChatServerInitializer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/rtsp/RtspMethods.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/timeout/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/localecho/LocalEchoClientHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/udt/echo/rendezvous/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/worldclock/WorldClockClientHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/marshalling/ThreadLocalMarshallerProvider.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/worldclock/WorldClockClient.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/discard/DiscardServerHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/udt/echo/bytes/ByteEchoClient.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/local/LocalChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socks/SocksAuthRequestDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/protobuf/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socks/SocksInitRequest.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/http/snoop/HttpSnoopServerHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/Channel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/local/LocalServerChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/socket/nio/ProtocolFamilyConverter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/ReadOnlyByteBuffer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/compression/SnappyFrameEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/LineBasedFrameDecoder.java  
\*



/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/socksproxy/SocksServerConnectHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/timeout/ReadTimeoutHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/objectecho/ObjectEchoClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/multipart/MixedFileUpload.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/ChannelDuplexHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/timeout/TimeoutException.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/udt/UdtChannelConfig.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/ChannelConfig.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/localecho/LocalEcho.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/socket/nio/NioServerSocketChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/HttpServerCodec.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/bytes/ByteArrayEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/CombinedChannelDuplexHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/websocketx/package-info.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/string/StringEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/compression/Snappy.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/internal/PlatformDependent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/AdaptiveRecvByteBufAllocator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/HttpMethod.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socksx/v4/DefaultSocks4CommandResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/PoolSubpage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/serialization/ObjectEncoder.java  
 \*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/DefaultHttpHeaders.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/telnet/TelnetServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socksx/v4/Socks4ClientDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/internal/logging/Slf4JLoggerFactory.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/concurrent/GlobalEventExecutor.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/multipart/Attribute.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/socket/DatagramChannelConfig.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/SpdyHttpResponseStreamIdHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/multipart/HttpPostStandardRequestDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/marshalling/DefaultUnmarshallerProvider.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/Unpooled.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http/upload/HttpUploadClientInitializer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/string/StringDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socksx/v5/DefaultSocks5InitialResponse.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/serialization/ObjectDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/socket/DefaultSocketChannelConfig.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/socksproxy/DirectClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/factorial/FactorialServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/multipart/CaseIgnoringComparator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/HttpResponseStatus.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socksx/v4/Socks4CommandStatus.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/ChannelOutboundHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/channel/udt/UdtMessage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socks/SocksAuthRequest.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/internal/logging/Slf4JLogger.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/internal/StringUtil.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/socket/ChannelInputShutdownEvent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/websocketx/BinaryWebSocketFrame.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/socksproxy/SocksServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/discard/DiscardServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/stream/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http/websocketx/server/WebSocketServerInitializer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/serialization/CachingClassResolver.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/echo/EchoServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/worldclock/WorldClockClientInitializer.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/portunification/PortUnificationServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/uptime/UptimeClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/DefaultHttpContent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/DefaultEventLoop.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/HashedWheelTimer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/telnet/TelnetClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/EncoderException.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/marshalling/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/socket/nio/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/udt/echo/message/MsgEchoClient.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/DefaultFileRegion.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/ReplayingDecoderByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ThreadPerChannelEventLoopGroup.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/AbstractHttpData.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/timeout/IdleStateEvent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/file/FileServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/DefaultAttributeMap.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/serialization/CompactObjectOutputStream.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/QueryStringDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelFutureListener.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/embedded/EmbeddedEventLoop.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/qotm/QuoteOfTheMomentServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/marshalling/CompatibleMarshallingDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/UnpooledByteBufAllocator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/CookieDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/multipart/AbstractDiskHttpData.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpHeaders.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/MessageToMessageDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/timeout/IdleState.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/MessageToMessageCodec.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/stomp/websocket/StompVersion.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/mqtt/MqttMessageIdVariableHeader.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/mqtt/MqttConnAckVariableHeader.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/JdkApplicationProtocolNegotiator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/traffic/GlobalChannelTrafficCounter.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/memcache/binary/MemcacheClientHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ipfilter/IpSubnetFilterRule.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/ChannelFactory.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/rtsp/RtspHeaderValues.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/proxy/ProxyConnectException.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/PendingWriteQueue.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/SniHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/ApplicationProtocolNegotiator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/haproxy/package-info.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/resolver/dns/DnsQueryContext.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketClientExtensionHandshaker.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http/websocketx/client/WebSocketClient.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http2/helloworld/server/Http2ServerInitializer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/mqtt/MqttSubscribeMessage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/compression/Bzip2HuffmanStageEncoder.java  
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 jar/io/netty/handler/codec/mqtt/MqttConnectMessage.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socksx/v5/Socks5Message.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/compression/Bzip2Decoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/socksx/AbstractSocksMessage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/spdy/client/SpdyFrameLogger.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/stomp/DefaultLastStompContentSubframe.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/example/http/websocketx/benchmarkserver/WebSocketServerBenchmarkPage.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/ThreadDeathWatcher.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/xml/XmlSpace.java  
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jar/io/netty/channel/unix/IovArray.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/websocketx/Utf8FrameValidator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\*  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/xml/XmlContent.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslEngine.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/proxy/Socks5ProxyHandler.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/unix/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/AsciiString.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/Java7SslParametersUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2BitReader.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/haproxy/HAProxyMessage.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/EpollEventLoop.java  
\*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/stomp/StompSubframeDecoder.java  
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 jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionData.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/epoll/EpollServerSocketChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/util/FingerprintTrustManagerFactory.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http2/Http2InboundFrameLogger.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/spdy/SpdyFrameEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/internal/tcnative/CertificateVerifier.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/resolver/NoopAddressResolver.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/OpenSslApplicationProtocolNegotiator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/file/FileServerHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/mqtt/MqttMessageType.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/DomainNameMapping.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/compression/Bzip2Constants.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http/websocketx/benchmarkserver/WebSocketServer.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/handler/codec/haproxy/HAProxyProtocolVersion.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/mqtt/MqttMessage.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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jar/io/netty/example/spdy/server/SpdyServer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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jar/io/netty/handler/codec/compression/Bzip2MoveToFrontTable.java  
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jar/io/netty/resolver/dns/package-info.java  
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jar/io/netty/resolver/SimpleNameResolver.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/HTTPHeaderNames.java

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 jar/io/netty/handler/codec/http2/Http2FrameLogger.java  
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 jar/io/netty/handler/ipfilter/RuleBasedIpFilter.java  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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 jar/io/netty/handler/codec/compression/Bzip2BlockCompressor.java  
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 jar/io/netty/resolver/AddressResolverGroup.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/handler/codec/compression/Bzip2Rand.java
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/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/Mapping.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/xml/XmlProcessingInstruction.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/epoll/EpollTcpInfo.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/OpenSslX509Certificate.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ipfilter/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v4/Socks4Message.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ipfilter/IpFilterRule.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/JdkSslContext.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/ServerCookieEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/compression/Lz4FrameEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v4/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/ApplicationProtocolUtil.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/stomp/StompConstants.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttConnAckMessage.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttSubAckMessage.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/compression/Bzip2BlockDecompressor.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttConnectReturnCode.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/JettyNpnSslEngine.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/haproxy/HAProxyConstants.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/xml/XmlElementStart.java
*

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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/mqtt/MqttUnsubscribePayload.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/mqtt/MqttUnsubscribeMessage.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/extensions/compression/WebSocketClientCompressionHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/rtsp/RtspHeaderNames.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/xml/XmlElementEnd.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketServerExtensionHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslEngineMap.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/JdkSslEngine.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/xml/XmlCharacters.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/DecoderResultProvider.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/Lz4FrameDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http/websocketx/benchmarkserver/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/FastThreadLocal.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/PromiseAggregator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/Bzip2BitWriter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockRawDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/NameResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyHeaderBlockDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/memcache/binary/MemcacheClient.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/socksx/v5/Socks5CommandRequestDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/SslUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/handler/codec/stomp/StompFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateClientExtensionHandshaker.j  
ava  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslServerSessionContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/compression/LzmaFrameEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/mqtt/MqttFixedHeader.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socksx/v5/Socks5InitialRequestDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/xml/XmlAttribute.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/compression/SnappyFramedEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/JdkSslServerContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/mqtt/MqttEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/stomp/StompSubframeEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/NativeDatagramPacketArray.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socksx/v5/Socks5InitialResponseDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2OutboundFrameLogger.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/HttpChunkedInput.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/websocketx/extensions/compression/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/xml/XmlEntityReference.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2HuffmanStageDecoder.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslSessionStats.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/JdkSslClientContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/handler/codec/mqtt/MqttPubAckMessage.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/proxy/Socks4ProxyHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http2/helloworld/server/Http2Server.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/OpenSslNpnApplicationProtocolNegotiator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/compression/FastLzFrameEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/compression/PerMessageDeflateServerExtensionHandshaker.
java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/PromiseNotifier.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/AsciiHeadersEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/CipherSuiteFilter.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/MessageAggregationException.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/xml/XmlCdata.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/AbstractEventLoop.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/spdy/server/SpdyServerHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5PasswordAuthResponseDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/xml/XmlDocumentStart.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttTopicSubscription.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/stomp/StompClient.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5CommandResponseDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/stomp/DefaultStompHeaders.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/DnsAddressResolverGroup.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttConnectPayload.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/handler/ipfilter/AbstractRemoteAddressFilter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/SslProvider.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/EpollDatagramChannel.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslServerContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/NoopAddressResolverGroup.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/mqtt/MqttUnsubAckMessage.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/spdy/SpdyFrameDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/SslContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/stomp/StompCommand.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/stomp/LastStompContentSubframe.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketServerExtensionHandshaker.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/proxy/HttpProxyHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/json/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2MTFAndRLE2StageEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/IntegerHolder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/proxy/ProxyConnectionEvent.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslDefaultApplicationProtocolNegotiator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/mqtt/MqttMessageFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/haproxy/HAProxyCommand.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/ReflectiveChannelFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/util/BouncyCastleSelfSignedCertGenerator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/mqtt/MqttCodecUtil.java

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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/stomp/DefaultStompContentSubframe.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/ApplicationProtocolConfig.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttSubAckPayload.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/stomp/StompClientHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http2/helloworld/server/HelloWorldHttp1Handler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v4/AbstractSocks4Message.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/UnpaddedInternalThreadLocalMap.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketClientExtension.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/stomp/StompHeaders.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/ResourceLeakHint.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/epoll/AbstractEpollChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http/websocketx/benchmarkserver/WebSocketServerInitializer.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/IdentityCipherSuiteFilter.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/mqtt/MqttUnacceptableProtocolVersionException.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/haproxy/HAProxyProtocolException.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/util/SimpleTrustManagerFactory.java
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jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateFrameClientExtensionHandshaker.java
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/util/ThreadLocalInsecureRandom.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/PemReader.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/proxy/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/xml/XmlDTD.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/util/OpenJdkSelfSignedCertGenerator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/JettyAlpnSslEngine.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/Bzip2HuffmanAllocator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpHeadersEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/NativeLibraryLoader.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/spdy/SpdyProtocolException.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ipfilter/UniqueIpFilter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/stomp/DefaultStompFrame.java  
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jar/io/netty/channel/epoll/EpollEventLoopGroup.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/spdy/client/SpdyClientStreamIdHandler.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/SnappyFramedDecoder.java  
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- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/UnsafeHeapSwappedByteBuf.java
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- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/UnsafeDirectSwappedByteBuf.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/CleanerJava6.java

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- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker00.java
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- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/mqtt/heartBeat/MqttHeartBeatBroker.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/internal/tcnative/CertificateVerifierTask.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/CloseWebSocketFrame.java
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jar/io/netty/channel/ChannelHandlerMask.java  
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jar/io/netty/handler/ssl/SslMasterKeyHandler.java  
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jar/io/netty/handler/codec/http2/MaxCapacityQueue.java  
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jar/io/netty/handler/codec/http2/AbstractHttp2StreamChannel.java
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jar/io/netty/handler/ssl/TrustManagerFactoryWrapper.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/mqtt/heartBeat/MqttHeartBeatClient.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/internal/tcnative/SSLPrivateKeyMethodTask.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/internal/tcnative/SSLPrivateKeyMethod.java  
\*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerProtocolHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/internal/tcnative/CertificateCallbackTask.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/svm/PlatformDependent0Substitution.java  
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/\*

```
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*/
/**
* Enumeration of supported Base64 dialects.
* <p>
* The internal lookup tables in this class has been derived from
* <a href="http://iharder.sourceforge.net/current/java/base64/">Robert
  Harder's Public Domain
* Base64 Encoder/Decoder</a>.
*/
```

Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/base64/Base64Dialect.java
```

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```
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*/
```

Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/smtp/DefaultSmtpResponse.java
```

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/flow/package-info.java
```

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/internal/tcnative/SessionTicketKey.java
```

```
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/Http2ResetFrame.java
```

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DefaultDnsOptEcsRecord.java
```

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/smtp/SmtpCommand.java
```

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
```

jar/io/netty/handler/codec/http2/DefaultHttp2DataFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/kqueue/KQueueSocketChannelConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/RoundRobinInetAddressResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/SelectStrategyFactory.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/DefaultHttp2WindowUpdateFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/internal/tcnative/CertificateRequestedCallback.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2PingFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/UnpooledUnsafeNoCleanerDirectByteBuffer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2Frame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/UnaryPromiseNotifier.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2SettingsFrame.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/ReferenceCountedOpenSslEngine.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/PemX509Certificate.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/DatagramPacketEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2StreamFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/ResourceLeakTracker.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/DatagramPacketDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2StreamFrameToHttpObjectCodec.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/MacAddressUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/DnsCache.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/multipart/FileUploadUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2FrameCodec.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2MultiplexCodec.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/PemPrivateKey.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/DefaultSmtpContent.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueSocketChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueChannelConfig.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/RejectedExecutionHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/SimpleLeakAwareCompositeByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/ReadOnlyHttp2Headers.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/UnstableApi.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/compression/CompressionUtil.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/WrappedCompositeByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http2/helloworld/frame/server/Http2ServerInitializer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/BooleanSupplier.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/AbstractKQueueStreamChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/PooledSlicedByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/LastSmtpContent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/flush/FlushConsolidationHandler.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/PooledDuplicatedByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/ResourceLeakDetectorFactory.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/HttpServerKeepAliveHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/group/VoidChannelGroupFuture.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/WrappedUnpooledUnsafeDirectByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/string/LineEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/channel/kqueue/AbstractKQueueServerChannel.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/PemEncoded.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/haproxy/HAProxyTLV.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/SelectStrategy.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/DefaultHttp2ResetFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/kqueue/KQueueStaticallyReferencedJniMethods.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/DefaultEventExecutorChooserFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/ThrowableUtil.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/DefaultSelectStrategyFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2GoAwayFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/EventExecutorChooserFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/http2/helloworld/multiplex/server/Http2ServerInitializer.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/concurrent/OrderedEventExecutor.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/bootstrap/AbstractBootstrapConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/redis/RedisClientHandler.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/SocketUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/smtp/DefaultLastSmtpContent.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/kqueue/NativeLongArray.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/InflightNameResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/ChannelInboundInvoker.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/kqueue/KQueueDatagramChannelConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/unix/Limits.java  
\*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/AbstractKQueueChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/SmtUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/bootstrap/BootstrapConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/AbstractDnsOptPseudoRrRecord.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/SmtRequests.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2WindowUpdateFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/OutOfDirectMemoryError.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/DateFormatter.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketChunkedInput.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2FrameStream.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/LinuxSocket.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/flush/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslClientContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http2/helloworld/frame/server/Http2Server.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/SmtResponse.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/DefaultHttp2SettingsFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/NativeStaticallyReferencedJniMethods.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/RoundRobinDnsAddressResolverGroup.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/bootstrap/ServerBootstrapConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/SmtRequestEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslCertificateException.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2DataFrame.java  
\*



/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueEventLoop.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/string/LineSeparator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/NonStickyEventExecutorGroup.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/AbstractHttp2StreamFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/WriteBufferWaterMark.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/DefaultSmtpRequest.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueServerChannelConfig.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/logging/Log4J2LoggerFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DnsOptPseudoRecord.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/ConstantTimeUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueDomainSocketChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterialManager.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueServerDomainSocketChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/DuplexChannel.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/AbstractPooledDerivedByteBuf.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2FrameStreamVisitor.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/InboundHttpToHttp2Adapter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/smtp/SmtpRequest.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueRecvByteAllocatorHandle.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/PromiseNotificationUtil.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/DefaultSelectStrategy.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/util/internal/NativeLibraryUtil.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/unix/SocketWritableByteChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/kqueue/KQueueEventArray.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http2/helloworld/multiplex/server/Http2Server.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/smtp/SmtpContent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/kqueue/KQueueDatagramChannel.java  
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 jar/io/netty/handler/ssl/ReferenceCountedOpenSslServerContext.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/CodecOutputList.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/PemValue.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/smtp/SmtpResponseDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/kqueue/Native.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/ReferenceCountedOpenSslContext.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/resolver/dns/NoopDnsCache.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/kqueue/AcceptFilter.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/concurrent/PromiseCombiner.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/kqueue/KQueueChannelOption.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/unix/ErrorsStaticallyReferencedJniMethods.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/compression/ByteBufChecksum.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/AdvancedLeakAwareCompositeByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/util/X509TrustManagerWrapper.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/internal/logging/Log4J2Logger.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/util/DomainNameMappingBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/unix/PeerCredentials.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueServerSocketChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2FrameStreamException.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DnsPtrRecord.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelOutboundInvoker.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueDomainSocketChannelConfig.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/IntSupplier.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/DefaultDnsCache.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/haproxy/HAProxySSLTLV.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/BsdSocket.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/Java8SslUtils.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DnsOptEcsRecord.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/unix/LimitsStaticallyReferencedJniMethods.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2HeadersFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/RejectedExecutionHandlers.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2ChannelDuplexHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/UnorderedThreadPoolEventExecutor.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/PreferHeapByteBufAllocator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/kqueue/KQueueServerSocketChannelConfig.java  
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 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/DefaultHttp2PingFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/DefaultHttp2HeadersFrame.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DefaultDnsPtrRecord.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/handler/codec/smtp/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/DefaultHttp2GoAwayFrame.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/DelegatingSslContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/AbstractUnpooledSlicedByteBuf.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/kqueue/KQueueEventLoopGroup.java  
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jar/io/netty/util/internal/logging/JdkLogger.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/logging/CommonsLogger.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/logging/Log4JLogger.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/logging/InternalLogger.java
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* Written by Robert Harder and released to the public domain, as explained at
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*/
/**
* Utility class for {@link ByteBuf} that encodes and decodes to and from
* Base64 notation.
* <p>
*
The encoding and decoding algorithm in this class has been derived from
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*/

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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/base64/Base64.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket13FrameEncoder.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket07FrameEncoder.java

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jar/io/netty/util/internal/shaded/org/jctools/maps/ConcurrentAutoTable.java
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/util/internal/shaded/org/jctools/queues/SpSCLinkedListQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/IndexedQueueSizeUtil.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscLinkedListQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/BaseMpscLinkedListAtomicArrayQueue.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpSCChunkedAtomicArrayQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/spec/ConcurrentQueueSpec.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpscGrowableAtomicArrayQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/util/UnsafeRefArrayAccess.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/ConcurrentCircularArrayQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/QueueFactory.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/maps/AbstractEntry.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/spec/Ordering.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscCompoundQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscUnboundedXaddChunk.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscUnboundedArrayQueue.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SequencedAtomicReferenceArrayQueue.java
*

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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpSCLinkedAtomicQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/MpscBlockingConsumerArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/MessagePassingQueueUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/util/Pow2.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/maps/NonBlockingHashMapLong.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/util/UnsafeLongArrayAccess.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/maps/NonBlockingHashSet.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/SpmcArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/SpSCGrowArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/MpmcArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/ConcurrentSequencedCircularArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/MpscUnboundedXaddArrayQueue.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/util/UnsafeJvmInfo.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/maps/NonBlockingHashMap.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpmcAtomicArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/MpscArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/util/RangeUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/SpSCArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/util/UnsafeAccess.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpSCGrowArrayAtomicQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpmcAtomicArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/shaded/org/jctools/queues/MpscGrowArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/spec/Preference.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/BaseLinkedListQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/AtomicQueueFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/MessagePassingQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpSCAtomicArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/AtomicReferenceArrayQueue.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/LinkedListNode.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/SpSCChunkedArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/MpmcUnboundedXaddChunk.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/util/PortableJvmInfo.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpscLinkedAtomicQueue.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/CleanerJava9.java

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/Cleaner.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/FastThreadLocalRunnable.java
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```
/*
```

```
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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/stomp/websocket/stomp.js
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*/
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```
/**
```

```
* Set the {@code TCP_MD5SIG} option on the socket. See {@code linux/tcp.h} for more details.
* Keys can only be set on, not read to prevent a potential leak, as they are confidential.
* Allowing them being read would mean anyone with access to the channel could get them.
```

```
*/
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Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/epoll/EpollServerSocketChannelConfig.java
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/AbstractCoalescingBufferQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2ConnectionPrefaceAndSettingsFrameWrittenEvent.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/META-  
INF/maven/io.netty/netty-all/pom.xml  
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- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/ByteBufAllocatorMetricProvider.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/TraceDnsQueryLifecycleObserverFactory.java
- \*
- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/PriorityQueue.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/bootstrap/FailedChannel.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/ReadOnlyHttpHeaders.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/LongAdderCounter.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/ChannelOutputShutdownException.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/uptime/UptimeServerHandler.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/MultiDnsServerAddressStreamProvider.java
- \*
- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/ocsp/OcspClientHandler.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/ocsp/package-info.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/Conscrypt.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/NoopDnsQueryLifecycleObserver.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2UnknownFrame.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/UncheckedBooleanSupplier.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/TraceDnsQueryLifecycleObserver.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/BiDnsQueryLifecycleObserver.java
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- /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/oio/OioDatagramChannelConfig.java
- \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

jar/io/netty/util/internal/ObjectCleaner.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/HostsFileEntries.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/internal/ChannelUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/SniCompletionEvent.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2StreamChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/ByteBufAllocatorMetric.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/ConscryptAlpnSslEngine.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/socket/ChannelInputShutdownReadComplete.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2FrameCodecBuilder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OptionalSslHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/HttpServerExpectContinueHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/Http2StreamChannelBootstrap.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/NoopDnsQueryLifecycleObserverFactory.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/ReflectionUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/BiDnsQueryLifecycleObserverFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/internal/EmptyPriorityQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/DnsServerAddressStreamProviders.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/DnsServerAddressStreamProvider.java  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/JdkAlpnSslUtils.java  
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jar/io/netty/example/http2/helloworld/multiplex/server/HelloWorldHttp2Handler.java  
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jar/io/netty/example/ocsp/OcspUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/ocsp/OcspClientExample.java  
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/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/ocsp/OcspRequestBuilder.java  
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 jar/io/netty/util/internal/logging/FormattingTuple.java  
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* under the License.
*/
/**
* Handles an I/O event or intercepts an I/O operation, and forwards it to its next handler in
* its { @link ChannelPipeline}.
*
* <h3>Sub-types</h3>
* <p>
* { @link ChannelHandler} itself does not provide many methods, but you usually have to implement one of its
subtypes:
* <ul>
* <li>{ @link
ChannelInboundHandler} to handle inbound I/O events, and</li>
* <li>{ @link ChannelOutboundHandler} to handle outbound I/O operations.</li>
* </ul>
* </p>
* <p>
* Alternatively, the following adapter classes are provided for your convenience:
* <ul>
* <li>{ @link ChannelInboundHandlerAdapter} to handle inbound I/O events,</li>
* <li>{ @link ChannelOutboundHandlerAdapter} to handle outbound I/O operations, and</li>
* <li>{ @link ChannelDuplexHandler} to handle both inbound and outbound events</li>
* </ul>
* </p>
* <p>
* For more information, please refer to the documentation of each subtype.
* </p>
*
* <h3>The context object</h3>
* <p>
* A { @link ChannelHandler} is provided with a { @link ChannelHandlerContext}
* object. A { @link ChannelHandler} is supposed to interact with the
* { @link ChannelPipeline} it belongs to via a context object. Using the
* context object, the { @link ChannelHandler} can pass events upstream or
* downstream, modify the pipeline dynamically,
* or store the information
* (using { @link AttributeKey}s) which is specific to the handler.
*
* <h3>State management</h3>
*
* A { @link ChannelHandler} often needs to store some stateful information.
* The simplest and recommended approach is to use member variables:
* <pre>
* public interface Message {
*     // your methods here
* }
*
* public class DataServerHandler extends { @link SimpleChannelInboundHandler}&lt;Message&gt; {

```

```

*
* <b>private boolean loggedIn;</b>
*
* { @code @Override }
* public void channelRead0({ @link ChannelHandlerContext } ctx, Message message) {
*     if (message instanceof LoginMessage) {
*         authenticate((LoginMessage) message);
*         <b>loggedIn = true;</b>
*     } else (message instanceof GetDataMessage) {
*         if (<b>loggedIn</b>) {
*             ctx.writeAndFlush(fetchSecret((GetDataMessage) message));
*         } else {
*             fail();
*         }
*     }
* }
* ...
* }
* </pre>
* Because the handler instance has a state variable which is dedicated to
* one connection, you have to create a new handler instance for each new
* channel to avoid a race condition where a unauthenticated client can get
* the confidential information:
* <pre>
* // Create a new handler instance per channel.
* // See { @link ChannelInitializer#initChannel(Channel)}.
* public class DataServerInitializer extends { @link ChannelInitializer}&lt;&gt;{ @link Channel}&gt; {
*     { @code @Override }
*     public void initChannel({ @link Channel } channel) {
*         channel.pipeline().addLast("handler", <b>new DataServerHandler()</b>);
*     }
* }
*
* </pre>
*
* <h4>Using { @link AttributeKey}s</h4>
*
* Although it's recommended to use member variables to store the state of a
* handler, for some reason you might not want to create many handler instances.
* In such a case, you can use { @link AttributeKey}s which is provided by
* { @link ChannelHandlerContext}:
* <pre>
* public interface Message {
*     // your methods here
* }
*
* { @code @Sharable }
* public class DataServerHandler extends { @link SimpleChannelInboundHandler}&lt;&gt;Message&gt; {

```



```

* private final {@link AttributeKey}&lt;{@link Boolean}&gt; auth =
*     {@link AttributeKey#valueOf(String) AttributeKey.valueOf("auth")};
*
* {@code @Override}
* public void channelRead({@link ChannelHandlerContext} ctx, Message message) {
*     {@link Attribute}&lt;{@link Boolean}&gt; attr = ctx.attr(auth);
*     if (message instanceof LoginMessage) {
*         authenticate((LoginMessage) o);
*         <b>attr.set(true)</b>;
*     } else (message instanceof GetDataMessage) {
*         if (<b>Boolean.TRUE.equals(attr.get())</b>) {
*             ctx.writeAndFlush(fetchSecret((GetDataMessage) o));
*         } else {
*             fail();
*         }
*     }
* }
* ...
* }

```

\* </pre>

\* Now that the state

of the handler is attached to the {@link ChannelHandlerContext}, you can add the

\* same handler instance to different pipelines:

\* <pre>

```

* public class DataServerInitializer extends {@link ChannelInitializer}&lt;{@link Channel}&gt; {
*
*     private static final DataServerHandler <b>SHARED</b> = new DataServerHandler();
*
*     {@code @Override}
*     public void initChannel({@link Channel} channel) {
*         channel.pipeline().addLast("handler", <b>SHARED</b>);
*     }
* }

```

\* </pre>

\*

\*

\* <h4>The {@code @Sharable} annotation</h4>

\* <p>

\* In the example above which used an {@link AttributeKey},

\* you might have noticed the {@code @Sharable} annotation.

\* <p>

\* If a {@link ChannelHandler} is annotated with the {@code @Sharable}

\* annotation, it means you can create an instance of the handler just once and

\* add it to one or more {@link ChannelPipeline}s multiple times without

\* a race condition.

\* <p>

\* If this annotation is not specified, you have to create

a new handler

- \* instance every time you add it to a pipeline because it has unshared state
- \* such as member variables.
- \* <p>
- \* This annotation is provided for documentation purpose, just like
- \* <a href="http://www.javaconcurrencyinpractice.com/annotations/doc/">the JCIP annotations</a>.
- \*
- \* <h3>Additional resources worth reading</h3>
- \* <p>
- \* Please refer to the { @link ChannelHandler}, and
- \* { @link ChannelPipeline} to find out more about inbound and outbound operations,
- \* what fundamental differences they have, how they flow in a pipeline, and how to handle
- \* the operation in your application.
- \*/

Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/ChannelHandler.java

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Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/ResourcesUtil.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/redis/InlineCommandRedisMessage.java

\*

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/ByteProcessorUtils.java

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* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket08FrameDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket07FrameDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocket13FrameDecoder.java
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```

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 */
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Found in path(s):

```
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/ThreadLocalRandom.java
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 */
```

Found in path(s):

```
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/HttpToHttp2ConnectionHandlerBuilder.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/cookie/ClientCookieEncoder.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/ApplicationProtocolAccessor.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/HttpScheme.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/HeadersUtils.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/ShuffledDnsServerAddressStream.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/AddressResolver.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DnsSection.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/HostsFileParser.java
*/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
```

jar/io/netty/resolver/dns/SingletonDnsServerAddresses.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/EpollMode.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/dns/DnsServerAddressStream.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/protobuf/ProtobufVarint32LengthFieldPrepender.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/AbstractDnsRecord.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/DefaultHostsFileEntriesResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/DefaultDnsRawRecord.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/ProtocolDetectionState.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/OpenSslSessionTicketKey.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/rtsp/RtspDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socksx/SocksPortUnificationServerHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/InetNameResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/HeapByteBufUtil.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/socksx/v5/Socks5AddressDecoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/EpollDomainSocketChannelConfig.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/cookie/CookieEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/cookie/ServerCookieEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/pool/AbstractChannelPoolMap.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/cookie/CookieHeaderNames.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/unix/FileDescriptor.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/EpollServerChannelConfig.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/DefaultMaxBytesRecvByteBufAllocator.java  
\*

/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/protobuf/ProtobufVarint32FrameDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/ProtocolDetectionResult.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/resolver/DefaultAddressResolverGroup.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/resolver/dns/SequentialDnsServerAddressStream.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/dns/DnsRecordEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http2/tiles/Http2OrHttpHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/pool/ChannelPoolHandler.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/unix/UnixChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http2/helloworld/server/HelloWorldHttp2HandlerBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/cookie/CookieUtil.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/cookie/ClientCookieDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/example/http2/tiles/Launcher.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/ssl/SslContextBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/pool/ChannelPool.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/pool/AbstractChannelPoolHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/epoll/EpollRecvByteAllocatorStreamingHandle.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/HttpExpectationFailedEvent.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/protobuf/ProtobufEncoderNano.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/channel/DefaultMaxMessagesRecvByteBufAllocator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/http/cookie/ServerCookieDecoder.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/handler/codec/dns/DnsResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
 jar/io/netty/buffer/UnpooledUnsafeHeapByteBuf.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

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jar/io/netty/handler/codec/dns/DnsRecordType.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/epoll/TcpMd5Util.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http2/tiles/HttpServer.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/UnpooledSlicedByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DatagramDnsQuery.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/UnsafeByteBufUtil.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/concurrent/ThreadProperties.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http2/tiles/ImageCache.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DnsResponseCode.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/DefaultNameResolver.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DnsMessageUtil.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/DnsNameResolverException.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/ClientAuth.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/pool/ChannelHealthChecker.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/UnpooledDuplicatedByteBuf.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/epoll/AbstractEpollStreamChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/cookie/DefaultCookie.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http2/tiles/Html.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/unix/ServerDomainSocketChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DatagramDnsResponseEncoder.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufDecoderNano.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/PoolSubpageMetric.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/buffer/AbstractUnsafeSwappedByteBuf.java

```

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/sctp/multihoming/SctpMultiHomingEchoClient.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DnsQuery.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/EpollEventArray.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/PriorityQueueNode.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/PooledUnsafeHeapByteBuf.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/concurrent/AbstractScheduledEventExecutor.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/DnsNameResolverBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DefaultDnsQuestion.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DatagramDnsResponse.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/AbstractHttp2ConnectionHandlerBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DatagramDnsResponseDecoder.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DefaultDnsRecordEncoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/MaxMessagesRecvByteBufAllocator.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http2/tiles/FallbackRequestHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/protobuf/ProtobufDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/cookie/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/HashingStrategy.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/cookie/Cookie.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/unix/DomainSocketAddress.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DnsRawRecord.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/unix/DomainSocketChannelConfig.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http/CombinedHttpHeaders.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-



jar/io/netty/resolver/InetSocketAddressResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/example/http2/tiles/HttpRequestHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/AbstractEpollServerChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/pool/SimpleChannelPool.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/MaxBytesRecvByteBufAllocator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/epoll/EpollServerDomainSocketChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/EmptyHttpHeaders.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/unix/DomainSocketReadMode.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/DefaultDnsQuery.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/buffer/PoolArenaMetric.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/DnsQuestion.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/protobuf/ProtobufEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/unix/DomainSocketChannel.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/resolver/HostsFileEntriesResolver.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/unix/Errors.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/rtsp/RtspEncoder.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/channel/pool/package-info.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http/CookieUtil.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/DefaultDnsResponse.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/ssl/ApplicationProtocolNames.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/DnsOpCode.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/util/AsyncMapping.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/dns/DefaultDnsRecordDecoder.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslJavaxX509Certificate.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/pool/ChannelPoolMap.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/http2/tiles/Http2Server.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/AbstractAddressResolver.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/AbstractDnsMessage.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/internal/LongCounter.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DatagramDnsQueryDecoder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/unix/DatagramSocketAddress.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/Http2ConnectionHandlerBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/DnsQueryContextManager.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/RotationalDnsServerAddresses.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/EpollDomainSocketChannel.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/PoolChunkMetric.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/unix/NativeInetAddress.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/util/DomainMappingBuilder.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/dns/DatagramDnsQueryEncoder.java  
 \*  
 /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/EpollRecvByteAllocatorHandle.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/buffer/PoolChunkListMetric.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/pool/FixedChannelPool.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolNegotiationHandler.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/example/sctp/multihoming/SctpMultiHomingEchoServer.java  
 \* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-

```

jar/io/netty/channel/unix/Socket.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/DefaultPriorityQueue.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/socksx/v5/Socks5AddressEncoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DnsRecordDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DnsRecord.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/DefaultDnsServerAddresses.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/epoll/EpollChannelConfig.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/example/http2/tiles/Http2RequestHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/CompositeNameResolver.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http2/CharSequenceMap.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/HttpUtil.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/http/cookie/CookieDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/dns/DnsMessage.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/UnsupportedValueConverter.java
No license file was found, but licenses were detected in source scan.

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* WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
* License for the specific language governing permissions and limitations
* under the License.
*/
/**
* Set the {@code TCP_MD5SIG} option on the socket. See {@code linux/tcp.h} for more details.

```

- \* Keys can only be set on, not read to prevent a potential leak, as they are confidential.
- \* Allowing them being read would mean anyone with access to the channel could get them.

```
*/  
/**  
 * Set the { @code TCP_QUICKACK } option on the socket. See <a  
href="http://linux.die.net/man/7/tcp">TCP_QUICKACK</a>  
 * for more details.  
*/
```

Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/epoll/EpollSocketChannelConfig.java

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 * is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either  
 * express  
 * or implied. See the License for the specific language governing permissions and limitations under  
 * the License.  
 */  
// https://tools.ietf.org/html/rfc7540#section-8.1.2.2 makes a special exception for TE
```

Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/codec/http2/HttpConversionUtil.java

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```

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 \* under the License.

\*/  
 /\*\*

\* A decoder that splits the received { @link ByteBuf}s dynamically by the  
 \* value of the length field in the message. It is particularly useful when you  
 \* decode a binary message which has an integer header field that represents the  
 \* length of the message body or the whole message.

<p>

\* { @link LengthFieldBasedFrameDecoder } has many configuration parameters so  
 \* that it can decode any message with a length field, which is often seen in  
 \* proprietary client-server protocols. Here are some example that will give  
 \* you the basic idea on which option does what.

\* <h3>2 bytes length field at offset 0, do not strip header</h3>

\* The value of the length field in this example is <tt>12 (0x0C)</tt> which  
 \* represents the length of "HELLO, WORLD". By default, the decoder assumes  
 \* that the length field represents the number of the bytes that follows the  
 \* length field. Therefore, it can be decoded with the simplistic parameter  
 \* combination.

\* <pre>

```
* <b>lengthFieldOffset</b> = <b>0</b>
* <b>lengthFieldLength</b> = <b>2</b>
* lengthAdjustment = 0
* initialBytesToStrip = 0 (= do not strip header)
```

\* BEFORE DECODE (14 bytes)      AFTER DECODE (14 bytes)

```
* +-----+-----+      +-----+-----+
* | Length | Actual Content
* |---->| Length | Actual Content |
* | 0x000C | "HELLO, WORLD" |    | 0x000C | "HELLO, WORLD" |
```

\* </pre>

\* <h3>2 bytes length field at offset 0, strip header</h3>

\* Because we can get the length of the content by calling  
 \* { @link ByteBuf#readableBytes() }, you might want to strip the length  
 \* field by specifying <tt>initialBytesToStrip</tt>. In this example, we  
 \* specified <tt>2</tt>, that is same with the length of the length field, to  
 \* strip the first two bytes.

\* <pre>

```
* lengthFieldOffset = 0
* lengthFieldLength = 2
* lengthAdjustment = 0
```

\* `<b>initialBytesToStrip</b> = <b>2</b> (= the length of the Length field)`

\*

\* BEFORE DECODE (14 bytes)      AFTER DECODE (12 bytes)

\* +-----+-----+      +-----+

\* | Length | Actual Content |---->| Actual Content |

\* | 0x000C | "HELLO, WORLD" |      | "HELLO, WORLD" |

\* +-----+-----+      +-----+

\* `</pre>`

\*

\* `<h3>`2 bytes length field at offset 0, do not strip header, the length field

\* represents the length of the whole message`</h3>`

\*

\* In most cases, the length field represents the length of the message body

\* only, as shown in the previous examples. However, in some protocols, the

\* length field represents the length of the whole message, including the

\* message header. In such a case, we specify a non-zero

\* `<tt>lengthAdjustment</tt>`. Because the length value in this example message

\* is always greater than the body length by `<tt>2</tt>`, we specify `<tt>-2</tt>`

\* as `<tt>lengthAdjustment</tt>` for compensation.

\* `<pre>`

\* `lengthFieldOffset = 0`

\* `lengthFieldLength = 2`

\* `<b>lengthAdjustment</b> = <b>-2</b> (= the length of the Length field)`

\* `initialBytesToStrip = 0`

\*

\* BEFORE DECODE (14 bytes)      AFTER DECODE (14 bytes)

\* +-----+-----+      +-----+-----+

\* | Length | Actual Content |---->| Length | Actual

Content |

\* | 0x000E | "HELLO, WORLD" |      | 0x000E | "HELLO, WORLD" |

\* +-----+-----+      +-----+-----+

\* `</pre>`

\*

\* `<h3>`3 bytes length field at the end of 5 bytes header, do not strip header`</h3>`

\*

\* The following message is a simple variation of the first example. An extra

\* header value is prepended to the message. `<tt>lengthAdjustment</tt>` is zero

\* again because the decoder always takes the length of the prepended data into

\* account during frame length calculation.

\* `<pre>`

\* `<b>lengthFieldOffset</b> = <b>2</b> (= the length of Header 1)`

\* `<b>lengthFieldLength</b> = <b>3</b>`

\* `lengthAdjustment = 0`

\* `initialBytesToStrip = 0`

\*

\* BEFORE DECODE (17 bytes)      AFTER DECODE (17 bytes)

\* +-----+-----+-----+      +-----+-----+-----+

\* | Header 1 | Length | Actual Content |---->| Header 1 | Length | Actual Content |

```

* | 0xCAFE | 0x00000C | "HELLO, WORLD" | |
  0xCAFE | 0x00000C | "HELLO, WORLD" |
* +-----+-----+-----+ +-----+-----+-----+
* </pre>
*
* <h3>3 bytes length field at the beginning of 5 bytes header, do not strip header</h3>
*
* This is an advanced example that shows the case where there is an extra
* header between the length field and the message body. You have to specify a
* positive <tt>lengthAdjustment</tt> so that the decoder counts the extra
* header into the frame length calculation.
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 3
* <b>lengthAdjustment</b> = <b>2</b> (= the length of Header 1)
* initialBytesToStrip = 0
*
* BEFORE DECODE (17 bytes)          AFTER DECODE (17 bytes)
* +-----+-----+-----+ +-----+-----+-----+
* | Length | Header 1 | Actual Content |---->| Length | Header 1 | Actual Content |
* | 0x00000C | 0xCAFE | "HELLO, WORLD" | | 0x00000C | 0xCAFE | "HELLO,
  WORLD" |
* +-----+-----+-----+ +-----+-----+-----+
* </pre>
*
* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,
* strip the first header field and the length field</h3>
*
* This is a combination of all the examples above. There are the prepended
* header before the length field and the extra header after the length field.
* The prepended header affects the <tt>lengthFieldOffset</tt> and the extra
* header affects the <tt>lengthAdjustment</tt>. We also specified a non-zero
* <tt>initialBytesToStrip</tt> to strip the length field and the prepended
* header from the frame. If you don't want to strip the prepended header, you
* could specify <tt>0</tt> for <tt>initialBytesToSkip</tt>.
* <pre>
* lengthFieldOffset = 1 (= the length of HDR1)
* lengthFieldLength = 2
* <b>lengthAdjustment</b> = <b>1</b> (= the length of HDR2)
* <b>initialBytesToStrip</b> = <b>3</b> (= the length of HDR1 + LEN)
*
* BEFORE DECODE (16 bytes)          AFTER DECODE (13 bytes)
* +-----+-----+-----+ +-----+-----+-----+
* | HDR1 | Length | HDR2 | Actual Content |---->| HDR2 | Actual Content |
* | 0xCA | 0x000C | 0xFE | "HELLO, WORLD" | | 0xFE | "HELLO, WORLD" |
* +-----+-----+-----+ +-----+-----+-----+
* </pre>
*

```

```

* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,
* strip the first header field and the length field, the length field
* represents the length of the whole message</h3>
*
* Let's give another twist to the previous example. The only difference from
* the previous example is that the length field represents the length of the
* whole message instead of the message body, just like the third example.
* We have to count the length of HDR1 and Length into <tt>lengthAdjustment</tt>.
* Please note that we don't need to take the length of HDR2 into account
* because
the length field already includes the whole header length.
* <pre>
* lengthFieldOffset = 1
* lengthFieldLength = 2
* <b>lengthAdjustment</b> = <b>-3</b> (= the length of HDR1 + LEN, negative)
* <b>initialBytesToStrip</b> = <b>3</b>
*
* BEFORE DECODE (16 bytes)          AFTER DECODE (13 bytes)
* +-----+-----+-----+-----+ +-----+-----+
* | HDR1 | Length | HDR2 | Actual Content |---->| HDR2 | Actual Content |
* | 0xCA | 0x0010 | 0xFE | "HELLO, WORLD" |   | 0xFE | "HELLO, WORLD" |
* +-----+-----+-----+-----+ +-----+-----+
* </pre>
* @see LengthFieldPrepender
*/

```

Found in path(s):

```

* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/LengthFieldBasedFrameDecoder.java

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jar/io/netty/handler/codec/sctp/SctpMessageCompletionHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/sctp/package-info.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtByteRendezvousChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/traffic/GlobalTrafficShapingHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtProvider.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtByteConnectorChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/traffic/ChannelTrafficShapingHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/UdtChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtMessageAcceptorChannel.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/traffic/TrafficCounter.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtAcceptorChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/sctp/SctpInboundByteStreamHandler.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/traffic/package-info.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtMessageConnectorChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/udt/nio/NioUdtMessageRendezvousChannel.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/codec/sctp/SctpMessageToMessageDecoder.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
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jar/io/netty/handler/codec/http2/HpackHuffmanDecoder.java

\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-  
jar/io/netty/handler/codec/http2/HpackUtil.java

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jar/io/netty/handler/codec/http2/HpackDecoder.java

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jar/io/netty/handler/codec/http2/HpackHeaderField.java

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\*

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jar/io/netty/handler/codec/http2/HpackHuffmanEncoder.java

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jar/io/netty/handler/codec/http2/HpackDynamicTable.java

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\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterialProvider.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslX509KeyManagerFactory.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslPrivateKey.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/AuthoritativeDnsServerCache.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/internal/tcnative/CertificateCallback.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/AuthoritativeDnsServerCacheAdapter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/unix/PreferredDirectByteBufAllocator.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterial.java  
\*  
/opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/OpenSslCachingKeyMaterialProvider.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/DnsRecordResolveContext.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/DirContextUtils.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/handler/ssl/SignatureAlgorithmConverter.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/resolver/dns/DnsCnameCache.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/SimpleUserEventChannelHandler.java  
\* /opt/ws\_local/PERMITS\_SQL/1073709946\_1598983444.54/0/netty-all-4-1-49-final-sources-jar/io/netty/channel/socket/nio/NioChannelOption.java  
\*

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/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/OpenSslX509TrustManagerWrapper.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/DnsAddressDecoder.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/channel/unix/Buffer.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/NoopAuthoritativeDnsServerCache.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/OpenSslSession.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/Cache.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/NameServerComparator.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/OpenSslCachingX509KeyManagerFactory.java
*
/opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/DefaultOpenSslKeyMaterial.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/OpenSslTlsV13X509ExtendedTrustManager.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/DnsAddressResolveContext.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/DefaultDnsCnameCache.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/resolver/dns/NoopDnsCnameCache.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/util/internal/SuppressJava6Requirement.java
* /opt/ws_local/PERMITS_SQL/1073709946_1598983444.54/0/netty-all-4-1-49-final-sources-
jar/io/netty/handler/ssl/ExtendedOpenSslSession.java
```

## 1.71 jackson-databind 2.10.1

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Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1083459562\_1598192355.47/0/grpc-context-1-30-2-sources-jar/io/grpc/ThreadLocalContextStorage.java

\* /opt/ws\_local/PERMITS\_SQL/1083459562\_1598192355.47/0/grpc-context-1-30-2-sources-jar/io/grpc/Deadline.java

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Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1083459562\_1598192355.47/0/grpc-context-1-30-2-sources-



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## 1.75 swagger 1.6.2

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</developer>

<developer>

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</developer>

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<url>https://github.com/RichardWarburton</url>

</developer>

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<url>https://github.com/kay</url>

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<url>https://github.com/franz1981</url>

</developer>

</developers>

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\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/SpvcUnboundedAtomicArrayQueue.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/SpmcAtomicArrayQueue.java

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/opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/SpScAtomicArrayQueue.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/SpScLinkedAtomicQueue.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/SpmcArrayQueue.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/maps/AbstractEntry.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/MpmcUnboundedXaddChunk.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/MpscChunkedArrayQueue.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/maps/NonBlockingHashMapLong.java

\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/MpscChunkedAtomicArrayQueue.java

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/opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/ConcurrentSequencedCircularArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/util/UnsafeLongArrayAccess.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/MpscBlockingConsumerArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/BaseMpscLinkedAtomicArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/maps/NonBlockingHashMap.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/BaseMpscLinkedArrayQueue.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/MpscGrowableAtomicArrayQueue.java  
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\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/util/Pow2.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/spec/ConcurrentQueueSpec.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/SpSCChunkedAtomicArrayQueue.java  
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/opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/MpscUnboundedXaddChunk.java  
\* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-jar/org/jctools/queues/atomic/MpscUnboundedAtomicArrayQueue.java  
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 jar/org/jctools/queues/atomic/SequencedAtomicReferenceArrayQueue.java  
 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
 jar/org/jctools/queues/MpscLinkedQueue.java  
 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
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 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
 jar/org/jctools/queues/package-info.java  
 \* /opt/ws\_local/PERMITS\_SQL/1093815924\_1601014602.33/0/jctools-core-3-1-0-sources-  
 jar/org/jctools/queues/BaseSpSCLinkedArrayQueue.java

## 1.77 Iz4 1.8.3-1.e17

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Upstream-Contact: Yann Collet <Cyan4973@github.com>

Source: <https://github.com/lz4/lz4>

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It is part of the main e2fsprogs distribution, which can be found at:

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Upstream Author: Theodore Ts'o <tytso@mit.edu>

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#

# This is a Makefile stub which handles the creation of BSD shared # libraries.

#

# In order to use this stub, the following makefile variables must be defined.

#

# BSDLIB\_VERSION = 1.0

# BSDLIB\_IMAGE = libce

# BSDLIB\_MYDIR = et

# BSDLIB\_INSTALL\_DIR = \$(SHLIBDIR)

```

#

all:: image

real-subdirs:: Makefile
@echo " MKDIR pic"
@mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image: $(BSD_LIB)

$(BSD_LIB): $(OBJS)
(cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
$(MV) pic/$(BSD_LIB) .
$(RM) -f ../$(BSD_LIB)
(cd ..; $(LN) $(LINK_BUILD_FLAGS) \
`echo $(my_dir) | sed -e 's;lib/;;' /$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
@echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
@$(INSTALL_PROGRAM) $(BSD_LIB) \
$(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
@-$(LDCONFIG)

install-strip: install

install-shlibs-strip:: install-shlibs

uninstall-shlibs uninstall::
$(RM) -f $(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
$(RM)
-rf pic
$(RM) -f $(BSD_LIB)
$(RM) -f ../$(BSD_LIB)

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This is the Debian GNU/Linux prepackaged version of the translation files of the EXT2 file system utilities. The EXT2 utilities were written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from <http://sourceforge.net/projects/e2fsprogs>

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Index: tdbsa/tdb.c

=====

--- tdbsa.orig/tdb.c

+++ tdbsa/tdb.c

@@ -4,11 +4,11 @@ Rev: 23371

Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)

\*/

/\*

- Unix SMB/CIFS implementation.
- + trivial database library - standalone version
  
- trivial database library - private includes
- 
- Copyright (C) Andrew Tridgell           2005
- + Copyright (C) Andrew Tridgell           1999-2005

- + Copyright (C) Jeremy Allison 2000-2006
- + Copyright (C) Paul 'Rusty' Russell 2000

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Gadi Oxman, August 1995

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```
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```

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Theodore Ts'o

23-June-2007

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This package was added to the e2fsprogs debian source package by Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

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## 1.83 sed 4.2.2-7.el7

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes

2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3				
2.1.2	2002	PSF	yes	
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009	PSF	yes
2.6.5	2.6.4	2010	PSF	yes
2.7	2.6	2010	PSF	yes

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2			
2002	PSF	yes		
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
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## 1.91 keyutils-libs 1.5.8-3.el7

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```
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```
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```

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<signature of Ty Coon>, 1 April 1989
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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object

file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute

the object code for the work under the terms of Section 6.

Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a)

Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will

operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at



least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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<signature of Ty Coon>, 1 April 1990  
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## 1.94 libdb-utils 5.3.21-25.el7

### 1.94.1 Available under license :

No license file was found, but licenses were detected in source scan.

/opt/cola/permits/1110807414\_1680601714.3027513/0/libdb-5-3-21-25-el7-src-zip/libdb-5.3.21-25.el7.src/libdb-5.3.21-25.el7.src.cpio: binary file matches

Found in path(s):  
\* /bin/grep

## 1.95 qrencode-libs 3.4.1-3.el7

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For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

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- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library,

and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

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3. You may opt to apply the terms of the ordinary GNU General Public

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4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to

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Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

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```
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This program comes with ABSOLUTELY NO WARRANTY; for details type `show w'.  
This is free software, and you are welcome to redistribute it  
under certain conditions; type `show c' for details.
```

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

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## 1.102 curl 7.29.0-59.el7\_9.1

### 1.102.1 Available under license :

License Mixing with apps, libcurl and Third Party Libraries

=====

libcurl can be built to use a fair amount of various third party libraries, libraries that are written and provided by other parties that are distributed using their own licenses. Even libcurl itself contains code that may cause problems to some. This document attempts to describe what licenses libcurl and the other libraries use and what possible dilemmas linking and mixing them all can lead to for end users.

I am not a lawyer and this is not legal advice!

One common dilemma is that GPL[1]-licensed code is not allowed to be linked with code licensed under the Original BSD license (with the announcement clause). You may still build your own copies that use them all, but distributing them as binaries would be to violate the GPL license - unless you accompany your license with an exception[2]. This particular problem was addressed when the Modified BSD

license was created, which does not have the announcement clause that collides with GPL.

libcurl <http://curl.haxx.se/docs/copyright.html>

Uses an MIT (or Modified BSD)-style license that is as liberal as possible. Some of the source files that deal with KRB4 have Original BSD-style announce-clause licenses. You may not distribute binaries with krb4-enabled libcurl that also link with GPL-licensed code!

OpenSSL <http://www.openssl.org/source/license.html>

(May be used for SSL/TLS support) Uses an Original BSD-style license with an announcement clause that makes it "incompatible" with GPL. You are not allowed to ship binaries that link with OpenSSL that includes GPL code (unless that specific GPL code includes an exception for OpenSSL - a habit that is growing more and more common). If OpenSSL's licensing is a problem for you, consider using GnuTLS or yassl instead.

GnuTLS <http://www.gnutls.org/>

(May be used for SSL/TLS support) Uses the LGPL[3] license. If this is a problem for you, consider using OpenSSL instead. Also note that GnuTLS itself depends on and uses other libs (libcrypt and libpgg-error) and they too are LGPL- or GPL-licensed.

yassl <http://www.yassl.com/>

(May be used for SSL/TLS support) Uses the GPL[1] license. If this is a problem for you, consider using OpenSSL or GnuTLS instead.

NSS <http://www.mozilla.org/projects/security/pki/nss/>

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axTLS <http://axtls.sourceforge.net/>

(May be used for SSL/TLS support) Uses a Modified BSD-style license.

c-ares <http://daniel.haxx.se/projects/c-ares/license.html>

(Used for asynchronous name resolves) Uses an MIT license that is very

liberal and imposes no restrictions on any other library or part you may link with.

zlib [http://www.gzip.org/zlib/zlib\\_license.html](http://www.gzip.org/zlib/zlib_license.html)

(Used for compressed Transfer-Encoding support) Uses an MIT-style license that shouldn't collide with any other library.

krb4

While nothing in particular says that a Kerberos4 library must use any particular license, the one I've tried and used successfully so far (kth-krb4) is partly Original BSD-licensed with the announcement clause. Some of the code in libcurl that is written to deal with Kerberos4 is Modified BSD-licensed.

MIT Kerberos <http://web.mit.edu/kerberos/www/dist/>

(May be used for GSS support) MIT licensed, that shouldn't collide with any other parts.

Heimdal <http://www.pdc.kth.se/heimdal/>

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(May be used for GSS support) GNU GSS is GPL licensed. Note that you may not distribute binary curl packages that uses this if you build curl to also link and use any Original BSD licensed libraries!

fbopenssl

(Used for SPNEGO support) Unclear license. Based on its name, I assume that it uses the OpenSSL license and thus shares the same issues as described for OpenSSL above.

libidn <http://josefsson.org/libidn/>

(Used for IDNA support) Uses the GNU Lesser General Public License [3]. LGPL is a variation of GPL with slightly less aggressive "copyleft". This license requires more requirements to be met when distributing binaries, see the license for details. Also note that if you distribute a binary that includes this library, you must also include the

full LGPL license text. Please properly point out what parts of the distributed package that the license addresses.

OpenLDAP <http://www.openldap.org/software/release/license.html>

(Used for LDAP support) Uses a Modified BSD-style license. Since libcurl uses OpenLDAP as a shared library only, I have not heard of anyone that ships OpenLDAP linked with libcurl in an app.

libssh2 <http://www.libssh2.org/>

(Used for scp and sftp support) libssh2 uses a Modified BSD-style license.

[1] = GPL - GNU General Public License: <http://www.gnu.org/licenses/gpl.html>

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## 1.103 rxjava 2.1.10



## 1.103.1 Available under license :

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```
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```

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```

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```

```
*/
```

Found in path(s):

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/subscriptions/BasicQueueSubscription.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/Completable.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/disposables/Disposable.java
```

```
*
```

```
 /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/flowable/FlowableFlatMapMaybe.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/observable/ObservableSkipWhile.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/observable/ObservableTakeUntilPredicate.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/flowable/FlowableAmb.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/maybe/MaybeZipArray.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/flowable/FlowableMap.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/fuseable/FuseToMaybe.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/disposables/RunnableDisposable.java
```

```
*
```

```
 /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/completable/CompletableObserveOn.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/observable/ObservableTakeWhile.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```
jar/io/reactivex/internal/operators/observable/ObservableTimeoutTimed.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
```

```

jar/io/reactivex/internal/operators/maybe/MaybeUsing.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/observable/ObservableFromUnsafeSource.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/maybe/MaybeFromSingle.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/observable/ObservableMergeWithMaybe.java
*
/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/single/SingleNever.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/subscribers/SubscriberResourceWrapper.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/ObservableEmitter.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/disposables/Disposables.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableRetryBiPredicate.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/subscribers/TestSubscriber.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/parallel/ParallelFlatMap.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/maybe/MaybeEmpty.java
*
/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/ObservableSource.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/observable/ObservableRefCount.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/disposables/DisposableHelper.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableThrottleFirstTimed.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableTimer.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/single/SingleZipIterable.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/fuseable/FuseToObservable.java
*
/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/Flowable.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/functions/Functions.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableLimit.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableEmpty.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableScanSeed.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-

```

jar/io/reactivex/internal/operators/maybe/MaybeFlatMapIterableFlowable.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
jar/io/reactivex/internal/operators/observable/ObservableRetryPredicate.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
jar/io/reactivex/internal/schedulers/NonBlockingThread.java  
\*  
/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
jar/io/reactivex/internal/operators/flowable/FlowableFlatMapPublisher.java  
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\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
jar/io/reactivex/internal/operators/flowable/FlowableFlatMapSingle.java  
\*  
/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
jar/io/reactivex/internal/operators/maybe/MaybeDelayWithCompletable.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
jar/io/reactivex/internal/operators/maybe/MaybeDoFinally.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/MaybeOperator.java



\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/observers/LambdaConsumerIntrospection.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableConcatMap.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableAll.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableRetryWhen.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/observables/ConnectableObservable.java  
\*  
/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableEmpty.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/single/SingleFlatMap.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableTakeWhile.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/disposables/SerialDisposable.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/maybe/MaybeError.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/single/SingleDoAfterTerminate.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/util/EmptyComponent.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableTake.java  
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/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableOnBackpressureBufferStrategy.java  
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\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/MaybeOnSubscribe.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableJust.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/observables/GroupedObservable.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableDoOnLifecycle.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/subscriptions/AsyncSubscription.java  
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/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/single/SingleToObservable.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableSampleTimed.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableBufferExactBoundary.java

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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-

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jar/io/reactivex/exceptions/ProtocolViolationException.java
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jar/io/reactivex/internal/operators/flowable/FlowableAll.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/single/SingleDoOnSubscribe.java
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/observable/ObservableSubscribeOn.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/maybe/MaybeIsEmptySingle.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableDebounce.java
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jar/io/reactivex/internal/operators/single/SingleDelayWithCompletable.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableMergeWithSingle.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableWindow.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableCache.java

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\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/maybe/MaybeToObservable.java  
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 \* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/util/OpenHashSet.java  
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 \* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableSkip.java  
 \* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/functions/Consumer.java  
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 \* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/CompletableOnSubscribe.java  
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableSerialized.java
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/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
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* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/parallel/ParallelReduceFull.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/MaybeSource.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/maybe/MaybeDelayOtherPublisher.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/functions/Function9.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/MaybeTransformer.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableSequenceEqualSingle.java
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-

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jar/io/reactivex/internal/operators/flowable/FlowableSwitchMap.java  
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\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-  
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\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/util/BlockingIgnoringReceiver.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableWithLatestFromMany.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableGenerate.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableOnErrorNext.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/single/SingleContains.java  
\*  
/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/completable/CompletableLift.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableElementAtMaybe.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableOnBackpressureBuffer.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableTakeLast.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/ObservableOperator.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/completable/CompletableConcatIterable.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/single/SingleDelayWithSingle.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/subscribers/FutureSubscriber.java

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```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/schedulers/SchedulerRunnableIntrospection.java
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```
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info.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/observable/ObservableJoin.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/subjects/package-info.java
*
```

```
/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/functions/package-info.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/exceptions/CompositeException.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowablePublishMulticast.java
```

```
* /opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/schedulers/SchedulerPoolFactory.java
```



\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/schedulers/ComputationScheduler.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/plugins/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/schedulers/IOScheduler.java  
\*  
/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/exceptions/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/disposables/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/observers/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/flowables/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/processors/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/flowable/FlowableGroupJoin.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/schedulers/TrampolineScheduler.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/schedulers/NewThreadScheduler.java  
\*  
/opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/schedulers/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/annotations/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/subscribers/package-info.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/operators/observable/ObservableGroupJoin.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/BackpressureOverflowStrategy.java  
\* /opt/cola/permits/1118999868\_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/parallel/package-info.java  
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core/src/main/java/org/jctools/util/Pow2.java
*/
```

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```
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-jar/io/reactivex/internal/util/Pow2.java
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```
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/schedulers/InstantPeriodicTask.java
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/schedulers/SchedulerWhen.java
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/schedulers/ScheduledDirectPeriodicTask.java
*
```

```
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/schedulers/AbstractDirectTask.java
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/schedulers/ScheduledDirectTask.java
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```
*/opt/cola/permits/1118999868_1608681835.21/0/rxjava-2-1-10-sources-
jar/io/reactivex/internal/operators/flowable/FlowableOnBackpressureError.java
```

## 1.104 guava 30.1-jre

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*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/eventbus/SubscriberRegistry.java
*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/eventbus/Dispatcher.java
*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/base/MoreObjects.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/util/concurrent/ListenerCallQueue.java
*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/math/Quantiles.java
*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/eventbus/Subscriber.java
*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
```

jar/com/google/common/util/concurrent/TrustedListenableFutureTask.java

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jar/com/google/common/util/concurrent/ServiceManagerBridge.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

jar/com/google/common/base/Java8Usage.java

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jar/com/google/common/io/AppendableWriter.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

jar/com/google/common/reflect/TypeToken.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

jar/com/google/common/util/concurrent/FluentFuture.java

\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/AggregateFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/TimeLimiter.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/AbstractCatchingFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/AbstractTransformFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/UncheckedTimeoutException.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/FakeTimeLimiter.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/FuturesGetChecked.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/GwtFluentFutureCatchingSpecialization.java  
\*

/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/Futures.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/CollectionFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/CaseFormat.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/escape/CharEscaper.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/PatternFilenameFilter.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/GwtFuturesCatchingSpecialization.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/escape/CharEscaperBuilder.java  
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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/TimeoutFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ImmediateFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/SimpleTimeLimiter.java  
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/thirdparty/publicsuffix/PublicSuffixType.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/HashingInputStream.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/VerifyException.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/eventbus/SubscriberExceptionHandler.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/AbstractTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/Runnables.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/Verify.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/eventbus/SubscriberExceptionContext.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/FilteredMultimapValues.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/CharSequenceReader.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/Utf8.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/WrappingScheduledExecutorService.java  
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jar/com/google/common/collect/JdkBackedImmutableMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/BaseImmutableMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/JdkBackedImmutableBiMap.java  
\*

/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/IndexedImmutableSet.java

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jar/com/google/common/hash/package-info.java

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*
* Other contributors include Andrew Wright, Jeffrey Hayes, Pat Fisher, Mike Judd.
*/
```

Found in path(s):

```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/util/concurrent/MoreExecutors.java
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```

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Found in path(s):

```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/FilteredKeySetMultimap.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/FilteredKeyListMultimap.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/AllEqualOrdering.java
*
```



/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/TransformedListIterator.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/FilteredMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/FilteredEntrySetMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/SortedMultisetBridge.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/CompactLinkedHashSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/CompactLinkedHashMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/FilteredSetMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/CompactHashMap.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/AbstractSortedKeySortedSetMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableEnumMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/UnmodifiableSortedMultiset.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ForwardingBlockingDeque.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingImmutableList.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingBlockingDeque.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingDeque.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/TransformedIterator.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingImmutableMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/TreeTraverser.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/CompactHashSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/DescendingMultiset.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/FilteredEntryMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/RangeMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingNavigableSet.java

\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/TreeRangeMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/DescendingImmutableSortedSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/AbstractMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/RegularImmutableAsList.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/EvictingQueue.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingNavigableMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingImmutableSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/AbstractNavigableMap.java  
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\* the License.  
\*/  
/\*\*  
\* Holder for extra methods of {@code Objects} only in web. Intended to be empty for regular  
\* version.  
\*/

Found in path(s):  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/ExtraObjectsMethodsForWeb.java  
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/ImmutableMapEntry.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/MultimapBuilder.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/MoreFiles.java

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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/ImmutableEntry.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/Tables.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/thirdparty/publicsuffix/PublicSuffixPatterns.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/Serialization.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/StandardTable.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableListMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/PeekingIterator.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/RegularImmutableMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableMultiset.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/SingletonImmutableBiMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/RegularImmutableBiMap.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableBiMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableSortedSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableMapValues.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/Collections2.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableMapEntrySet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableCollection.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/Table.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/EmptyImmutableListMultimap.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/CollectPreconditions.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/HashBasedTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/Platform.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/TreeBasedTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/StandardRowSortedTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/Range.java  
\*

/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/UnmodifiableIterator.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableMapKeySet.java  
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 */
/**
 * Holder for web specializations of methods of { @code Shorts }. Intended to be empty for regular
 * version.
 */
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/ShortsMethodsForWeb.java  
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 */
/*
 * This method was rewritten in Java from an intermediate step of the Murmur hash function in
 * http://code.google.com/p/smhasher/source/browse/trunk/MurmurHash3.cpp, which contained the
 * following header:
```

```
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```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/base/SmallCharMatcher.java
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```

Found in path(s):

```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ImmutableRangeSet.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/math/LinearTransformation.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/io/CharSink.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/hash/LongAddable.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/util/concurrent/SmoothRateLimiter.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/FilteredKeyMultimap.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/reflect/Parameter.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/io/ByteSink.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/Closer.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/math/Stats.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
```

jar/com/google/common/html/package-info.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/math/PairedStatsAccumulator.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/Element.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/CharSource.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/package-info.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/ImmutableTypeToInstanceMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/math/StatsAccumulator.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/escape/package-info.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/MutableTypeToInstanceMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/hash/SipHashFunction.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/TypeCapture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/cache/LongAddable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/ByteSource.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/hash/ChecksumHashFunction.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/Invokable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/RateLimiter.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/base/StandardSystemProperty.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/hash/AbstractByteHasher.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/AbstractInvocationHandler.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/BaseEncoding.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/reflect/TypeToInstanceMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/math/PairedStats.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/cache/LongAddables.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ListenableScheduledFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/LongAddables.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/CartesianList.java  
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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/FileWriteMode.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/reflect/ClassPath.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/xml/package-info.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableRangeMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ServiceManager.java  
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/BaseGraph.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/Traverser.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ClosingFuture.java  
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*/
/*
 * This method was rewritten in Java from an intermediate step of the Murmur hash function in
 * http://code.google.com/p/smhasher/source/browse/trunk/MurmurHash3.cpp, which contained the
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*/
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```
*/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/Hashing.java
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 * the License.
*/
/**
 * Outer class that exists solely to let us write {@code Partially.GwtIncompatible} instead of plain
 * {@code GwtIncompatible}. This is more accurate for {@link Futures#catching}, which is available
 * under GWT but with a slightly different signature.
 *
 */
```

\* <p>We can't use { @code PartiallyGwtIncompatible } because then the GWT compiler wouldn't recognize  
\* it as a { @code GwtIncompatible } annotation. And for { @code Futures.catching }, we need the GWT  
\* compiler to autostrip the normal server method in order to expose the special, inherited GWT  
\* version.  
\*/

Found in path(s):

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/Partially.java

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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/ImmutableGraph.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/SuccessorsFunction.java

\*

/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/MutableNetwork.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/ImmutableNetwork.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/Graphs.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/InsecureRecursiveDeleteException.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/Graph.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/RecursiveDeleteOption.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/PredecessorsFunction.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/MutableGraph.java

\*

/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/Network.java

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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/LongAdder.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/cache/LongAdder.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/cache/Striped64.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/Striped64.java

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jar/com/google/common/io/FileBackedOutputStream.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/Shorts.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/Doubles.java
*
 /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/util/concurrent/SequentialExecutor.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/base/CharMatcher.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/FluentIterable.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/Booleans.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/Chars.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/net/PercentEscaper.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/base/Joiner.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/Floats.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/util/concurrent/ListenableFutureTask.java
*
 /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/escape/UnicodeEscaper.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/Bytes.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/io/MultiReader.java
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/Stopwatch.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/Converter.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/Longs.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/Ints.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/internal/Finalizer.java  
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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/net/InetAddresses.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/escape/Escaper.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/thirdparty/publicsuffix/TrieParser.java

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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/MinMaxPriorityQueue.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/AbstractSequentialIterator.java

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jar/com/google/common/collect/ForwardingImmutableCollection.java  
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jar/com/google/common/collect/UnmodifiableListIterator.java  
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jar/com/google/common/collect/SortedMapDifference.java  
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 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/UnsignedBytes.java  
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 /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/net/HostSpecifier.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/AbstractExecutionThreadService.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/JdkFutureAdapters.java  
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 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/cache/ReferenceEntry.java  
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 /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/MapMakerInternalMap.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/reflect/TypeResolver.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/escape/Platform.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/MapMaker.java  
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 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/cache/CacheBuilder.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/Cut.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/io/ByteArrayDataInput.java  
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 /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/SettableFuture.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/Callables.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/Service.java  
 \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

jar/com/google/common/util/concurrent/AbstractIdleService.java  
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jar/com/google/common/util/concurrent/ForwardingFluentFuture.java  
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jar/com/google/common/base/Platform.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/ByteArrayDataOutput.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/html/HtmlEscapers.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/escape/ArrayBasedEscaperMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/LineProcessor.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/xml/XmlEscapers.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/RegularImmutableTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/ForwardingListenableFuture.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/annotations/GwtCompatible.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/io/ByteProcessor.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/escape/ArrayBasedCharEscaper.java  
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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/net/InternetDomainName.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/AbstractService.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/base/Splitter.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/cache/LocalCache.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/escape/Escapers.java

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*/
/**
 * Not supported. <b>You are attempting to create a map that may contain a non-{@code Comparable}
 * key.</b> Proper calls will resolve to the version in {@code ImmutableSortedMap}, not this dummy
 * version.
 *
 * @throws UnsupportedOperationException always
 * @deprecated <b>Pass a key of type {@code Comparable}
 to use {@link
 *   ImmutableSortedMap#of(Comparable, Object)}.</b>
 */
```

Found in path(s):

```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ImmutableSortedMapFauxverideShim.java
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 * the License.
 */
/**
 * Holder for web specializations of methods of {@code Floats}. Intended to be empty for regular
 * version.
 */
```

Found in path(s):

```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/primitives/FloatsMethodsForWeb.java
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ComputationException.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/DiscreteDomain.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableClassToInstanceMap.java  
\*  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableSortedSetFauxverideShim.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableAsList.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ArrayTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/TableCollectors.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableEnumSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/RegularImmutableSortedSet.java  
\*  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableSortedMap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/SingletonImmutableList.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/SingletonImmutableTable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableSetMultimap.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

jar/com/google/common/collect/ComparisonChain.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/RegularImmutableList.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/AbstractIndexedListIterator.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/EmptyImmutableSetMultimap.java  
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/ContiguousSet.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/Monitor.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/net/package-  
info.java  
*  
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/SortedLists.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/ForwardingBlockingQueue.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/base/Ascii.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/base/Strings.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/annotations/package-info.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/primitives/package-info.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/Atomics.java  
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/base/Equivalence.java
```

\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/annotations/Beta.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ThreadFactoryBuilder.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ListeningExecutorService.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/UncaughtExceptionHandler.java  
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/AtomicLongMap.java  
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- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/CommonMatcher.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/CommonPattern.java
- \*
- /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/base/JdkPattern.java

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- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/MutableValueGraph.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/AbstractGraph.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/AbstractUndirectedNetworkConnections.java
- \*
- /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/MoreCollectors.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/ImmutableValueGraph.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/ElementOrder.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/graph/ValueGraphBuilder.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/HashMultimapGwtSerializationDependencies.java
- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

```

jar/com/google/common/graph/NetworkConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/Comparators.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/GraphConstants.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/ForwardingGraph.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/AbstractNetwork.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/EdgesConnecting.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/GraphBuilder.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/UndirectedMultiNetworkConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/EndpointPairIterator.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/ForwardingValueGraph.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/AbstractValueGraph.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/EndpointPair.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/DirectedNetworkConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ImmutableMultisetGwtSerializationDependencies.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/StandardMutableNetwork.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/UndirectedNetworkConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/ValueGraph.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/StandardMutableValueGraph.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/UndirectedGraphConnections.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/ForwardingNetwork.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/MultiEdgesConnecting.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/RangeGwtSerializationDependencies.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/LinkedHashMultimapGwtSerializationDependencies.java

```

```
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ArrayListMultimapGwtSerializationDependencies.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/StandardValueGraph.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/DirectedGraphConnections.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/StandardNetwork.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/CollectCollectors.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/MapRetrievalCache.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/DirectedMultiNetworkConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/GraphConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/AbstractGraphBuilder.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/NetworkBuilder.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/MapIteratorCache.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/AbstractDirectedNetworkConnections.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/StandardMutableGraph.java
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```

```
*/
```

```
/**
```

```
* Holder for web specializations of methods of { @code Doubles }. Intended to be empty for regular
* version.
```

```
*/
```

Found in path(s):

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/DoublesMethodsForWeb.java

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\*/

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jar/com/google/common/collect/CollectSpliterators.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ImmutableBiMapFauxverideShim.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/graph/package-info.java
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jar/com/google/common/io/Resources.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/base/Predicates.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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jar/com/google/common/base/Function.java  
\*  
/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/base/Throwables.java  
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jar/com/google/common/io/ByteStreams.java  
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableSet.java
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- \* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ForwardingMapEntry.java
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/ImmutableIntArray.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ForwardingLock.java

\*

/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/AbstractHashFunction.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/primitives/ImmutableLongArray.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/ForwardingCondition.java

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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/OverflowAvoidingLockSupport.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/math/ToDoubleRounder.java

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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/math/BigDecimalMath.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/Java8Compatibility.java

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jar/com/google/common/util/concurrent/IgnoreJRERRequirement.java  
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jar/com/google/common/collect/JdkBackedImmutableMultiset.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/JdkBackedImmutableSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/hash/ImmutableSupplier.java  
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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/ExecutionSequencer.java  
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* the License.
*/
/*
* This method was written by Doug Lea with assistance from members of JCP JSR-166 Expert Group
* and released to the public domain, as explained at
* http://creativecommons.org/licenses/publicdomain
*
* As of 2010/06/11, this method is identical to the (package private) hash method in OpenJDK 7's
* java.util.HashMap
class.
*/
```

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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/util/concurrent/Striped.java
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jar/com/google/common/collect/RegularImmutableSortedMultiset.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ImmutableSortedMultisetFauxverideShim.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/GeneralRange.java
*
/opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/collect/ForwardingSortedMultiset.java
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/SortedIterable.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/RangeSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/AbstractRangeSet.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/Count.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/SortedIterables.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ImmutableSortedMultiset.java  
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/WrappingExecutorService.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/AbstractScheduledService.java

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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/util/concurrent/UncheckedExecutionException.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/cache/Weigher.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/cache/CacheStats.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/AbstractCompositeHashFunction.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/Hashing.java

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-

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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
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jar/com/google/common/collect/DescendingImmutableSortedMultiset.java  
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jar/com/google/common/hash/Murmur3\_32HashFunction.java  
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jar/com/google/common/base/PairwiseEquivalence.java  
\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/util/concurrent/CycleDetectingLockFactory.java  
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\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-  
jar/com/google/common/collect/RegularContiguousSet.java

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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
jar/com/google/common/math/MathPreconditions.java
* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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* /opt/cola/permits/1119092615_1608716259.54/0/guava-30-1-jre-sources-1-
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/opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/hash/HashFunction.java

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/\*

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\*/

/\*\*

\* Returns an array containing all of the elements in the specified collection. This method

\* returns the elements in the order they are returned by the collection's iterator. The returned

\* array is "safe" in that no references to it are maintained by the collection. The caller is

\* thus free to modify the returned

array.

\*

\* <p>This method assumes that the collection size doesn't change while the method is running.

\*

\* <p>TODO(kevinb): support concurrently modified collections?

\*

\* @param c the collection for which to return an array of elements

\*/

Found in path(s):

\* /opt/cola/permits/1119092615\_1608716259.54/0/guava-30-1-jre-sources-1-jar/com/google/common/collect/ObjectArrays.java

## 1.105 aop-alliance 1.0

### 1.105.1 Available under license :

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## 1.106 iconv 2.17

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```
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## 1.107 zlib 1.2.8

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# 1.108 dc 1.3

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\*

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```
* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example/Pods/DCPathButton/DCPathButton/Classes/DCPathButton.h
* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example/Example/ViewController.h
* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example/Pods/DCPathButton/DCPathButton/Classes/DCPathButton.m
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```
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```

```
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* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example-Swift/Example-Swift-Bridging-Header.h
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* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example-Swift/Example-Swift/AppDelegate.swift
No license file was found, but licenses were detected in source scan.
```

```
Pod::Spec.new do |s|
```

```
s.name      = "DCPathButton"
s.version   = "2.1.1"
s.summary   = " A beautiful button copy from Path@ "
```

```
s.description = <<<-DESC
```

```
DCPathButton is a menu button, design by an famous App Path@.
Since Path@ 4.0, it return to use a tab bar instead of a side bar,
and also change the menu button. So I try to implement it and then
the DCPathButton born :)
```

```
DESC
```

```
s.homepage = "https://github.com/Tangdixi/DCPathButton"
```

```
s.license = {
:type => 'MIT',
:text => 'The DCPathButton use the MIT license'
}
```

```
s.author = { "Tangdixi" => "Tangdixi@gmail.com" }
```

```
s.platform = :ios, '7.0'
```

```
s.source = {
:git => "https://github.com/Tangdixi/DCPathButton.git",
:tag => "2.1.1"
}
```

```
}  
  
s.source_files = 'DCPathButton/Classes/*.{h,m}'  
  
s.resources = ["DCPathButton/Sounds/*"]  
  
s.frameworks = 'QuartzCore','AudioToolbox'  
  
s.requires_arc = true  
  
end
```

Found in path(s):

```
* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/DCPathButton.podspec
```

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Found in path(s):

```
* /opt/cola/permits/1125758851_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/LISENCE
```

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```
<label opaque="NO" clipsSubviews="YES" userInteractionEnabled="NO" contentMode="left" horizontalHuggingPriority="251" verticalHuggingPriority="251" text=" Copyright (c) 2015 DC. All rights reserved." textAlignment="center" lineBreakMode="tailTruncation" baselineAdjustment="alignBaselines"
```

minimumFontSize="9" translatesAutoresizingMaskIntoConstraints="NO" id="8ie-xW-0ye">

Found in path(s):

\* /opt/cola/permits/1125758851\_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example-Swift/Example-Swift/Base.lproj/LaunchScreen.xib

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This application makes use of the following third party libraries:

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\* /opt/cola/permits/1125758851\_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/Example/Example/BarButtonItemViewController.m

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Found in path(s):

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\* /opt/cola/permits/1125758851\_1613553092.69/0/tangdixi-dcpathbutton-2-1-3-0-ge4b13fb-tar-gz/Tangdixi-DCPathButton-39be410/README.md

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One of the key reasons we got delayed on the CentOS-6 release was lack of  
suitable build resources, especially when we had to repeatedly build large  
chunks of code. Norwood S came forward and worked with me to  
setup a large build machine, then tune the build process and help improve  
the overall build, test and validate process we were using. This build  
machine he donated to the project was about 5 times more capable than the  
entire buildsystem we had. And he did this out of his own pocket, from  
his

own time, and has since upgraded the machine as well. It's now a 128GB,  
48 core machine, with 4 SSD's and 4 sata disks : but the key metric is  
that it can build from source, the entire CentOS-7 distro in under 22 hrs.

Having this capability was key in our ability to build, test and deliver  
CentOS-7 as rapidly as we have been able to.

We'd like to dedicate the CentOS-7 Release to Mr Norwood S, of Phoenix,  
AZ, USA for his continued support for the project.

Contributors:

The Red Hat developers, without whom CentOS would look very different

Akemi Matsuno-Yagi  
Alain Reguera Delgado  
Alan Bartlett  
Andreas Thienemann  
Anssi Johansson  
Athmane Madjoudj  
Bonnie King  
Brian Stinson  
Carl Trieloff  
Christoph Galuschka  
Fabian Arrotin  
Jakub Filak  
James Moger  
Jeff Sheltren  
Jim Perrin  
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# 1.111 httpcomponents-core 4.4.13

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## 1.113 commons-lang3 2.6

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# 1.116 commons-logging 1.2

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src/test/org/apache/commons/codec/language/DoubleMetaphoneTest.java  
contains test data from <http://aspell.net/test/orig/batch0.tab>.  
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# 1.118 javassist 3.27.0-GA

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```
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 */
```

Found in path(s):

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* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/tools/rmi/Proxy.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/compiler/ast/Visitor.java
*
/opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/compiler/ast/Member.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/tools/reflect/CannotInvokeException.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/CtNewWrappedConstructor.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/LoaderClassPath.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/tools/rmi/AppletServer.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/CtConstructor.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/tools/rmi/ObjectNotFoundException.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/compiler/ast/ArrayInit.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/Mnemonic.java
*
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/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/CtNewClass.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/SignatureAttribute.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/CtArray.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/convert/TransformNewClass.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/Parser.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/util/proxy/DefineClassHelper.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/analysis/SubroutineScanner.java  
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/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/ExceptionTable.java  
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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/CodeAnalyzer.java  
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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/runtime/DotClass.java  
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/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/util/proxy/ProxyObjectInputStream.java  
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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/NestMembersAttribute.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/tools/reflect/CannotReflectException.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/scopedpool/ScopedClassPoolFactoryImpl.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/LocalVariableAttribute.java  
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 jar/javassist/CannotCompileException.java  
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 \* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/convert/TransformAccessArrayField.java  
 \* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/AnnotationDefaultAttribute.java  
 \* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/scopedpool/SoftValueHashMap.java  
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 \* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/CtField.java  
 \* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/tools/Dump.java

\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/ast/MethodDecl.java  
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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/ClassPoolTail.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/ClassPath.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/util/HotSwapper.java  
\*

/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/Javac.java  
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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/Opcode.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/analysis/Executor.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/tools/web/Webserver.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/LongVector.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/util/proxy/ProxyObjectOutputStream.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/ast/CastExpr.java  
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/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/DeprecatedAttribute.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/CtClass.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/Translator.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/tools/rmi/Sample.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/CodeAttribute.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/expr/NewArray.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/ClassClassPath.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/ast/IntConst.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/util/proxy/MethodHandler.java  
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/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/convert/TransformNew.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/scopedpool/ScopedClassPoolRepository.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/expr/Cast.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/NoFieldException.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/SyntaxError.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/TokenId.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/util/proxy/RuntimeSupport.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/compiler/ast/Pair.java  
\*

/opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/convert/TransformWriteField.java  
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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/ConstPool.java  
\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/analysis/MultiType.java

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\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/annotation/MemberValue.java

\* /opt/cola/permits/1135872664\_1613621010.52/0/javassist-3-27-0-ga-sources-1-jar/javassist/bytecode/annotation/EnumMemberValue.java

\*



```
/opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/ByteMemberValue.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/ClassMemberValue.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/MemberValueVisitor.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/FloatMemberValue.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/IntegerMemberValue.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/StringMemberValue.java
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* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/ShortMemberValue.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/AnnotationMemberValue.java
* /opt/cola/permits/1135872664_1613621010.52/0/javassist-3-27-0-ga-sources-1-
jar/javassist/bytecode/annotation/DoubleMemberValue.java
```

## 1.119 classmate 1.5.1

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Java ClassMate library was originally written by Tatu Saloranta (tatu.saloranta@iki.fi)

Other developers who have contributed code are:

\* Brian Langel

# 1.120 httpcomponents-mime 4.5.12

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# 1.121 jakarta-validation-api 2.0.2

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```

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\* /opt/cola/permits/1135880235\_1613624044.2/0/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/Validator.java

\* /opt/cola/permits/1135880235\_1613624044.2/0/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/metadata/CascadableDescriptor.java

\* /opt/cola/permits/1135880235\_1613624044.2/0/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/ConstraintTarget.java  
\* /opt/cola/permits/1135880235\_1613624044.2/0/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/FutureOrPresent.java  
\* /opt/cola/permits/1135880235\_1613624044.2/0/jakarta-validation-api-2-0-2-sources-3-jar/javax/validation/constraints/Null.java  
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~

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INF/maven/jakarta.validation/jakarta.validation-api/pom.xml
```

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The initial commit of package "org.apache.commons.math3.ml.neuralnet" is  
an adapted version of code developed in the context of the Data Processing  
and Analysis Consortium (DPAC) of the "Gaia" project of the European Space  
Agency (ESA).

---

The initial commit of the class "org.apache.commons.math3.special.BesselJ" is  
an adapted version of code translated from the netlib Fortran program, rjbesl  
<http://www.netlib.org/specfun/rjbesl> by R.J. Cody at Argonne National  
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The  
BracketFinder (package org.apache.commons.math3.optimization.univariate)  
and PowellOptimizer (package org.apache.commons.math3.optimization.general)  
classes are based on the Python code in module "optimize.py" (version 0.5)  
developed by Travis E. Oliphant for the SciPy library (<http://www.scipy.org/>)  
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## 1.128 asm 6.0

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\*/

/\*\*

\* Creates a new {@link GeneratorAdapter}. *Subclasses must not use this*

\* constructor*.* Instead, they must use the

\* {@link #GeneratorAdapter(int, MethodVisitor, int, String, String)}

\* version.

\*

```

* @param mv
*     the
method visitor to which this adapter delegates calls.
* @param access
*     the method's access flags (see { @link Opcodes }).
* @param name
*     the method's name.
* @param desc
*     the method's descriptor (see { @link Type Type }).
* @throws IllegalStateException
*     If a subclass calls this constructor.
*/

```

Found in path(s):

```

* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
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```

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```

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\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/Textifiable.java  
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\*/

/\*\*

\* Creates a new JSRInliner. *<i>*Subclasses must not use this  
\* constructor*</i>*. Instead, they must use the  
\* {[@link #JSRInlinerAdapter\(int, MethodVisitor, int, String, String, String, String\[\]\)](#)}  
\* version.

\*

\* [@param mv](#)

\*

the `MethodVisitor` to send the resulting inlined

\* method code to (use `null` for none).

\* [@param access](#)

\* the method's access flags (see {[@link Opcodes](#)}). This

```

*      parameter also indicates if the method is synthetic and/or
*      deprecated.
* @param name
*      the method's name.
* @param desc
*      the method's descriptor (see { @link Type}).
* @param signature
*      the method's signature. May be <tt>null</tt>.
* @param exceptions
*      the internal names of the method's exception classes (see
*      { @link Type#getInternalName() getInternalName}). May be
*      <tt>null</tt>.
* @throws IllegalStateException
*      If a subclass calls this constructor.
*/

```

Found in path(s):

```
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
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```

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jar/org/objectweb/asm/commons/package.html

\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/package.html

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jar/org/objectweb/asm/commons/SimpleRemapper.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-  
jar/org/objectweb/asm/tree/InnerClassNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/CurrentFrame.java  
\*  
/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/FrameNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/InsnNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-  
jar/org/objectweb/asm/tree/analysis/AnalyzerException.java  
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jar/org/objectweb/asm/tree/ParameterNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-  
jar/org/objectweb/asm/commons/RemappingFieldAdapter.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-  
jar/org/objectweb/asm/util/TraceModuleVisitor.java

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 \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/CheckModuleAdapter.java  
 \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Frame.java  
 \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/MethodVisitor.java  
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 \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/Frame.java  
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 \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/BasicInterpreter.java  
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\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/InsnList.java  
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/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/CodeSizeEvaluator.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/AnnotationVisitor.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/MethodInsnNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/TraceSignatureVisitor.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/CheckClassAdapter.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/TraceClassVisitor.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/AdviceAdapter.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/ModuleRequireNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/BasicValue.java

\*  
/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Type.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/ModuleTargetAttribute.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Opcodes.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Context.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/BasicVerifier.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/ModuleNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/LineNumberNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/AnnotationNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/Value.java  
\*  
/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/FieldVisitor.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/TypeInsnNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/RemappingAnnotationAdapter.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/ModuleRemapper.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/signature/SignatureReader.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/TypeAnnotationNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/SourceValue.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/MultiANewArrayInsnNode.java  
\*  
/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Handler.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/ClassVisitor.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/LdcInsnNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/Printer.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/RemappingMethodAdapter.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/analysis/Subroutine.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/MethodNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/signature/SignatureWriter.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/ClassRemapper.java  
\*  
/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/FieldInsnNode.java  
\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-

```
jar/org/objectweb/asm/tree/analysis/Interpreter.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/tools/ModuleInfoBndPlugin.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/commons/TableSwitchGenerator.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/commons/LocalVariablesSorter.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/commons/SignatureRemapper.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/tree/LocalVariableNode.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Item.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/commons/TryCatchBlockSorter.java
*
/opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/tree/JumpInsnNode.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/util/CheckAnnotationAdapter.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/commons/ModuleHashesAttribute.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Handle.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/Attribute.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/tree/InvokeDynamicInsnNode.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/ModuleVisitor.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/tree/TryCatchBlockNode.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/commons/StaticInitMerger.java
*
/opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/ClassWriter.java
* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-
jar/org/objectweb/asm/signature/SignatureVisitor.java
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```

```
/**
```

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\*/

/\*\*

\* Constructs a new {@link LocalVariableAnnotationNode}. <i>Subclasses must

\* not use this constructor</i>. Instead, they must use the

\* {@link #LocalVariableAnnotationNode(int, TypePath, LabelNode[], LabelNode[], int[], String)}

\* version.

\*

\* @param typeRef

\* a reference to the annotated type. See {@link TypeReference}.

\* @param typePath

\* the path to the annotated type argument, wildcard bound, array

\* element type, or static inner type within 'typeRef'. May be

\* <tt>null</tt> if the annotation targets 'typeRef' as a whole.

\* @param start

\* the first instructions corresponding to the continuous ranges

\* that make the scope of this local variable (inclusive).

\* @param end

\* the last instructions corresponding to the continuous ranges

\* that make the scope of this local variable (exclusive). This

\* array must have the same size as the 'start' array.

\* @param index

\* the local variable's index in each range. This array must have

\* the same size as the 'start' array.

\* @param desc

\* the class descriptor of

the annotation class.

\*/

Found in path(s):

\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-

jar/org/objectweb/asm/tree/LocalVariableAnnotationNode.java

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\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/TypePath.java

\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/TypeReference.java

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- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/SAXModuleAdapter.java
- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/SAXAnnotationAdapter.java
- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/SAXFieldAdapter.java
- \*
- \*/opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/ASMContentHandler.java
- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/SAXAdapter.java
- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/Processor.java
- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/SAXClassAdapter.java
- \* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/xml/SAXCodeAdapter.java

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- /\*\*

- \* Creates a new {@link AnalyzerAdapter}. <i>Subclasses must not use this constructor</i>. Instead, they must use the
- \* {@link #AnalyzerAdapter(int, String, int, String, String, MethodVisitor)}
- \* version.
- \*
  - \* @param owner
  - \*
    - the owner's class name.
  - \* @param access
  - \* the method's access flags (see {@link Opcodes}).
  - \* @param name
  - \* the method's name.
  - \* @param desc
  - \* the method's descriptor (see {@link Type Type}).
  - \* @param mv
  - \* the method visitor to which this adapter delegates calls. May be <tt>null</tt>.
  - \* @throws IllegalStateException
  - \* If a subclass calls this constructor.
- \*/

Found in path(s):

\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/commons/AnalyzerAdapter.java

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/\*\*

\* Constructs a new {@link Textifier}. *Subclasses must not use this  
\* constructor*. Instead, they must use the {@link #Textifier(int)}  
\* version.  
\*  
\* @throws IllegalStateException  
\* If a subclass calls this constructor.  
\*/

Found in path(s):

\* /opt/cola/permits/1138554392\_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/util/Textifier.java

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*/
/**
 * Constructs a new {@link ClassNode}. Subclasses must not use this
 * constructor. Instead, they must use the {@link #ClassNode(int)}
 * version.
 *
 * @throws IllegalStateException
 *         If a subclass calls this constructor.
 */

```

Found in path(s):

```

* /opt/cola/permits/1138554392_1614291227.62/0/asm-6-0-sources-1-jar/org/objectweb/asm/tree/ClassNode.java

```

## 1.129 pygobject 3.22.0-1.el7\_4.1

### 1.129.1 Available under license :

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Version 2.1, February 1999

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,

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If distribution of object code is made by offering access to copy



from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any

executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

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## 1.130 libtasn 4.10-1.el7

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Version 2.1, February 1999

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making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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- b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
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This is an attempt to acknowledge early contributions to the garbage collector. Later contributions should instead be mentioned in README.changes.

#### HISTORY -

Early versions of this collector were developed as a part of research projects supported in part by the National Science Foundation and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for the Russell programming language implementation. The first version of the garbage collector was written primarily by Al Demers. It was then refined and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U., the University of Washington, Rice University (where it was first used for C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in README.changes. My apologies for any omissions.

The SPARC specific code was originally contributed by Mark Weiser.

The Encore Multimax modifications were supplied by Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely due to Vernon Lee, on machines made available to Rice by IBM.

Much of the HP specific code and a number of good suggestions for improving the

generic code are due to Walter Underwood.  
Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code.  
Al Dosser (dosser@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk) subsequently provided updates and information on variation between ULTRIX systems. Parag Patel (parag@netcom.com) supplied the A/UX code.  
Jesper Peterson(jep@mtiame.mtia.oz.au), Michel Schinz, and  
Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.  
Thomas Funke (thf@zelator.in-berlin.de(?)) and  
Brian D.Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.  
Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.  
Bill Janssen (janssen@parc.xerox.com) supplied  
the SunOS dynamic loader  
specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and  
Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and  
Dave Detlefs(detlefs@src.dec.com) also provided several generic bug fixes.  
Alistair G. Crooks(agg@uts.amdahl.com) supplied the NetBSD and 386BSD ports.  
Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port.  
Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to  
a Motorola 88K processor running CX/UX (Harris NightHawk).  
Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to  
nonIBM development environments (a nontrivial task).  
Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port.  
David Chase, then at Olivetti Research, suggested several improvements.  
Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the  
code to save and print call stacks for leak detection on a SPARC.  
Jesse Hull and John Ellis supplied the C++ interface code.  
Zhong Shao performed much of the  
experimentation that led to the  
current typed allocation facility. (His dynamic type inference code hasn't  
made it into the released version of the collector, yet.)  
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Directory native/fdlibm

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David Megginson, david@megginson.com  
2000-05-05

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\* m4/ax\_func\_which\_gethostbyname\_r.m4

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We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without

limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or

table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,

then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

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Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

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Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand

ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS

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The

"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

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- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

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A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

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@end enumerate

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@ignore

@c Set file name and title for man page.

@setfilename gfdl

@settitle GNU Free Documentation License

@c man begin SEEALSO

gpl(7), fsf-funding(7).

@c man end  
@c man begin COPYRIGHT  
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@c hence no sectioning command or @node.

@c man end

@end ignore

@c Special handling for inclusion in the install manual.

@ifset gfdlhtml

@ifnohtml

@comment node-name, next, previous, up

@node GNU Free Documentation License, Concept Index, Old, Top

@end ifnohtml

@html

<h1 align="center">Installing GCC: GNU Free Documentation License</h1>

@end html

@ifnohtml

@unnumbered GNU Free Documentation License

@end ifnohtml

@end ifset

@c man begin DESCRIPTION

@ifclear gfdlhtml

@node GNU Free Documentation License

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Summary: The skeleton package which defines a simple CentOS Linux system

Name: basesystem

Version: 10.0

Release: 7% { ?dist }

License: Public Domain

Group: System Environment/Base

Requires(pre): setup filesystem

BuildRoot: %(mktemp -ud % { \_tmppath })/% { name }-% { version }-% { release }-XXXXXX)

BuildArch: noarch

%description

Basesystem defines the components of a basic CentOS Linux system (for example, the package installation order to use during bootstrapping). Basesystem should be in every installation of a system, and it should never be removed.

%prep

%build

%install

%clean

%files

%defattr(-,root,root,-)

%changelog

\* Fri Jun 27 2014 Johnny Hughes <johnny@centos.org> - 10.0-7.el7.centos  
- Roll in CentOS Branding

\* Fri Dec 27 2013 Daniel Mach <dmach@redhat.com> - 10.0-7  
- Mass rebuild 2013-12-27

\* Tue Mar 06 2012 Ondrej Vasik <ovasik@redhat.com> 10.0-6  
- remove again reference to Fedora after RHEL-7 import(#800464)

\* Thu  
Jun 23 2011 Ondrej Vasik <ovasik@redhat.com> 10.0-5  
- fix FTBFS typo (#715640), add disttag

\* Fri May 21 2010 Ondrej Vasik <ovasik@redhat.com> - 10.0-4  
- remove reference to Fedora, add dist tag  
Related: rhbz#566527

\* Mon Apr 26 2010 Dennis Gregorovic <dgregor@redhat.com> - 10.0-3.2  
- Rebuilt for RHEL 6  
Related: rhbz#566527

\* Mon Apr 26 2010 Dennis Gregorovic <dgregor@redhat.com> - 10.0-3.1  
- Rebuilt for RHEL 6  
Related: rhbz#566527

\* Fri Jul 24 2009 Fedora Release Engineering <rel-eng@lists.fedoraproject.org> - 10.0-3  
- Rebuilt for [https://fedoraproject.org/wiki/Fedora\\_12\\_Mass\\_Rebuild](https://fedoraproject.org/wiki/Fedora_12_Mass_Rebuild)

\* Mon Feb 23 2009 Fedora Release Engineering <rel-eng@lists.fedoraproject.org> - 10.0-2  
- Rebuilt for [https://fedoraproject.org/wiki/Fedora\\_11\\_Mass\\_Rebuild](https://fedoraproject.org/wiki/Fedora_11_Mass_Rebuild)

\* Mon Oct 20 2008 Phil Knirsch <pknirsch@redhat.com> 10.0-1  
- Bump version and rebuild for Fedora 10 (#451289)

\* Fri Mar 02 2007 Phil Knirsch <pknirsch@redhat.com> - 8.1-1  
- Cleanup per package review (#225608)

\* Wed Jul 12 2006 Jesse Keating  
<jkeating@redhat.com> - 8.0-5.1.1  
- rebuild

- \* Fri Dec 09 2005 Jesse Keating <jkeating@redhat.com>  
- rebuilt
- \* Wed Sep 22 2004 Bill Nottingham <notting@redhat.com>  
- rebuilt
- \* Fri Feb 13 2004 Elliot Lee <sopwith@redhat.com>  
- rebuilt
- \* Wed Jan 22 2003 Tim Powers <timp@redhat.com>  
- rebuilt
- \* Wed Aug 21 2002 Bill Nottingham <notting@redhat.com>  
- bump rev
- \* Fri Jun 21 2002 Tim Powers <timp@redhat.com>  
- automated rebuild
- \* Thu May 23 2002 Tim Powers <timp@redhat.com>  
- automated rebuild
- \* Wed Jan 09 2002 Tim Powers <timp@redhat.com>  
- automated rebuild
- \* Wed Jul 12 2000 Prospector <bugzilla@redhat.com>  
- automatic rebuild
- \* Tue Jun 6 2000 Bill Nottingham <notting@redhat.com>  
- rebuild. Wheee.
- \* Sun Mar 21 1999 Cristian Gafton <gafton@redhat.com>  
- auto rebuild in the new build environment (release 4)
- \* Tue Mar 16 1999 Cristian Gafton <gafton@redhat.com>  
- don't require rpm (breaks dependency chain)
- \* Tue Mar 16 1999 Erik Troan <ewt@redhat.com>  
- require rpm
- \* Wed Dec 30  
1998 Cristian Gafton <gafton@redhat.com>  
- build for 6.0
- \* Tue Aug 11 1998 Jeff Johnson <jbj@redhat.com>  
- build root
- \* Mon Apr 27 1998 Prospector System <bugs@redhat.com>



- translations modified for de, fr, tr

\* Tue Sep 23 1997 Erik Troan <ewt@redhat.com>

- made a noarch package

Found in path(s):

\* /opt/cola/permits/1151233448\_1617817524.04/0/basesystem-10.0-7.el7.centos.src.rpm-cosi-expand-archive-tqrtl4Z0/basesystem.spec

# 1.137 gpg-pubkey f4a80eb5-53a7ff4b

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#+STARTUP: showall
```

\* DNS resolver (dirmngr/dns.c)

dns.c - Recursive, Reentrant DNS Resolver.

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\* Regular  
expression support

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Subsequently modified by:

1986 John Gilmore hoptoad!gnu  
1987 James A. Woods ames!jaw  
1993 Christopher Seiwald seiwald@vix.com  
2000, 2002 Christopher Seiwald <seiwald@perforce.com>  
2010 Steve Bennett <steveb@workware.net.au>  
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## 1.139 util-linux 2.23.2-65.el7\_9.1

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```

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```
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Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.  
This is free software, and you are welcome to redistribute  
it  
under certain conditions; type `show c' for details.
```

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```
Yoyodyne, Inc., hereby disclaims all copyright interest in the program  
'Gnomovision' (which makes passes at compilers) written by James Hacker.
```

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

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size: 8388608, sector size: 512, PT: dos, offset: 446, id=0x8f8378c0

---

#1: 32 7648 0x83

#2: 7680 8704 0xa5

#5: 7936 4864 0x7 (freebsd)

#6: 12544 3584 0x7 (freebsd)

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Initialize empty image

f1c9645dbc14efddc7d8a322685f26eb bsd.img

Create new DOS partition table

57e721e38d1266c2df055067c18f2cf9 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
--------	------	-------	-----	--------	----	--------

Create 1st primary partition

ada64ace122978d00d1d1c0e5ee45d26 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux

Create 2st primary partition

1bebf87248e05d6e4e62b749da65d023

bsd.img

Set 2nd partition type

2d8e8dff51a88a045db233418dd73fbe bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux
__ts_dev__2		4096	20479	8192	a5	FreeBSD

-----

Create default BSD

2e1cee529cb59c9341afef0443f196a1 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
c:	4096	20479	16384	unused	0	0	
d:	0						
	16064	16065	unused	0	0		

BSD disklabel command (m for help):

Command (m for help):

-----

b5c121c2091b2ff26b880551feac7112 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
a:	4096	6144	2049	4.2BSD	0	0	0
c:	4096	20479	16384	unused	0	0	
d:	0	16064	16065	unused	0	0	

BSD disklable command (m for help):

Command (m for help):

-----

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help):

BSD disklable command (m for help):

0 unused      5 4.1BSD      9 4.4LFS      d boot  
1 swap  
    6 Eighth Edition   a unknown      e ADOS  
2 Version 6      7 4.2BSD      b HPFS      f HFS  
3 Version 7      8 MS-DOS      c ISO-9660    10 AdvFS  
4 System V

BSD disklable command (m for help):

/\*

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## 1.140 kitchen 1.1.1

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Version 2.1, February 1999

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## 1.141 pyxattr 0.5.1

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## 1.143 activation-api 1.2.0

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# 1.145 zstd-jni 1.4.9-1

## 1.145.1 Available under license :

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Manifest-Version: 1.0

Automatic-Module-Name: com.github.luben.zstd\_jni

Bnd-LastModified: 1615191527618

Bundle-Description: JNI bindings for Zstd native library that provides fast and high compression lossless algorithm for Java and all JVM languages.

Bundle-License: <https://opensource.org/licenses/BSD-2-Clause>;description=BSD 2-Clause License

Bundle-ManifestVersion: 2

Bundle-Name: zstd-jni

Bundle-NativeCode: aix/ppc64/libzstd-jni.so;osname=AIX;processor=ppc64, darwin/x86\_64/libzstd-jni.dylib;osname=MacOS;osname=MacOSX;processor=x86\_64, darwin/aarch64/libzstd-jni.dylib;osname=MacOS;osname=MacOSX;processor=aarch64, freebsd/amd64/libzstd-jni.so;osname=FreeBSD;processor=amd64, freebsd/i386/libzstd-jni.so;osname=FreeBSD;processor=i386, linux/aarch64/libzstd-jni.so;osname=Linux;processor=aarch64, linux/amd64/libzstd-jni.so;osname=Linux;processor=amd64, linux/arm/libzstd-jni.so;osname=Linux;processor=arm, linux/i386/libzstd-jni.so;osname=Linux;processor=i386, linux/mips64/libzstd-jni.so;osname=Linux;processor=mips64, linux/ppc64/libzstd-jni.so;osname=Linux;processor=ppc64, linux/ppc64le/libzstd-jni.so;osname=Linux;processor=ppc64le, linux/s390x/libzstd-jni.so;osname=Linux;processor=s390x, win/amd64/libzstd-jni.dll;osname=Win32;processor=amd64, win/x86/libzstd-jni.dll;osname=Win32;processor=x86

Bundle-SymbolicName: com.github.luben.zstd-jni

Bundle-Vendor: com.github.luben

Bundle-Version: 1.4.9.1

Created-By: 1.8.0\_275 (Debian)

Export-Package: com.github.luben.zstd;version="1.4.9.1",com.github.luben.zstd.util;version="1.4.9.1"

Implementation-Title: zstd-jni

Implementation-Vendor: com.github.luben

Implementation-Vendor-Id: com.github.luben

Implementation-Version: 1.4.9-1

Import-Package: org.osgi.framework;resolution:=optional

Private-Package: linux.amd64,linux.i386,linux.aarch64,linux.arm,linux.ppc64,linux.ppc64le,linux.mips64,linux.s390x,aix.ppc64,darwin.x86\_64,darwin.aarch64,win.amd64,win.x86,freebsd.amd64,freebsd.i386

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"

Specification-Title: zstd-jni  
Specification-Vendor: com.github.luben  
Specification-Version: 1.4.9-1  
Tool: Bnd-4.0.0.201805111645

Found in path(s):

\* /opt/cola/permits/1176808707\_1624967190.04/0/zstd-jni-1-4-9-1-jar/META-INF/MANIFEST.MF

# 1.146 libgcc 4.8.5-44.e17

## 1.146.1 Available under license :

Jan 21, 2002

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@c man begin SEEALSO

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@item

Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

@item

Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

@item

Convey individual copies of the object code with a copy of the written offer

to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

@item

Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

@item

Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

@end enumerate

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

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@c man end

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Version 2.1, February 1999

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Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any

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```
<one line to give the program's name and a brief idea of what it does.>  
Copyright (C) 19yy <name of author>
```

```
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the Free Software Foundation; either version 1, or (at your option)  
any later version.
```

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```

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```
Gnomovision version 69, Copyright (C) 19xx name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

The hypothetical commands ``show w'` and ``show c'` should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than ``show w'` and ``show c'`; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the
program `Gnomovision' (a program to direct compilers to make passes
at assemblers) written by James Hacker.
```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

That's all there is to it!  
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@item

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```

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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

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Version 3.1, 31 March 2009

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<ftp://gcc.gnu.org/pub/gcc/releases/> (for full releases)

svn://gcc.gnu.org/svn/gcc/ (for prereleases)  
http://bitbucket.org/goshawk/gdc (for D)

The current gcc-4.8 source package is taken from the SVN gcc-4\_8-branch.

Changes: See changelog.Debian.gz

Debian splits the GNU Compiler Collection into packages for each language, library, and documentation as follows:

Language	Compiler package	Library package	Documentation
Ada	gnat-4.8		
	libgnat-4.8	gnat-4.8-doc	
C	gcc-4.8		gcc-4.8-doc
C++	g++-4.8	libstdc++6	libstdc++6-4.8-doc
D	gdc-4.8		
Fortran 95	gfortran-4.8	libgfortran3	gfortran-4.8-doc
Go	gccgo-4.8	libgo0	
Java	gcj-4.8	libgcj10	libgcj-doc
Objective C	gobjc-4.8	libobjc2	
Objective C++	gobjc++-4.8		

For some language run-time libraries, Debian provides source files, development files, debugging symbols and libraries containing position-independent code in separate packages:

Language	Sources	Development	Debugging	Position-Independent
C++		libstdc++6-4.8-dbg	libstdc++6-4.8-pic	
D	libphobos-4.8-dev			
Java	libgcj10-src	libgcj10-dev	libgcj10-dbg	

Additional packages include:

All languages:

libgcc1, libgcc2, libgcc4

GCC intrinsics (platform-dependent)

gcc-4.8-base Base files common to all compilers  
gcc-4.8-soft-float Software floating point (ARM only)  
gcc-4.8-source The sources with patches

Ada:

libgnatvsn-dev, libgnatvsn4.8 GNAT version library  
libgnatprj-dev, libgnatprj4.8 GNAT Project Manager library

C:

cpp-4.8, cpp-4.8-doc GNU C Preprocessor

libmudflap0-dev, libmudflap0 Library for instrumenting pointers  
libssp0-dev, libssp0 GCC stack smashing protection library  
libquadmath0 Math routines for the \_\_float128 type  
fixincludes Fix non-ANSI header files  
protoize Create/remove ANSI prototypes from C code

Java:

gij The Java bytecode interpreter and VM  
libgcj-common Common files for the Java run-time  
libgcj10-awt The Abstract Windowing Toolkit  
libgcj10-jar Java ARchive  
for the Java run-time

C, C++ and Fortran 95:

libgomp1-dev, libgomp1 GCC OpenMP (GOMP) support library  
libitm1-dev, libitm1 GNU Transactional Memory Library

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libquadmath/math:

atanq.c, expm1q.c, j0q.c, j1q.c, log1pq.c, logq.c:

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coshq.c, erfq.c, jnq.c, lgammaq.c, powq.c, roundq.c:

Changes for 128-bit \_\_float128 are

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ldexpq.c:

\* Conversion to long double by Ulrich Drepper,

\* Cygnus Support, drepper@cygnus.com.

cosq\_kernel.c, expq.c, sincos\_table.c, sincosq.c, sincosq\_kernel.c,  
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isinfq.c:

- \* Written by J.T. Conklin <jtc@netbsd.org>.
- \* Change for long double by Jakub Jelinek <jj@ultra.linux.cz>
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log10q.c:

Cephes Math Library Release 2.2: January, 1991

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Adapted for glibc November, 2001

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gcc/go/gofrontend, libgo:

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D:

gdc-4.8                    GNU D Compiler  
libphobos-4.8-dev        D standard runtime library

The D source package is made up of the following components.

The D front-end for GCC:

- d/\*

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The DMD Compiler implementation of the D programming language:

- d/dmd/\*

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The Zlib data compression library:

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The Phobos standard runtime library:

- d/phobos/\*

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This is an attempt to acknowledge early contributions to the garbage collector. Later contributions should instead be mentioned in README.changes.

## HISTORY -

Early versions of this collector were developed as a part of research projects supported in part by the National Science Foundation and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for the Russell programming language implementation. The first version of the garbage collector was written primarily by Al Demers. It was then refined and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U., the University of Washington, Rice University (where it was first used for C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in README.changes. My apologies for any omissions.

The SPARC specific code was originally contributed by Mark Weiser.

The Encore Multimax modifications were supplied by Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely due to Vernon Lee, on machines made available to Rice by IBM.

Much of the HP specific code and a number of good suggestions for improving the generic code are due to Walter Underwood.

Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code.

Al Dossier (dossier@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk) subsequently provided updates and information on variation between ULTRIX systems. Parag Patel (parag@netcom.com) supplied the A/UX code.

Jesper Peterson(jep@mtiame.mtia.oz.au), Michel Schinz, and

Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.

Thomas Funke (thf@zelator.in-berlin.de(?)) and

Brian D.Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.

Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.

Bill Janssen (janssen@parc.xerox.com) supplied the SunOS dynamic loader specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and Dave Detlefs(detlefs@src.dec.com) also provided several generic bug fixes. Alistair G. Crooks(agg@uts.amdahl.com) supplied the NetBSD and 386BSD ports. Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port. Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to a Motorola 88K processor running CX/UX (Harris NightHawk). Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to nonIBM development environments (a nontrivial task). Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port. David Chase, then at Olivetti Research, suggested several improvements. Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the code to save and print call stacks for leak detection on a SPARC. Jesse Hull and John Ellis supplied the C++ interface code. Zhong Shao performed much of the experimentation that led to the current typed allocation facility. (His dynamic type inference code hasn't made it into the released version of the collector, yet.) The software in this package is distributed under the GNU General Public License (with a special exception described below).

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Directory native/fdlibm

fdlibm contains general algorithms useful for runtimes and compilers to support strict double and float mathematical operations.

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\* m4/ax\_func\_which\_gethostbyname\_r.m4

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Version 3, 29 June 2007

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# 1.147 libcurl 7.29.0-59.el7\_9.1

## 1.147.1 Available under license :

License Mixing with apps, libcurl and Third Party Libraries

=====

libcurl can be built to use a fair amount of various third party libraries, libraries that are written and provided by other parties that are distributed using their own licenses. Even libcurl itself contains code that may cause problems to some. This document attempts to describe what licenses libcurl and the other libraries use and what possible dilemmas linking and mixing them all can lead to for end users.

I am not a lawyer and this is not legal advice!

One common dilemma is that GPL[1]-licensed code is not allowed to be linked with code licensed under the Original BSD license (with the announcement clause). You may still build your own copies that use them all, but distributing them as binaries would be to violate the GPL license - unless you accompany your license with an exception[2]. This particular problem was addressed when the Modified BSD license was created, which does not have the announcement clause that collides with GPL.

libcurl <http://curl.haxx.se/docs/copyright.html>

Uses an MIT (or Modified BSD)-style license that is as liberal as possible. Some of the source files that deal with KRB4 have Original BSD-style announce-clause licenses. You may not distribute binaries with krb4-enabled libcurl that also link with GPL-licensed code!

OpenSSL <http://www.openssl.org/source/license.html>

(May be used for SSL/TLS support) Uses an Original BSD-style license with an announcement clause that makes it "incompatible" with GPL. You are not allowed to ship binaries that link with OpenSSL that includes GPL code (unless that specific GPL code includes an exception for OpenSSL - a habit that is growing more and more common). If OpenSSL's licensing is a problem for you, consider using GnuTLS or yassl instead.

GnuTLS <http://www.gnutls.org/>

(May be used for SSL/TLS support) Uses the LGPL[3] license. If this is a problem for you, consider using OpenSSL instead. Also note that



GnuTLS itself depends on and uses other libs (libcrypt and libgpg-error) and they too are LGPL- or GPL-licensed.

yassl <http://www.yassl.com/>

(May be used for SSL/TLS support) Uses the GPL[1] license. If this is a problem for you, consider using OpenSSL or GnuTLS instead.

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axTLS <http://axtls.sourceforge.net/>

(May be used for SSL/TLS support) Uses a Modified BSD-style license.

c-ares <http://daniel.haxx.se/projects/c-ares/license.html>

(Used for asynchronous name resolves) Uses an MIT license that is very liberal and imposes no restrictions on any other library or part you may link with.

zlib [http://www.gzip.org/zlib/zlib\\_license.html](http://www.gzip.org/zlib/zlib_license.html)

(Used for compressed Transfer-Encoding support) Uses an MIT-style license that shouldn't collide with any other library.

krb4

While nothing in particular says that a Kerberos4 library must use any particular license, the one I've tried and used successfully so far (kth-krb4) is partly Original BSD-licensed with the announcement clause. Some of the code in libcurl that is written to deal with Kerberos4 is Modified BSD-licensed.

MIT Kerberos <http://web.mit.edu/kerberos/www/dist/>

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Heimdal <http://www.pdc.kth.se/heimdal/>

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fbopenssl

(Used for SPNEGO support) Unclear license. Based on its name, I assume that it uses the OpenSSL license and thus shares the same issues as described for OpenSSL above.

libidn <http://josefsson.org/libidn/>

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OpenLDAP <http://www.openldap.org/software/release/license.html>

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## 1.148 libstdc++ 4.8.5-44.el7

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Jan 21, 2002

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@c man begin SEEALSO

gfdl(7), fsf-funding(7).

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Convey the object

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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot

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We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

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Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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```

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```
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at assemblers) written by James Hacker.
```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

That's all there is to it!

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@iftex

@appendixsubsec TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@end iftex

@ifinfo

@center GNU LESSER GENERAL PUBLIC LICENSE

@center TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@end ifinfo

@enumerate 0

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

@end enumerate

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

@item

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However,  
linking a ``work that uses the Library" with the Library  
creates an executable that is a derivative of the Library (because it  
contains portions of the Library), rather than a ``work that uses the  
library". The executable is therefore covered by this License.  
Section 6 states terms for distribution of such executables.

When a ``work that uses the Library" uses material from a header file  
that is part of the Library, the object code for the work may be a  
derivative work of the Library even though the source code is not.  
Whether this is true is especially significant if the work can be  
linked without the Library, or if the work is itself a library. The  
threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data  
structure layouts and accessors, and small macros and small inline  
functions (ten lines or less in length), then the use of the object  
file is unrestricted, regardless of whether it is legally a derivative  
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(Executables containing this object code plus portions of the  
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@item

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@item

Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

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It may happen that this requirement contradicts the license



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@iftex

@heading END OF TERMS AND CONDITIONS

@end iftex

@ifinfo

@center END OF TERMS AND CONDITIONS

@end ifinfo

@page

@appendixsubsec How to Apply These Terms to Your New Libraries

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@end smallexample

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`Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990

Ty Coon, President of Vice

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That's all there is to it!

@ignore

@c Set file name and title for man page.

@setfilename gfdl

@settitle GNU Free Documentation License

@c man begin SEEALSO

gpl(7), fsf-funding(7).

@c man end

@c man begin COPYRIGHT

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@uref{<http://fsf.org/>}

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@c This file is intended to be included within another document,

@c hence no sectioning command or @node.

@c man end

@end ignore

@c Special handling for inclusion in the install manual.

@ifset gfdlhtml

@ifnohtml

@comment node-name, next, previous, up

@node GNU Free Documentation License, Concept Index, Old, Top

@end ifnohtml

@html

<h1 align="center">Installing GCC: GNU Free Documentation License</h1>

@end html

@ifnohtml

@unnumbered GNU Free Documentation License

@end ifnohtml

@end ifset

@c man begin DESCRIPTION  
@ifclear gfdlhtml  
@node GNU Free Documentation License  
@unnumbered  
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@end ifclear

@cindex FDL, GNU Free Documentation License  
@center Version 1.3, 3 November 2008

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@enumerate 0  
@item  
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ftp://gcc.gnu.org/pub/gcc/releases/ (for full releases)  
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http://bitbucket.org/goshawk/gdc (for D)

The current gcc-4.8 source package is taken from the SVN gcc-4\_8-branch.

Changes: See changelog.Debian.gz

Debian splits the GNU Compiler Collection into packages for each language, library, and documentation as follows:

Language	Compiler package	Library package	Documentation
Ada	gnat-4.8		
	libgnat-4.8	gnat-4.8-doc	
C	gcc-4.8		gcc-4.8-doc
C++	g++-4.8	libstdc++6	libstdc++6-4.8-doc
D	gdc-4.8		
Fortran 95	gfortran-4.8	libgfortran3	gfortran-4.8-doc
Go	gccgo-4.8	libgo0	
Java	gcj-4.8	libgcj10	libgcj-doc
Objective C	gobjc-4.8	libobjc2	
Objective C++	gobjc++-4.8		

For some language run-time libraries, Debian provides source files, development files, debugging symbols and libraries containing position-independent code in separate packages:

Language	Sources	Development	Debugging	Position-Independent
C++		libstdc++6-4.8-dbg	libstdc++6-4.8-pic	
D	libphobos-4.8-dev			
Java	libgcj10-src	libgcj10-dev	libgcj10-dbg	

Additional packages include:

All languages:

libgcc1, libgcc2, libgcc4

    GCC intrinsics (platform-dependent)

gcc-4.8-base            Base files common to all compilers  
gcc-4.8-soft-float      Software floating point (ARM only)  
gcc-4.8-source          The sources with patches

Ada:

libgnatvsn-dev, libgnatvsn4.8  GNAT version library  
libgnatprj-dev, libgnatprj4.8  GNAT Project Manager library

C:

cpp-4.8, cpp-4.8-doc          GNU C Preprocessor  
libmudflap0-dev, libmudflap0  Library for instrumenting pointers  
libssp0-dev, libssp0          GCC stack smashing protection library  
libquadmath0                Math routines for the \_\_float128 type  
fixincludes                Fix non-ANSI header files  
protoize                  Create/remove ANSI prototypes from C code

Java:

gij                        The Java bytecode interpreter and VM  
libgcj-common                Common files for the Java run-time  
libgcj10-awt                The Abstract Windowing Toolkit  
libgcj10-jar                Java ARchive  
for the Java run-time

C, C++ and Fortran 95:

libgomp1-dev, libgomp1  GCC OpenMP (GOMP) support library  
libitm1-dev, libitm1  GNU Transactional Memory Library

Biarch support: On some 64-bit platforms which can also run 32-bit code, Debian provides additional packages containing 32-bit versions of some libraries. These packages have names beginning with 'lib32' instead of 'lib', for example lib32stdc++6. Similarly, on some 32-bit platforms which can also run 64-bit code, Debian provides additional packages with names beginning with 'lib64' instead of 'lib'. These packages contain 64-bit versions of the libraries. (At this time, not all platforms and not all libraries support biarch.) The license terms for these lib32 or lib64 packages are identical to the ones for the lib packages.

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- libdecnumber
- libgomp
- libitm
- libssp
- libstdc++-v3
- libobjc
- libmudflap
- libgfortran
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- \* Conversion to long double by Ulrich Drepper,
- \* Cygnus Support, drepper@cygnus.com.

cosq\_kernel.c, expq.c, sincos\_table.c, sincosq.c, sincosq\_kernel.c, sinq\_kernel.c, truncq.c:

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gcc/go/gofrontend, libgo:

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D:  
gdc-4.8                    GNU D Compiler  
libphobos-4.8-dev        D standard runtime library

The D source package is made up of the following components.

The D front-end for GCC:  
- d/\*

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The DMD Compiler implementation of the D programming language:  
- `d/dmd/*`

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The Zlib data compression library:  
- `d/phobos/etc/c/zlib/*`

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The Phobos standard runtime library:  
- `d/phobos/*`

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This is an attempt to acknowledge early contributions to the garbage collector. Later contributions should instead be mentioned in README.changes.

## HISTORY -

Early versions of this collector were developed as a part of research projects supported in part by the National Science Foundation and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for the Russell programming language implementation. The first version of the garbage collector was written primarily by Al Demers. It was then refined and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U., the University of Washington, Rice University (where it was first used for C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in README.changes. My apologies for any omissions.



The SPARC specific code was originally contributed by Mark Weiser.

The Encore Multimax modifications were supplied by Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely due to Vernon Lee, on machines made available to Rice by IBM.

Much of the HP specific code and a number of good suggestions for improving the generic code are due to Walter Underwood.

Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code. Al Dosser (dosser@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk) subsequently provided updates and information on variation between ULTRIX systems. Parag Patel (parag@netcom.com) supplied the A/UX code.

Jesper Peterson(jep@mtiame.mtia.oz.au), Michel Schinz, and Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.

Thomas Funke (thf@zelator.in-berlin.de(?)) and Brian D.Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.

Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.

Bill Janssen (janssen@parc.xerox.com) supplied the SunOS dynamic loader specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and Dave Detlefs(detlefs@src.dec.com) also provided several generic bug fixes.

Alistair G. Crooks(agg@uts.amdahl.com) supplied the NetBSD and 386BSD ports.

Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port.

Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to a Motorola 88K processor running CX/UX (Harris NightHawk).

Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to nonIBM development environments (a nontrivial task).

Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port.

David Chase, then at Olivetti Research, suggested several improvements.

Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the code to save and print call stacks for leak detection on a SPARC.

Jesse Hull and John Ellis supplied the C++ interface code.

Zhong Shao performed much of the experimentation that led to the current typed allocation facility. (His dynamic type inference code hasn't made it into the released version of the collector, yet.)

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David Megginson,  
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```
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it
under certain conditions; type `show c' for details.
```

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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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size: 8388608, sector size: 512, PT: dos, offset: 446, id=0x8f8378c0

---

```
#1: 32 7648 0x83
#2: 7680 8704 0xa5
#5: 7936 4864 0x7 (freebsd)
#6: 12544 3584 0x7 (freebsd)
```

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Initialize empty image

f1c9645dbc14efddc7d8a322685f26eb bsd.img

Create new DOS partition table

57e721e38d1266c2df055067c18f2cf9 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
--------	------	-------	-----	--------	----	--------

-----

Create 1st primary partition

ada64ace122978d00d1d1c0e5ee45d26 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux

-----

Create 2st primary partition

1bebf87248e05d6e4e62b749da65d023

bsd.img

Set 2nd partition type

2d8e8dff51a88a045db233418dd73fbe bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux
__ts_dev__2		4096	20479	8192	a5	FreeBSD

-----

Create default BSD

2e1cee529cb59c9341afef0443f196a1 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
c:	4096	20479	16384	unused	0	0	
d:	0	16064	16065	unused	0	0	

BSD disklabel command (m for help):

Command (m for help):

-----

b5c121c2091b2ff26b880551feac7112 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
a:	4096	6144	2049	4.2BSD	0	0	0
c:	4096	20479	16384	unused	0	0	
d:	0	16064	16065	unused	0	0	

BSD disklabel command (m for help):

Command (m for help):

-----

Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

0	unused	5	4.1BSD	9	4.4LFS	d	boot
1	swap						
	6	Eighth Edition	a	unknown	e	ADOS	
2	Version 6	7	4.2BSD	b	HPFS	f	HFS
3	Version 7	8	MS-DOS	c	ISO-9660	10	AdvFS

## 4 System V

BSD disklabel command (m for help):

/\*

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\*/

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Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

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# 1.151 libmount 2.23.2-65.el7\_9.1

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size: 8388608, sector size: 512, PT: dos, offset: 446, id=0x8f8378c0

---

#1: 32 7648 0x83  
#2: 7680 8704 0xa5  
#5: 7936 4864 0x7 (freebsd)  
#6: 12544 3584 0x7 (freebsd)

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Initialize empty image

f1c9645dbc14efddc7d8a322685f26eb bsd.img

Create new DOS partition table

57e721e38d1266c2df055067c18f2cf9 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
--------	------	-------	-----	--------	----	--------

-----

Create 1st primary partition

ada64ace122978d00d1d1c0e5ee45d26 bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux

-----

Create 2st primary partition

1bebf87248e05d6e4e62b749da65d023

bsd.img

Set 2nd partition type

2d8e8dff51a88a045db233418dd73fbe bsd.img

---layout-----

\_\_ts\_dev\_\_: 10 MB, 10485760 bytes, 20480 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk label type: dos

Disk identifier: 0x00000001

Device	Boot	Start	End	Blocks	Id	System
__ts_dev__1		2048	4095	1024	83	Linux
__ts_dev__2		4096	20479	8192	a5	FreeBSD

-----

Create default BSD

2e1cee529cb59c9341afef0443f196a1 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.

Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

# start end size fstype [fsize bsize cpg]

c: 4096 20479 16384 unused 0 0

d: 0

16064 16065 unused 0 0

BSD disklabel command (m for help):

Command (m for help):

-----

b5c121c2091b2ff26b880551feac7112 bsd.img

---layout-----

Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

4 partitions:

#	start	end	size	fstype	[fsize	bsize	cpg]
a:	4096	6144	2049	4.2BSD	0	0	0
c:	4096	20479	16384	unused	0	0	
d:	0	16064	16065	unused	0	0	

BSD disklabel command (m for help):

Command (m for help):

-----

Changes will remain in memory only, until you decide to write them.  
Be careful before using the write command.

Command (m for help):

BSD disklabel command (m for help):

0	unused	5	4.1BSD	9	4.4LFS	d	boot
1	swap						
	6	Eighth Edition	a	unknown	e	ADOS	
2	Version 6	7	4.2BSD	b	HPFS	f	HFS
3	Version 7	8	MS-DOS	c	ISO-9660	10	AdvFS
4	System V						

BSD disklabel command (m for help):

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Ulrich Drepper <drepper@redhat.com>  
Jeff Johnson <jbj@redhat.com>  
Alexander Larsson  
Jakub Jelinek <jakub@redhat.com>  
Roland McGrath <roland@redhat.com>

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Alexander Larsson  
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## 1.159 pycurl 7.19.0

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[libraries/source/browse/guava/src/com/google/common/annotations/Beta.java](https://code.google.com/p/guava-libraries/source/browse/guava/src/com/google/common/annotations/Beta.java)

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jar/rx/internal/operators/OnSubscribeReduce.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/util/SuppressAnimalSniffer.java
*
/opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OnSubscribeTakeLastOne.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/DeferredScalarSubscriber.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/ExceptionsUtils.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OnSubscribeConcatMap.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OnSubscribeCollect.java
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jar/rx/internal/operators/SingleOnSubscribeUsing.java
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jar/rx/internal/operators/OnSubscribeFromCallable.java
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jar/rx/internal/operators/DeferredScalarSubscriberSafe.java
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jar/rx/internal/operators/SingleOperatorOnErrorResumeNext.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OnSubscribeReduceSeed.java
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jar/rx/internal/operators/OnSubscribePublishMulticast.java
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jar/rx/internal/operators/SingleOperatorCast.java

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jar/rx/observables/ConnectableObservable.java

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jar/rx/internal/operators/CompletableOnSubscribeMergeArray.java

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jar/rx/subscriptions/BooleanSubscription.java

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jar/rx/exceptions/MissingBackpressureException.java

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jar/rx/internal/operators/OperatorSkipWhile.java

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jar/rx/internal/operators/BufferUntilSubscriber.java

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jar/rx/internal/operators/OperatorObserveOn.java  
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\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/CompletableOnSubscribeConcatIterable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorWithLatestFromMany.java  
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 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/subjects/AsyncSubject.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-  
 jar/rx/internal/operators/BlockingOperatorNext.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/functions/ActionN.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-  
 jar/rx/internal/operators/OperatorOnErrorResumeNextViaFunction.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-  
 jar/rx/internal/operators/OnSubscribeToObservableFuture.java  
 \*  
 /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/subjects/SerializedSubject.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-  
 jar/rx/internal/operators/CompletableOnSubscribeConcatArray.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/functions/FuncN.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorScan.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-  
 jar/rx/schedulers/TrampolineScheduler.java  
 \* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-  
 jar/rx/internal/operators/OperatorTake.java  
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\*/

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This package contains code that relies on sun.misc.Unsafe. Before using it you MUST assert

UnsafeAccess.isUnsafeAvailable() == true

Much of the code in this package comes from or is inspired by the JCTools project:

<https://github.com/JCTools/JCTools>

JCTools has now published artifacts (<https://github.com/JCTools/JCTools/issues/17>) so RxJava could add JCTools as a "shadow" dependency (<https://github.com/ReactiveX/RxJava/issues/1735>).

RxJava has a "zero dependency" policy for the core library, so if we do add it as a dependency, it won't be an externally visible dependency that results in a separate jar.

The license for the JCTools code is <https://github.com/JCTools/JCTools/blob/master/LICENSE>

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\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/producers/QueuedValueProducer.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/producers/ProducerObserverArbiter.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/producers/QueuedProducer.java  
\*  
/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/BackpressureUtils.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/producers/ProducerArbiter.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/producers/SingleProducer.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/producers/SingleDelayedProducer.java  
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\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorBufferWithTime.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorMulticast.java  
\*  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorMapPair.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorEagerConcatMap.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorDistinct.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/schedulers/ScheduledAction.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorSampleWithObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeTimerPeriodically.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/schedulers/ExecutorScheduler.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorBufferWithSize.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorDebounceWithSelector.java  
\*  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorDebounceWithTime.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorWindowWithStartEndObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/RxThreadFactory.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeDelaySubscription.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorWindowWithObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeDelaySubscriptionOther.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeSkipTimed.java  
\*  
/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorSkipUntil.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeTimerOnce.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorWindowWithObservableFactory.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorDistinctUntilChanged.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleOnSubscribeDelaySubscriptionOther.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorPublish.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorBufferWithStartEndObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/PlatformDependent.java  
\*  
/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorRetryWithPredicate.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeDelaySubscriptionWithSelector.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorBufferWithSingleObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorDelayWithSelector.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorDoAfterTerminate.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorTakeTimed.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorWindowWithSize.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorSwitch.java  
\*  
/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/schedulers/NewThreadWorker.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorOnBackpressureLatest.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorSampleWithTime.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorWindowWithTime.java

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* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OperatorWithLatestFrom.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OnSubscribeRefCount.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/util/atomic/SpscLinkedListArrayQueue.java
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core/src/main/java/org/jctools/queues/MessagePassingQueue.java
*/
```

Found in path(s):

```
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
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core/src/main/java/org/jctools/queues/SpscLinkedListArrayQueue.java
*/
```



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\* Original location: <https://github.com/JCTools/JCTools/blob/master/jctools-core/src/main/java/org/jctools/queues/QueueProgressIndicators.java>

\*/

Found in path(s):

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/unsafe/QueueProgressIndicators.java

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\* This plugin class provides 2 ways to customize {@link Scheduler} functionality

\* 1. You may redefine entire schedulers, if you so choose. To do so, override

\* the 3 methods that return Scheduler (io(), computation(), newThread()).

\* 2. You may wrap/decorate an { @link Action0}, before it is handed off to a Scheduler. The system-  
\* supplied Schedulers (Schedulers.ioScheduler, Schedulers.computationScheduler,  
\* Scheduler.newThreadScheduler) all use this hook, so it's a convenient way to  
\* modify Scheduler functionality without redefining Schedulers wholesale.  
\*  
\* Also, when redefining Schedulers, you are free to use/not use the onSchedule decoration hook.  
\* <p>  
\* See { @link RxJavaPlugins} or the RxJava GitHub Wiki for information on configuring plugins:  
\* <a  
href="https://github.com/ReactiveX/RxJava/wiki/Plugins">https://github.com/ReactiveX/RxJava/wiki/Plugins</a>.  
\*/

Found in path(s):

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/plugins/RxJavaSchedulersHook.java  
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\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/Observable.java  
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\* Original location: <https://github.com/JCTools/JCTools/blob/master/jctools-core/src/main/java/org/jctools/queues/atomic/SpSCAtomicArrayQueue.java>  
\*/

Found in path(s):

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/atomic/SpSCExactAtomicArrayQueue.java

\*  
/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/atomic/SpSCAtomicArrayQueue.java

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\* Original location: <https://github.com/JCTools/JCTools/blob/master/jctools-core/src/main/java/org/jctools/queues/ConcurrentSequencedCircularArrayQueue.java>  
\*/

Found in path(s):

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/unsafe/ConcurrentSequencedCircularArrayQueue.java

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\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/Emitter.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleTakeUntilObservable.java

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/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/observables/package-info.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/observers/SafeCompletableSubscriber.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/ActionObserver.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeThrow.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/observers/package-info.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleTakeUntilCompletable.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/CompletableFlatMapSingleToCompletable.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/annotations/package-info.java

\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/InternalObservableUtils.java

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/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/BackpressureOverflow.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/plugins/RxJavaCompletableExecutionHook.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleDoOnUnsubscribe.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/subscriptions/Unsubscribed.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeLift.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleLiftObservableOperator.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/plugins/RxJavaSingleExecutionHook.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleOnErrorReturn.java  
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/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeOnAssembly.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/functions/package-info.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleFromObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeOnAssemblyCompletable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleFromEmitter.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeCreate.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/ActionNotificationObserver.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OnSubscribeOnAssemblySingle.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/subscriptions/CancellableSubscription.java  
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/opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleObserveOn.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/schedulers/GenericScheduledExecutorServiceFactory.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/observers/AssertableSubscriber.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/subjects/package-info.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/plugins/RxJavaSingleExecutionHookDefault.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/observers/AssertableSubscriberObservable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleFromCallable.java  
\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/ObserverSubscriber.java

```

*
/opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/plugins/package-info.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/exceptions/package-info.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/exceptions/AssemblyStackTraceException.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/SingleFromFuture.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/SingleTakeUntilSingle.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/functions/Cancellable.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/EmptyObservableHolder.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/SingleToObservable.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/schedulers/SchedulerWhen.java
*
/opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/NeverObservableHolder.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/observers/AsyncCompletableSubscriber.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/schedulers/SchedulePeriodicHelper.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/OnSubscribeFlattenIterable.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/plugins/RxJavaHooks.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/singles/package-info.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/subscriptions/package-info.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/SingleDelay.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/SingleTimeout.java
*
/opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-
jar/rx/internal/operators/SingleDoOnSubscribe.java
* /opt/cola/permits/1199767188_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/util/ActionSubscriber.java
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\* /opt/cola/permits/1199767188\_1630583074.7/0/rxjava-1-3-8-sources-4-jar/rx/internal/operators/OperatorGroupByEvicting.java

## 1.162 servlet-api 4.0.1

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## 1.164 common-utils 6.2.1

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Texts being @var{list}, and with the Back-Cover Texts  
being @var{list}.  
@end group  
@end smallexample

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@c Local Variables:  
@c ispell-local-pdict: "ispell-dict"  
@c End:

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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Any

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The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.



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b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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END OF TERMS AND CONDITIONS

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```
<one line to give the library's name and a brief idea of what it does.>  
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```

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Here is a sample; alter the names:

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```
<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice
```

That's all there is to it!

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Version 3, 29 June 2007

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The

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```
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```

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@cindex LGPL, Lesser General Public License

@center Version 2.1, February 1999

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@appendixsubsec Preamble

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@appendixsubsec TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

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@center GNU LESSER GENERAL PUBLIC LICENSE

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@iftex

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@page

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```
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@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}
```

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USA.
@end smallexample
```

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```
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Yoyodyne, Inc., hereby disclaims all copyright interest in the library
`Frob' (a library for tweaking knobs) written by James Random Hacker.
```

```
@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample
```

That's all there is to it!  
(This file is under construction.) -\*- text -\*-

If you've contributed to gas and your name isn't listed here, it is not meant as a slight. I just don't know about it. Email me, nickc@redhat.com and I'll correct the situation.

This file will eventually be deleted: The general info will go into the documentation, and info on specific files will go into an AUTHORS file, as requested by the FSF.

+++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for gdb-specific debug information and the 68k series machines, most of the preprocessing pass, and extensive changes in messages.c, input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various enhancements and many bug fixes, including merging support for several processors, breaking gas up to handle multiple object file format backends (including heavy rewrite, testing, an integration of the coff and b.out backends), adding configuration including heavy testing and verification of cross assemblers and file splits and renaming, converted gas to strictly ansi C including full prototypes, added support for m680[34]0 & cpu32, considerable work on i960 including a coff port (including considerable amounts of reverse engineering), a sparc opcode file rewrite, decstation, rs6000, and hp300hpux host ports, updated "know" assertions and made them work, much other reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan. Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support

that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many small bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost; we aren't intentionally leaving anyone out.

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## 1.168 icu4j 69.1

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Implementation-Title: Netty/All-in-One

Bundle-Description: Netty is an asynchronous event-driven network application framework for rapid development of maintainable high performance protocol servers and clients.

Automatic-Module-Name:

Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0>

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Implementation-Version: 4.1.70.Final

Built-By: norman

Bnd-LastModified: 1635932641304

Bundle-ManifestVersion: 2

Implementation-Vendor-Id: io.netty

Bundle-DocURL: <https://netty.io/>



Bundle-Vendor: The Netty Project  
Import-Package: sun.nio.ch;resolution:=optional,org.eclipse.jetty.npn;  
version="[1,2)";resolution:=optional,org.eclipse.jetty.alpn;version="  
[1,2)";resolution:=optional  
Tool: Bnd-2.4.1.201501161923  
Implementation-Vendor: The Netty Project  
Bundle-Name: Netty/All-in-One  
Bundle-Version: 4.1.70.Final  
Created-By: Apache Maven Bundle Plugin  
Build-Jdk:  
1.8.0\_252  
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<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

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# 1.172 jackson 2.15.0

## 1.172.1 Available under license :

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# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library. It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007. It is currently developed by a community of developers.

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# 1.173 rpm 4.11.3-48.el7\_9

## 1.173.1 Available under license :

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Version 2, June 1991

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Version 2, June 1991

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## 1.174 httpasyncclient 4.1.5

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5.42, the complete

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*
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\* (available at ftp://ftp.lazerware.com/MacBinaryIII\_src\_C.sit  
\* homepage of Leonard Rosenthol leonardr@netcom.com)

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-----  
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"He says that he thought that whoever contacted him understood that he has no objection to the Info-ZIP group's inclusion of his code.

His primary concern is that it remain freely distributable, he said."

Despite the fact that our "normal" code has been entirely rewritten and by default no longer contains any of Mr. Smith's code, Info-ZIP remains indebted and grateful to him. We hope he finds our contributions as useful as we have his.

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-----

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-----

The remaining code was written by many people associated with the  
Info-ZIP group, with large contributions from (but not limited to):  
Greg Roelofs (overall program logic, ZipInfo, unshrink, filename  
mapping/portability, etc.), Mark Adler (inflate, explode, funzip),  
Kai Uwe Rommel (OS/2), John Bush and Paul Kienitz (Amiga), Antoine  
Verheijen (Macintosh), Hunter Goatley (more VMS), Mike White (Windows  
DLLs), Christian Spieler (overall logic, optimization, VMS, etc.) and  
others. See the file CONTRIBS in the source distribution for a much  
more complete list of contributors.

The decompression core code for the deflate method (inflate.[ch],  
explode.c) was originally written by Mark Adler who submitted it  
as public domain code.

-----

## 1.182 dom 1.0

### 1.182.1 Available under license :

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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASNotationDeclaration.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASObject.java

\*

/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/CharacterDataEditAS.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/DOMImplementationAS.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASModel.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/DocumentAS.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASAttributeDeclaration.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASElementDeclaration.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASEntityDeclaration.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASNamedObjectMap.java

\*

/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASDataType.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/ASContentModel.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom3/as/DOMASWriter.java

```
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/dom3/as/DocumentEditAS.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/dom3/as/ASObjectList.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/dom3/as/DOMASBuilder.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/dom3/as/DOMASException.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/dom3/as/NodeEditAS.java
```

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```

```
*/
```

```
/**
```

```
 * Checks if this content model has had its min/maxOccurs values reduced for
 * purposes of speeding up UPA. If
so, this content model should not be used
 * for any purpose other than checking unique particle attribution
 *
 * @return a boolean that says whether this content has been compacted for UPA
 */
```

Found in path(s):

```
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/impl/xs/models/XSCMValidator.java
```

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\*/

/\*\*

\* DOM Level 3 LS CR - Experimental.

\* Create a new `LSParser`. The newly constructed parser may

\*

then be configured by means of its `DOMConfiguration`

\* object, and used to parse documents by means of its `parse`

\* method.

\* @param mode The `mode` argument is either

\* `MODE_SYNCHRONOUS` or `MODE_ASYNCHRONOUS`, if

\* `mode` is `MODE_SYNCHRONOUS` then the

\* `LSParser` that is created will operate in synchronous

\* mode, if it's `MODE_ASYNCHRONOUS` then the

\* `LSParser` that is created will operate in asynchronous

\* mode.

\* @param schemaType An absolute URI representing the type of the schema

\* language used during the load of a `Document` using the

\* newly created `LSParser`. Note that no lexical checking

\* is done on the absolute URI. In order to create a

\* `LSParser` for any kind of schema types (i.e. the

\* `LSParser` will be free to use any schema

found), use the value

\* `null`.

\* 

>>>Note:<<< For W3C XML Schema [<http://www.w3.org/TR/2001/REC-xmlschema-1-20010502>] XML Schema Part 1</a>]

\* , applications must use the value

\* `"http://www.w3.org/2001/XMLSchema"`. For XML DTD [<http://www.w3.org/TR/2000/REC-xml-20001006>] XML 1.0</a>],

\* applications must use the value

\* `"http://www.w3.org/TR/REC-xml"`. Other Schema languages

\* are outside the scope of the W3C and therefore should recommend an

\* absolute URI in order to use this method.

\* @return The newly created `LSParser` object. This

\* `LSParser` is either synchronous or asynchronous

\* depending on the value of the `mode` argument.

\* 

>>>Note:<<< By default, the newly created `LSParser`

\* does not contain a `DOMErrorHandler`, i.e. the value of

\* the "<http://www.w3.org/TR/2003/WD-DOM-Level-3-Core-20030609/core.html#parameter-error-handler>">

- \* error-handler</a>" configuration parameter is <code>null</code>. However, implementations
- \* may provide a default error handler at creation time. In that case,
- \* the initial value of the <code>"error-handler"</code> configuration
- \* parameter on the new created <code>LSParser</code> contains a
- \* reference to the default error handler.
- \* @exception DOMException
- \* NOT\_SUPPORTED\_ERR: Raised if the requested mode or schema type is
- \* not supported.

\*/

Found in path(s):

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/CoreDOMImplementationImpl.java

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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/traversers/XSDocumentInfo.java

\*

/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/traversers/XSDElementTraverser.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xni/parser/XMLErrorHandler.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/html/dom/HTMLFrameElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/util/XMLEntityDescriptionImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/util/ShadowedSymbolTable.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/util/ObjectListImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/dom/WMLImgElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/WMLOptgroupElement.java

\*

/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xni/parser/XMLInputSource.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/WMLImgElement.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DeferredCDATASectionImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/traversers/XSDAbstractIDConstraintTraverser.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/dom/WMLTimerElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xs/XSParticle.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/dom/WMLWmlElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dv/xs/AnySimpleDV.java

\*

/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xs/StringList.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/WMLTimerElement.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xpath/regex/CaseInsensitiveMap.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/opti/SchemaDOMImplementation.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/opti/DefaultXMLDocumentHandler.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DeferredElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/WMLAnchorElement.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xml/serialize/HTMLSerializer.java

\*

/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/html/dom/HTMLHtmlElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/stax/DefaultNamespaceContext.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xinclude/MultipleScopeNamespaceSupport.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/opti/SchemaParsingConfig.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-

jar/org/apache/xerces/impl/dtd/XML11NSDTDValidator.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/xpointer/XPointerMessageFormatter.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/xs/XSException.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/wml/dom/WMLMetaElementImpl.java  
\*  
/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/html/dom/HTMLQuoteElementImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/util/EncodingMap.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/xinclude/XIncludeTextReader.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/dom/DOMInputImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/html/dom/ObjectFactory.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/xpointer/XPointerHandler.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/util/XMLCatalogResolver.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/jaxp/TeeXMLDocumentFilterImpl.java  
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/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/html/dom/HTMLTableSectionElementImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/dtd/models/CMStateSet.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/dv/xs/Base64BinaryDV.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/jaxp/validation/DraconianErrorHandler.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/jaxp/JAXPValidatorComponent.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/html/dom/HTMLTitleElementImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/parsers/XML11NonValidatingConfiguration.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/dom/ElementDefinitionImpl.java  
\*  
/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/dtd/XML11ElementDecl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/xs/XSAttributeGroupDecl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/parsers/AbstractDOMParser.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
 jar/org/apache/html/dom/HTMLSelectElementImpl.java  
 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
 jar/org/apache/html/dom/HTMLLabelElementImpl.java  
 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
 jar/org/apache/html/dom/HTMLFieldSetElementImpl.java  
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 jar/org/apache/wml/dom/WMLCardElementImpl.java  
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 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
 jar/org/apache/wml/WMLMetaElement.java  
 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
 jar/org/apache/xerces/impl/dv/XSSimpleType.java  
 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
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 /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
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 jar/org/apache/xerces/impl/xs/opti/ElementImpl.java  
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 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
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 \* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/stax/events/NamespaceImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xs/XSAttributeDeclaration.java  
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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/wml/WMLAElement.java  
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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DOMOutputImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DOMImplementationImpl.java  
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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/NodeListCache.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/PSVIElementNSImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xinclude/XIncludeHandler.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/util/SAXMessageFormatter.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DeferredCommentImpl.java  
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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dv/xs/IntegerDV.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/jaxp/DocumentBuilderFactoryImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/html/dom/HTMLIsIndexElementImpl.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dtd/models/SimpleContentModel.java  
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/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DeferredDocumentImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xs/XSSimpleTypeDefinition.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/stax/EmptyLocation.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xml/serialize/SerializerFactory.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/util/HTTPInputSource.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xml/serialize/Encodings.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xs/XSAttributeUse.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xml/serialize/BaseMarkupSerializer.java  
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/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/stax/events/CharactersImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DeferredDOMImplementationImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/stax/XMLEventFactoryImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/util/JAXPNamespaceContextWrapper.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/util/NamespaceSupport.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xni/XMLDocumentHandler.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/dom/DOMLocatorImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/util/LSInputListImpl.java  
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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/jaxp/validation/JAXPValidationMessageFormatter.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dtd/models/CMBinOp.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dv/xs/ExtendedSchemaDVFactoryImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dtd/XML11DTDValidator.java  
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jar/org/apache/xerces/impl/dv/DVFactoryException.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/html/dom/HTMLDocumentImpl.java  
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jar/org/apache/wml/WMLOptionElement.java  
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jar/org/apache/html/dom/HTMLParamElementImpl.java  
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jar/org/apache/xerces/impl/dv/dtd/XML11DTDDVFactoryImpl.java  
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jar/org/apache/xerces/impl/xs/traversers/XSDNotationTraverser.java

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 jar/org/apache/wml/dom/WMLFieldsetElementImpl.java  
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 jar/org/apache/xerces/impl/xpath/regex/RangeToken.java  
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 jar/org/apache/xerces/impl/io/UCSReader.java  
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 /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/xs/XSValue.java  
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 jar/org/apache/xerces/impl/dv/dtd/XML11IDREFDatatypeValidator.java

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\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/jaxp/validation/ValidatorImpl.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/parsers/XMLGrammarParser.java  
\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/dtd/XMLSimpleType.java  
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/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-jar/org/apache/xerces/impl/xs/SchemaNamespaceSupport.java  
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/\*\*

\* used to check the 3 constraints against each complex type

\* (should be each model group):

\* Unique Particle

Attribution, Particle Derivation (Restriction),

\* Element Declarations Consistent.

\*/

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jar/org/apache/xerces/impl/dv/xs/AbstractDateTimeDV.java

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/opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/dv/xs/YearDV.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/xs/traversers/XSDKeyrefTraverser.java

\* /opt/cola/permits/1257218116\_1642790294.82/0/xercesimpl-2-12-0-sources-  
jar/org/apache/xerces/impl/dv/xs/DateDV.java

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jar/org/apache/xerces/impl/xs/traversers/XSDUniqueOrKeyTraverser.java

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jar/org/apache/xerces/impl/dv/xs/MonthDV.java

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jar/org/apache/xerces/impl/dv/xs/TimeDV.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/impl/xs/traversers/XSAttributeChecker.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
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* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
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* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/impl/dv/xs/XSSimpleTypeDecl.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/impl/xs/traversers/XSDHandler.java
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
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* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
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jar/org/apache/xerces/impl/xpath/regex/message.properties
* /opt/cola/permits/1257218116_1642790294.82/0/xercesimpl-2-12-0-sources-
jar/org/apache/xerces/impl/msg/DOMMessages.properties
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```

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\* /opt/cola/permits/1257262326\_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/package-info.java

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```
/**  
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*/
```

Found in path(s):

\* /opt/cola/permits/1257262326\_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/WriterReaderPhaser.java

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*  
* @author Gil Tene  
*/
```

Found in path(s):

\* /opt/cola/permits/1257262326\_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/DoublePercentileIterator.java

\* /opt/cola/permits/1257262326\_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/SynchronizedHistogram.java

\* /opt/cola/permits/1257262326\_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/SynchronizedDoubleHistogram.java

```

* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/HistogramLogReader.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleLinearIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/Version.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/RecordedValuesIterator.java
*
/opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/IntCountsHistogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/AbstractHistogramIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/SingleWriterRecorder.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/Histogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleHistogramIterationValue.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/HistogramLogProcessor.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/HistogramIterationValue.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/ShortCountsHistogram.java
*
/opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/ZigZagEncoding.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/LogarithmicIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/LinearIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleAllValuesIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-jar/org/HdrHistogram/Recorder.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleHistogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/AtomicHistogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleRecorder.java
*
/opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/AbstractHistogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/SingleWriterDoubleRecorder.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/ConcurrentDoubleHistogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-

```

```
jar/org/HdrHistogram/PercentileIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/AllValuesIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleRecordedValuesIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/DoubleLogarithmicIterator.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/ConcurrentHistogram.java
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/AbstractHistogramLogReader.java
*
/opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/EncodableHistogram.java
No license file was found, but licenses were detected in source scan.
```

```
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 * as explained at http://creativecommons.org/publicdomain/zero/1.0/
 *
 * @author Gil Tene
 */
```

```
package org.HdrHistogram;
```

```
final class Version {
    public static final String version="$VERSION$";
    public static final String build_time="$BUILD_TIME$";
}
```

Found in path(s):

```
* /opt/cola/permits/1257262326_1642793354.36/0/hdrhistogram-2-1-8-sources-
jar/org/HdrHistogram/Version.java.template
```

# 1.184 opentracing-noop 0.31.0

## 1.184.1 Available under license :

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Found in path(s):

\* /opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-  
jar/io/opentracing/noop/NoopSpanBuilder.java  
\* /opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-  
jar/io/opentracing/noop/NoopSpan.java  
\* /opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-  
jar/io/opentracing/noop/NoopScopeManager.java  
\*  
/opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-  
jar/io/opentracing/noop/NoopSpanContext.java  
\* /opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-  
jar/io/opentracing/noop/NoopTracer.java  
\* /opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-  
jar/io/opentracing/noop/NoopTracerFactory.java  
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the License.

Found in path(s):

\* /opt/cola/permits/1257262334\_1642793362.32/0/opentracing-noop-0-31-0-sources-jar/META-  
INF/maven/io.opentracing/opentracing-noop/pom.xml

## 1.185 jetty-setuid-java 1.0.4

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```

Found in path(s):

```
* /opt/cola/permits/1257333122_1642801905.86/0/jetty-setuid-java-1-0-4-sources-
jar/org/eclipse/jetty/setuid/SetUIDListener.java
* /opt/cola/permits/1257333122_1642801905.86/0/jetty-setuid-java-1-0-4-sources-
jar/org/eclipse/jetty/setuid/SetUIDServer.java
* /opt/cola/permits/1257333122_1642801905.86/0/jetty-setuid-java-1-0-4-sources-
jar/org/eclipse/jetty/setuid/SetUID.java
* /opt/cola/permits/1257333122_1642801905.86/0/jetty-setuid-java-1-0-4-sources-
jar/org/eclipse/jetty/setuid/Group.java
* /opt/cola/permits/1257333122_1642801905.86/0/jetty-setuid-java-1-0-4-sources-
jar/org/eclipse/jetty/setuid/RLimit.java
*
/opt/cola/permits/1257333122_1642801905.86/0/jetty-setuid-java-1-0-4-sources-
jar/org/eclipse/jetty/setuid/Passwd.java
```

## 1.186 profiler 1.1.1

### 1.186.1 Available under license :

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```
/*!
 * jQuery JavaScript Library v1.6.2
 * http://jquery.com/
 *
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 * http://jquery.org/license
 *
 * Includes Sizzle.js
 * http://sizzlejs.com/
 * Copyright 2011, The Dojo Foundation
 * Released under the MIT, BSD, and GPL Licenses.
 *
 * Date: Thu Jun 30 14:16:56 2011 -0400
 */
```

Found in path(s):

```
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
jar/ca/jimr/gae/profiler/resources/jquery-1.6.2.min.js
```

No license file was found, but licenses were detected in source scan.



```
/*
 * jQuery Templates Plugin 1.0.0pre
 * http://github.com/jquery/jquery-tmpl
 * Requires jQuery 1.4.2
 *
 * Copyright Software Freedom Conservancy, Inc.
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 * http://jquery.org/license
 */
```

Found in path(s):

```
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
jar/ca/jimr/gae/profiler/resources/jquery.templ.min.js
```

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```
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 * THE SOFTWARE.
 */
```

Found in path(s):

```
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
jar/com/google/appengine/tools/appstats/MiniProfilerAppstats.java
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
jar/ca/jimr/gae/profiler/MiniProfiler.java
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
jar/ca/jimr/gae/profiler/MiniProfilerFilter.java
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
jar/ca/jimr/gae/profiler/resources/MiniProfilerResourceLoader.java
* /opt/cola/permits/1257333100_1642801922.15/0/gae-mini-profiler-1-1-1-sources-
```

# 1.187 jackson-module-afterburner 2.10.5

## 1.187.1 Available under license :

# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library. It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007.

It is currently developed by a community of developers, as well as supported commercially by FasterXML.com.

### ## Licensing

Jackson core and extension components (as well their dependencies) may be licensed under different licenses.

To find the details that apply to this artifact see the accompanying LICENSE file.

For more information, including possible other licensing options, contact FasterXML.com (<http://fasterxml.com>).

### ## Credits

A list of contributors may be found from CREDITS file, which is included in some artifacts (usually source distributions); but is always available from the source code management (SCM) system project uses.

This copy of Jackson JSON processor `jackson-module-afterburner` module is licensed under the Apache (Software) License, version 2.0 ("the License").

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Additional licensing information exists for following 3rd party library dependencies

### ### ASM

ASM: a very small and fast Java bytecode manipulation framework

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## 1.188 dagger 2.4

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```

Found in path(s):

```
* /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/Lazy.java
```

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```

Found in path(s):

```
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/DelegateFactory.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/MapKey.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/MapFactory.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/Component.java
 *
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/InstanceFactory.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/SingleCheck.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/Factory.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/MapProviderFactory.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/Collections.java
 * /opt/cola/permits/1257772315_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/SetFactory.java
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 */
```

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\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/Provides.java

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Found in path(s):

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/Multibindings.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/package-info.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/IntKey.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/StringKey.java

\*

/opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/LongKey.java  
\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/Beta.java  
\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/ClassKey.java  
\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/Subcomponent.java  
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\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/Reusable.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/ProviderOfLazy.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/Bounds.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/Preconditions.java

\*

/opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/internal/DoubleCheck.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-

jar/dagger/multibindings/ElementsIntoSet.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/IntoMap.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/package-info.java

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/multibindings/IntoSet.java

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\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/Module.java

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Found in path(s):

\* /opt/cola/permits/1257772315\_1643010337.24/0/dagger-2-4-sources-jar/dagger/MembersInjector.java

## 1.189 paranamer 2.5.1

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\* /opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-  
jar/com/thoughtworks/paranamer/BytecodeReadingParanamer.java  
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jar/com/thoughtworks/paranamer/AnnotationParanamer.java  
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jar/com/thoughtworks/paranamer/Paranamer.java  
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\* /opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-  
jar/com/thoughtworks/paranamer/NullParanamer.java

\* /opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-  
jar/com/thoughtworks/paranamer/AdaptiveParanamer.java

\* /opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-  
jar/com/thoughtworks/paranamer/ParameterNamesNotFoundException.java

\*

/opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-  
jar/com/thoughtworks/paranamer/CachingParanamer.java

\* /opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-  
jar/com/thoughtworks/paranamer/DefaultParanamer.java

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\* /opt/cola/permits/1257772269\_1643010353.74/0/paranamer-2-5-1-sources-jar/com/thoughtworks/paranamer/JavadocParanamer.java

## 1.190 jctools-core 3.3.0

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\* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/META-INF/maven/org.jctools/jctools-core/pom.xml

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Found in path(s):

```
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/AtomicQueueFactory.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/ConcurrentCircularArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/SequencedAtomicReferenceArrayQueue.java
*
/opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/spec/Preference.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/package-
info.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/spec/Ordering.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/IndexedQueueSizeUtil.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/SpSCChunkedAtomicArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/MPMCUnboundedXaddChunk.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/SpSCAtomicArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/util/RangeUtil.java
*
/opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/util/PaddedAtomicLong.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/BaseLinkedAtomicQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/QueueFactory.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/LinkedQueueNode.java
```

\* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/atomic/MpscAtomicArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MpscUnboundedXaddArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MessagePassingQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MpscBlockingConsumerArrayQueue.java  
 \*  
 /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/atomic/MpmcAtomicArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MpscLinkedQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MpscChunkedArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/SpSCArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/util/UnsafeRefArrayAccess.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/maps/AbstractEntry.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/maps/NonBlockingSetInt.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/ConcurrentSequencedCircularArrayQueue.java  
 \*  
 /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/atomic/SpSCUnboundedAtomicArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/atomic/MpscUnboundedAtomicArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/SpMCArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/BaseSpSCLinkedArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/BaseLinkedQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/maps/NonBlockingHashSet.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/util/UnsafeJvmInfo.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/atomic/BaseMpscLinkedAtomicArrayQueue.java  
 \*  
 /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MessagePassingQueueUtil.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/queues/MpscCompoundQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-

jar/org/jctools/maps/NonBlockingIdentityHashMap.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/AtomicReferenceArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/MpscUnboundedXaddChunk.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/maps/ConcurrentAutoTable.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/LinkedQueueAtomicNode.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/SpSCLinkedAtomicQueue.java  
 \*  
 /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/MpscLinkedAtomicQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/SpSCLinkedQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/MpscGrowArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/spec/ConcurrentQueueSpec.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/util/UnsafeAccess.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/MpscUnboundedArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/MpmcArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/SupportsIterator.java  
 \*  
 /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/MpscArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/MpmcUnboundedXaddArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/SpSCChunkedArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/util/UnsafeLongArrayAccess.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/BaseSpSCLinkedAtomicArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/MpscChunkedAtomicArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/SpSCUnboundedArrayQueue.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/util/InternalAPI.java  
 \*  
 /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/maps/NonBlockingHashMap.java  
 \* /opt/cola/permits/1257772382\_1643010290.62/0/jctools-core-3-3-0-sources-  
 jar/org/jctools/queues/atomic/MpscGrowArrayAtomicQueue.java

```

* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/SpSCGrowArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/SpSCGrowAtomicArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/util/PortableJvmInfo.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/BaseMpscLinkedListArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/queues/atomic/SpMCAtomicArrayQueue.java
* /opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-
jar/org/jctools/maps/NonBlockingHashMapLong.java
*
/opt/cola/permits/1257772382_1643010290.62/0/jctools-core-3-3-0-sources-jar/org/jctools/util/Pow2.java

```

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```

Found in path(s):

```

* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufDecoderNano.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufEncoderNano.java
*
/opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/ProtocolDetectionResult.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/HeadersUtils.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-

```

jar/io/netty/handler/codec/protobuf/ProtobufEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/protobuf/ProtobufVarint32FrameDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/UnsupportedValueConverter.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/protobuf/ProtobufVarint32LengthFieldPrepender.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/protobuf/ProtobufDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/ProtocolDetectionState.java

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\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/string/LineSeparator.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/CodecOutputList.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/DatagramPacketDecoder.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/string/LineEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/DatagramPacketEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/CompressionUtil.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/DateFormatter.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/ByteBufChecksum.java



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jar/io/netty/handler/codec/compression/Lz4XXHash32.java
```

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```
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/JdkZlibDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/xml/XmlFrameDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/Crc32c.java
```

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```
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/DeflateOptions.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/Brotli.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/ZstdOptions.java
*
/opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/BrotliEncoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/StandardCompressionOptions.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/CompressionOptions.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/Zstd.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/BrotliDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/GzipOptions.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/ZstdConstants.java
*
/opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/ZstdEncoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/BrotliOptions.java
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jar/io/netty/handler/codec/compression/Bzip2DivSufSort.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2HuffmanStageEncoder.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2HuffmanStageDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/LzfEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/SnappyFramedEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/SnappyFramedDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/LzfDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/FastLz.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/MessageAggregationException.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2HuffmanAllocator.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2BlockCompressor.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/FastLzFrameEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2Rand.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/FastLzFrameDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Lz4Constants.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/Lz4FrameEncoder.java

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2Decoder.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2BlockDecompressor.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2BitReader.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2Constants.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Crc32.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Lz4FrameDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/LzmaFrameEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/DecoderResultProvider.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2BitWriter.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2MoveToFrontTable.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2MTFAndRLE2StageEncoder.java  
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\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/json/JsonObjectDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/AsciiHeadersEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Bzip2Encoder.java  
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```
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*/
/**
* Utility class for { @link ByteBuf } that encodes and decodes to and from
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* <p>
* The encoding and decoding algorithm in this class has been derived from
* http://iharder.sourceforge.net/current/java/base64/>Robert Harder's Public Domain
* Base64 Encoder/Decoder</a>.
*/
```

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```
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
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jar/io/netty/handler/codec/CorruptedFrameException.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/MessageToByteEncoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/MessageToMessageDecoder.java
*
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/serialization/CompactObjectOutputStream.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/serialization/ClassResolvers.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
```

```

jar/io/netty/handler/codec/compression/SnappyFrameDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/serialization/WeakReferenceMap.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/package-info.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/DecompressionException.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/protobuf/package-info.java
*
/opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/base64/Base64Decoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/marshalling/package-info.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/marshalling/CompatibleMarshallingEncoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/MessageToMessageCodec.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/serialization/ObjectDecoderInputStream.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/ZlibDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/ZlibWrapper.java
*
/opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/CompressionException.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/bytes/ByteArrayDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/DecoderResult.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/ReplayingDecoderByteBuf.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/serialization/ReferenceMap.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/serialization/package-info.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/marshalling/DefaultMarshallerProvider.java
*
/opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/string/StringDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/compression/JZlibDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/ReplayingDecoder.java
* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/marshalling/UnmarshallerProvider.java

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\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/PrematureChannelClosureException.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/compression/SnappyFrameEncoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/marshalling/ThreadLocalUnmarshallerProvider.java  
 \*  
 /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/compression/JZlibEncoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/base64/Base64Encoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/Delimiters.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/MessageToMessageEncoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/xml/package-info.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/marshalling/MarshallingEncoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/CodecException.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/string/package-info.java  
 \*  
 /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/marshalling/MarshallerProvider.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/bytes/ByteArrayEncoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/compression/package-info.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/compression/JdkZlibEncoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/base64/package-info.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/serialization/SoftReferenceMap.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/bytes/package-info.java  
 \*  
 /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/FixedLengthFrameDecoder.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/TooLongFrameException.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/compression/ZlibCodecFactory.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
 jar/io/netty/handler/codec/marshalling/DefaultUnmarshallerProvider.java  
 \* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-

jar/io/netty/handler/codec/ByteToMessageDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/string/StringEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/marshalling/LimitingByteInput.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/DelimiterBasedFrameDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/CachingClassResolver.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/marshalling/CompatibleMarshallingDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/marshalling/ChannelBufferByteInput.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/ZlibEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/ObjectEncoderOutputStream.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/EncoderException.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/ClassResolver.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/LengthFieldPrepender.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/DecoderException.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/CompatibleObjectEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/ByteToMessageCodec.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/LineBasedFrameDecoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/compression/ZlibUtil.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/marshalling/MarshallingDecoder.java  
\*  
/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/marshalling/ContextBoundUnmarshallerProvider.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/ClassLoaderClassResolver.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/ObjectEncoder.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/serialization/CompactObjectInputStream.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/MessageAggregator.java



\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/compression/Snappy.java

\*

/opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/marshalling/ThreadLocalMarshallerProvider.java

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/serialization/ObjectDecoder.java

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/UnsupportedMessageTypeException.java

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/marshalling/ChannelBufferByteOutput.java

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Found in path(s):

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/META-INF/maven/io.netty/netty-codec/pom.xml

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Found in path(s):

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/ValueConverter.java

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/CharSequenceValueConverter.java

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/DefaultHeadersImpl.java

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/\*\*

\* Enumeration of supported Base64 dialects.

\* <p>

\* The internal lookup tables in this class has been derived from

\* <a href="http://iharder.sourceforge.net/current/java/base64/">Robert  
Harder's Public Domain

\* Base64 Encoder/Decoder</a>.

\*/

Found in path(s):

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-jar/io/netty/handler/codec/base64/Base64Dialect.java

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Found in path(s):

\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/DefaultHeaders.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/EmptyHeaders.java  
\* /opt/cola/permits/1257888635\_1643019970.33/0/netty-codec-4-1-70-final-sources-  
jar/io/netty/handler/codec/Headers.java

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/\*\*

\* A decoder that splits the received {@link ByteBuf}s dynamically by the  
\* value of the length field in the message. It is particularly useful when you  
\* decode a binary message which has an integer header field that represents the  
\* length of the message body or the whole message.

\*

<p>

\* {@link LengthFieldBasedFrameDecoder} has many configuration parameters so  
\* that it can decode any message with a length field, which is often seen in  
\* proprietary client-server protocols. Here are some example that will give  
\* you the basic idea on which option does what.

\*

\* <h3>2 bytes length field at offset 0, do not strip header</h3>

\*  
 \* The value of the length field in this example is `<tt>12 (0x0C)</tt>` which  
 \* represents the length of "HELLO, WORLD". By default, the decoder assumes  
 \* that the length field represents the number of the bytes that follows the  
 \* length field. Therefore, it can be decoded with the simplistic parameter  
 \* combination.

```
* <pre>
* <b>lengthFieldOffset</b> = <b>0</b>
* <b>lengthFieldLength</b> = <b>2</b>
* lengthAdjustment = 0
* initialBytesToStrip = 0 (= do not strip header)
```

```
*
* BEFORE DECODE (14 bytes)    AFTER DECODE (14 bytes)
* +-----+-----+ +-----+-----+
* | Length | Actual Content
* |---->| Length | Actual Content |
* | 0x000C | "HELLO, WORLD" | | 0x000C | "HELLO, WORLD" |
* +-----+-----+ +-----+-----+
* </pre>
```

\*  
 \* `<h3>2 bytes length field at offset 0, strip header</h3>`  
 \*

\* Because we can get the length of the content by calling  
 \* `{ @link ByteBuf#readableBytes() }`, you might want to strip the length  
 \* field by specifying `<tt>initialBytesToStrip</tt>`. In this example, we  
 \* specified `<tt>2</tt>`, that is same with the length of the length field, to  
 \* strip the first two bytes.

```
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 2
* lengthAdjustment = 0
* <b>initialBytesToStrip</b> = <b>2</b> (= the length of the Length field)
```

```
*
* BEFORE DECODE (14 bytes)    AFTER DECODE (12 bytes)
* +-----+-----+ +-----+
* | Length | Actual Content |---->| Actual Content |
* | 0x000C | "HELLO, WORLD" | | "HELLO, WORLD" |
* +-----+-----+ +-----+
* </pre>
```

\*  
 \* `<h3>2 bytes length field at offset 0, do not strip header, the length field  
 * represents the length of the whole message</h3>`  
 \*

\* In most cases, the length field represents the length of the message body  
 \* only, as shown in the previous examples. However, in some protocols, the  
 \* length field represents the length of the whole message, including the  
 \* message header. In such a case, we specify a non-zero  
 \* `<tt>lengthAdjustment</tt>`. Because the length value in this example message

\* is always greater than the body length by `<tt>2</tt>`, we specify `<tt>-2</tt>`  
 \* as `<tt>lengthAdjustment</tt>` for compensation.

```
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 2
* <b>lengthAdjustment</b> = <b>-2</b> (= the length of the Length field)
* initialBytesToStrip = 0
*
```

\* BEFORE DECODE (14 bytes)      AFTER DECODE (14 bytes)

```
* +-----+-----+ +-----+-----+
* | Length | Actual Content |---->| Length | Actual
  Content |
* | 0x000E | "HELLO, WORLD" |   | 0x000E | "HELLO, WORLD" |
* +-----+-----+ +-----+-----+
```

```
* </pre>
```

\* `<h3>3 bytes length field at the end of 5 bytes header, do not strip header</h3>`

\* The following message is a simple variation of the first example. An extra  
 \* header value is prepended to the message. `<tt>lengthAdjustment</tt>` is zero  
 \* again because the decoder always takes the length of the prepended data into  
 \* account during frame length calculation.

```
* <pre>
* <b>lengthFieldOffset</b> = <b>2</b> (= the length of Header 1)
* <b>lengthFieldLength</b> = <b>3</b>
* lengthAdjustment = 0
* initialBytesToStrip = 0
*
```

\* BEFORE DECODE (17 bytes)                      AFTER DECODE (17 bytes)

```
* +-----+-----+-----+ +-----+-----+-----+
* | Header 1 | Length | Actual Content |---->| Header 1 | Length | Actual Content |
* | 0xCAFE | 0x00000C | "HELLO, WORLD" |
  | 0xCAFE | 0x00000C | "HELLO, WORLD" |
* +-----+-----+-----+ +-----+-----+-----+
```

```
* </pre>
```

\* `<h3>3 bytes length field at the beginning of 5 bytes header, do not strip header</h3>`

\* This is an advanced example that shows the case where there is an extra  
 \* header between the length field and the message body. You have to specify a  
 \* positive `<tt>lengthAdjustment</tt>` so that the decoder counts the extra  
 \* header into the frame length calculation.

```
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 3
* <b>lengthAdjustment</b> = <b>2</b> (= the length of Header 1)
* initialBytesToStrip = 0
*
```

```

* BEFORE DECODE (17 bytes)          AFTER DECODE (17 bytes)
* +-----+-----+-----+-----+ +-----+-----+-----+-----+
* | Length | Header 1 | Actual Content |---->| Length | Header 1 | Actual Content |
* | 0x00000C | 0xCAFE | "HELLO, WORLD" |   | 0x00000C | 0xCAFE | "HELLO,
WORLD" |

```

\* </pre>

\*

\* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,

\* strip the first header field and the length field</h3>

\*

\* This is a combination of all the examples above. There are the prepended

\* header before the length field and the extra header after the length field.

\* The prepended header affects the <tt>lengthFieldOffset</tt> and the extra

\* header affects the <tt>lengthAdjustment</tt>. We also specified a non-zero

\* <tt>initialBytesToStrip</tt> to strip the length field and the prepended

\* header from the frame. If you don't want to strip the prepended header, you

\* could specify <tt>0</tt> for <tt>initialBytesToSkip</tt>.

\* <pre>

\* lengthFieldOffset = 1 (= the length of HDR1)

\* lengthFieldLength = 2

\* <b>lengthAdjustment</b> = <b>1</b> (= the length of HDR2)

\* <b>initialBytesToStrip</b> = <b>3</b> (= the length of HDR1 +  
LEN)

\*

```

* BEFORE DECODE (16 bytes)          AFTER DECODE (13 bytes)

```

```

* +-----+-----+-----+-----+ +-----+-----+-----+-----+

```

```

* | HDR1 | Length | HDR2 | Actual Content |---->| HDR2 | Actual Content |

```

```

* | 0xCA | 0x000C | 0xFE | "HELLO, WORLD" |   | 0xFE | "HELLO, WORLD" |

```

```

* +-----+-----+-----+-----+ +-----+-----+-----+-----+

```

\* </pre>

\*

\* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,

\* strip the first header field and the length field, the length field

\* represents the length of the whole message</h3>

\*

\* Let's give another twist to the previous example. The only difference from

\* the previous example is that the length field represents the length of the

\* whole message instead of the message body, just like the third example.

\* We have to count the length of HDR1 and Length into <tt>lengthAdjustment</tt>.

\* Please note that we don't need to take the length of HDR2 into account

\* because

the length field already includes the whole header length.

\* <pre>

\* lengthFieldOffset = 1

\* lengthFieldLength = 2

\* <b>lengthAdjustment</b> = <b>-3</b> (= the length of HDR1 + LEN, negative)

\* <b>initialBytesToStrip</b> = <b>3</b>

```

*
* BEFORE DECODE (16 bytes)                AFTER DECODE (13 bytes)
* +-----+-----+-----+-----+-----+ +-----+-----+
* | HDR1 | Length | HDR2 | Actual Content |----->| HDR2 | Actual Content |
* | 0xCA | 0x0010 | 0xFE | "HELLO, WORLD" |   | 0xFE | "HELLO, WORLD" |
* +-----+-----+-----+-----+-----+ +-----+-----+
* </pre>
* @see LengthFieldPrepender
*/

```

Found in path(s):

```

* /opt/cola/permits/1257888635_1643019970.33/0/netty-codec-4-1-70-final-sources-
jar/io/netty/handler/codec/LengthFieldBasedFrameDecoder.java

```

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* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelFactory.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/AbstractEventLoop.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/PendingWriteQueue.java
*
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ReflectiveChannelFactory.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/embedded/EmbeddedChannelId.java

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```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/META-INF/native-  
image/io.netty.transport.native-image.properties
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```
*/
```

Found in path(s):

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/DatagramChannelConfig.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/embedded/EmbeddedChannel.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelFutureListener.java
```

```
*
```

```
/opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/DefaultChannelPromise.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/local/package-info.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/embedded/EmbeddedSocketAddress.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/DefaultChannelPipeline.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/oio/OioDatagramChannel.java
```

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/nio/NioDatagramChannelConfig.java
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\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultEventLoop.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/oio/AbstractOioChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/embedded/package-info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/EventLoopGroup.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/local/LocalEventLoopGroup.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/embedded/EmbeddedEventLoop.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/package-info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/AdaptiveRecvByteBufAllocator.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/nio/NioEventLoopGroup.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/DatagramPacket.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/DefaultSocketChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/nio/NioServerSocketChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/AbstractChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelMetadata.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/VoidChannelPromise.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/EventLoop.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/DefaultServerSocketChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ServerChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/oio/AbstractOioByteChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/ChannelGroupFuture.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelHandlerContext.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-

jar/io/netty/channel/local/LocalChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelFlushPromiseNotifier.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelInboundHandler.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/ServerSocketChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/CombinedChannelDuplexHandler.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/bootstrap/package-info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/SocketChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/nio/NioDatagramChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/nio/AbstractNioChannel.java  
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/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ThreadPerChannelEventLoop.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelPipelineException.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/group/ChannelGroupFutureListener.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/AbstractChannelHandlerContext.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/EventLoopException.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/AbstractServerChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/MultithreadEventLoopGroup.java  
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/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelOption.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/nio/ProtocolFamilyConverter.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/FileRegion.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/SingleThreadEventLoop.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/package-info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/DatagramChannel.java

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* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/bootstrap/AbstractBootstrap.java
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/opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/FixedRecvByteBufAllocator.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/local/LocalChannelRegistry.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelException.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/CompleteChannelFuture.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelPromiseAggregator.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelPromise.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/nio/package-info.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/nio/NioTask.java
*
/opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelPromiseNotifier.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/socket/ServerSocketChannel.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ThreadPerChannelEventLoopGroup.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelFuture.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/FailedChannelFuture.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/nio/NioEventLoop.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/socket/InternetProtocolFamily.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelOutboundHandler.java
*
/opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/group/DefaultChannelGroupFuture.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/nio/AbstractNioMessageChannel.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/DefaultEventLoopGroup.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/RecvByteBufAllocator.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/DefaultFileRegion.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/package-

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info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/bootstrap/Bootstrap.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/oio/package-info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/oio/OioEventLoopGroup.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelDuplexHandler.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/SocketChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/CombinedIterator.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/OioServerSocketChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelOutboundHandlerAdapter.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/nio/package-info.java  
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/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/local/LocalServerChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/package-info.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelPipeline.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/Channel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/bootstrap/ServerBootstrap.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelInitializer.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/nio/AbstractNioByteChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/nio/NioSocketChannel.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/OioSocketChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/oio/AbstractOioMessageChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelInboundHandlerAdapter.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/SucceededChannelFuture.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/local/LocalAddress.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/ChannelInputShutdownEvent.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/DefaultDatagramChannelConfig.java  
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\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/EventLoopTaskQueueFactory.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelHandlerMask.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ExtendedClosedChannelException.java  
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\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/package-info.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultMaxMessagesRecvByteBufAllocator.java

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/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/SimpleChannelPool.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/ChannelHealthChecker.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/MaxBytesRecvByteBufAllocator.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/ChannelPoolHandler.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/ChannelPool.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/ChannelPoolMap.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultMaxBytesRecvByteBufAllocator.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/FixedChannelPool.java

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/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/pool/AbstractChannelPoolMap.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/MaxMessagesRecvByteBufAllocator.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-

jar/io/netty/channel/pool/AbstractChannelPoolHandler.java

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jar/io/netty/channel/ServerChannelRecvByteBufAllocator.java

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jar/io/netty/channel/StacklessClosedChannelException.java

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-

jar/io/netty/channel/socket/DuplexChannelConfig.java

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```

Found in path(s):

```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/CoalescingBufferQueue.java
```

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*/
/**
* Handles an I/O event or intercepts an I/O operation, and forwards it to its next handler in
* its { @link ChannelPipeline }.
*
* <h3>Sub-types</h3>
* <p>
* { @link ChannelHandler } itself does not provide many methods, but you usually have to implement one of its
* subtypes:
* <ul>
* <li>{ @link
* ChannelInboundHandler } to handle inbound I/O events, and</li>
* <li>{ @link ChannelOutboundHandler } to handle outbound I/O operations.</li>
* </ul>
*/
```



```

* </p>
* <p>
* Alternatively, the following adapter classes are provided for your convenience:
* <ul>
* <li>{ @link ChannelInboundHandlerAdapter } to handle inbound I/O events,</li>
* <li>{ @link ChannelOutboundHandlerAdapter } to handle outbound I/O operations, and</li>
* <li>{ @link ChannelDuplexHandler } to handle both inbound and outbound events</li>
* </ul>
* </p>
* <p>
* For more information, please refer to the documentation of each subtype.
* </p>
*
* <h3>The context object</h3>
* <p>
* A { @link ChannelHandler } is provided with a { @link ChannelHandlerContext }
* object. A { @link ChannelHandler } is supposed to interact with the
* { @link ChannelPipeline } it belongs to via a context object. Using the
* context object, the { @link ChannelHandler } can pass events upstream or
* downstream, modify the pipeline dynamically,
* or store the information
* (using { @link AttributeKey }s) which is specific to the handler.
*
* <h3>State management</h3>
*
* A { @link ChannelHandler } often needs to store some stateful information.
* The simplest and recommended approach is to use member variables:
* <pre>
* public interface Message {
*     // your methods here
* }
*
* public class DataServerHandler extends { @link SimpleChannelInboundHandler } &lt;Message &gt; {
*
*     <b>private boolean loggedIn;</b>
*
*     { @code @Override }
*     public void channelRead0({ @link ChannelHandlerContext } ctx, Message message) {
*         if (message instanceof LoginMessage) {
*             authenticate((LoginMessage) message);
*             <b>loggedIn = true;</b>
*         } else (message instanceof GetDataMessage) {
*             if (<b>loggedIn</b>) {
*                 ctx.writeAndFlush(fetchSecret((GetDataMessage) message));
*             } else {
*                 fail();
*             }
*         }
*     }
* }
*

```

```

}
* }
* ...
* }
* </pre>
* Because the handler instance has a state variable which is dedicated to
* one connection, you have to create a new handler instance for each new
* channel to avoid a race condition where a unauthenticated client can get
* the confidential information:
* <pre>
* // Create a new handler instance per channel.
* // See { @link ChannelInitializer#initChannel(Channel)}.
* public class DataServerInitializer extends { @link ChannelInitializer}&lt;&{ @link Channel}&gt; {
*     { @code @Override}
*     public void initChannel({ @link Channel} channel) {
*         channel.pipeline().addLast("handler", <b>new DataServerHandler()</b>);
*     }
* }
*
* </pre>
*
* <h4>Using { @link AttributeKey}s</h4>
*
* Although it's recommended to use member variables to store the state of a
* handler, for some reason you might not want to create many handler instances.
* In such a case, you can use { @link AttributeKey}s which is provided by
* { @link ChannelHandlerContext}:
* <pre>
* public interface Message {
*     // your methods here
* }
*
* { @code @Sharable}
* public class DataServerHandler extends { @link SimpleChannelInboundHandler}&lt;&Message&gt; {
*     private final { @link AttributeKey}&lt;&{ @link Boolean}&gt; auth =
*         { @link AttributeKey#valueOf(String) AttributeKey.valueOf("auth")};
*
*     { @code @Override}
*     public void channelRead({ @link ChannelHandlerContext} ctx, Message message) {
*         { @link Attribute}&lt;&{ @link Boolean}&gt; attr = ctx.attr(auth);
*         if (message instanceof LoginMessage) {
*             authenticate((LoginMessage) o);
*             <b>attr.set(true)</b>;
*         } else (message instanceof GetDataMessage) {
*             if (<b>Boolean.TRUE.equals(attr.get())</b>) {
*                 ctx.writeAndFlush(fetchSecret((GetDataMessage) o));
*             } else {
*                 fail();

```

```

*     }
*   }
* }
* ...
* }
* </pre>
* Now that the
state of the handler is attached to the { @link ChannelHandlerContext}, you can add the
* same handler instance to different pipelines:
* <pre>
* public class DataServerInitializer extends { @link ChannelInitializer}&It;{ @link Channel}&gt; {
*
*   private static final DataServerHandler <b>SHARED</b> = new DataServerHandler();
*
*   { @code @Override}
*   public void initChannel({ @link Channel} channel) {
*     channel.pipeline().addLast("handler", <b>SHARED</b>);
*   }
* }
* </pre>
*
*
* <h4>The { @code @Sharable} annotation</h4>
* <p>
* In the example above which used an { @link AttributeKey},
* you might have noticed the { @code @Sharable} annotation.
* <p>
* If a { @link ChannelHandler} is annotated with the { @code @Sharable}
* annotation, it means you can create an instance of the handler just once and
* add it to one or more { @link ChannelPipeline}s multiple times without
* a race condition.
* <p>
* If this annotation is not specified, you have to create
a new handler
* instance every time you add it to a pipeline because it has unshared state
* such as member variables.
* <p>
* This annotation is provided for documentation purpose, just like
* <a href="http://www.javaconcurrencyinpractice.com/annotations/doc/">the JCIP annotations</a>.
*
* <h3>Additional resources worth reading</h3>
* <p>
* Please refer to the { @link ChannelHandler}, and
* { @link ChannelPipeline} to find out more about inbound and outbound operations,
* what fundamental differences they have, how they flow in a pipeline, and how to handle
* the operation in your application.
*/

```

Found in path(s):

\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelHandler.java

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\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/SimpleUserEventChannelHandler.java

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\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-

jar/io/netty/channel/ChannelInboundInvoker.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/ChannelOutboundInvoker.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/SelectStrategy.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/bootstrap/BootstrapConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/bootstrap/ServerBootstrapConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/PreferHeapByteBufAllocator.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/group/VoidChannelGroupFuture.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/SelectStrategyFactory.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/DefaultSelectStrategyFactory.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/bootstrap/AbstractBootstrapConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
jar/io/netty/channel/socket/DuplexChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-  
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\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/ChannelOutputShutdownEvent.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/internal/ChannelUtils.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/OioDatagramChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/ChannelInputShutdownReadComplete.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/bootstrap/FailedChannel.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/DefaultOioDatagramChannelConfig.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DelegatingChannelPromiseNotifier.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/nio/SelectedSelectionKeySetSelector.java  
\* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/PendingBytesTracker.java  
\*  
/opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/ChannelOutputShutdownException.java  
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jar/io/netty/channel/oio/OioByteStreamChannel.java  
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- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultAddressedEnvelope.java
- \*
- /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/AddressedEnvelope.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/nio/SelectedSelectionKeySet.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/ChannelGroupException.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/DefaultChannelGroup.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/DefaultOioServerSocketChannelConfig.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelProgressivePromise.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ConnectTimeoutException.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelOutboundBuffer.java
- \*
- /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultMessageSizeEstimator.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/ChannelMatchers.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelId.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/socket/oio/OioServerSocketChannelConfig.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/SimpleChannelInboundHandler.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/bootstrap/ChannelFactory.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/ChannelProgressiveFuture.java
- \*
- /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/DefaultChannelProgressivePromise.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/group/ChannelGroup.java
- \* /opt/cola/permits/1257888664\_1643019966.4/0/netty-transport-4-1-70-final-sources-jar/io/netty/channel/AbstractEventLoopGroup.java



```
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelProgressiveFutureListener.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/MessageSizeEstimator.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/group/ChannelMatcher.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/DefaultChannelId.java
* /opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/socket/oio/DefaultOioSocketChannelConfig.java
*
/opt/cola/permits/1257888664_1643019966.4/0/netty-transport-4-1-70-final-sources-
jar/io/netty/channel/ChannelHandlerAdapter.java
```

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jar/io/netty/resolver/NameResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/package-  
info.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-  
jar/io/netty/resolver/NoopAddressResolver.java  
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jar/io/netty/resolver/SimpleNameResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-  
jar/io/netty/resolver/NoopAddressResolverGroup.java  
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Found in path(s):

\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-  
jar/io/netty/resolver/HostsFileEntries.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-  
jar/io/netty/resolver/ResolvedAddressTypes.java  
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\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-  
jar/io/netty/resolver/HostsFileEntriesProvider.java

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jar/io/netty/resolver/RoundRobinInetAddressResolver.java

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\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/CompositeNameResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/DefaultNameResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/AddressResolver.java  
\*  
/opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/DefaultHostsFileEntriesResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/HostsFileParser.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/DefaultAddressResolverGroup.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/InetAddressResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/AbstractAddressResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/HostsFileEntriesResolver.java  
\* /opt/cola/permits/1257888705\_1643019972.09/0/netty-resolver-4-1-70-final-sources-jar/io/netty/resolver/InetSocketAddressResolver.java

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jar/io/netty/handler/pcap/TCPpacket.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/PcapHeaders.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/package-info.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/EthernetPacket.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/IPPacket.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/UDPPacket.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/PcapWriteHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/pcap/PcapWriter.java

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jar/io/netty/handler/stream/ChunkedInput.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/logging/LoggingHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-

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jar/io/netty/handler/logging/package-info.java
*
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/stream/ChunkedFile.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/stream/ChunkedNioFile.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/WriteTimeoutException.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/IdleStateEvent.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/ReadTimeoutHandler.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/logging/LogLevel.java
*
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/NotSslRecordException.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/TimeoutException.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/stream/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/SslHandler.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/IdleStateHandler.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/stream/ChunkedWriteHandler.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/stream/ChunkedStream.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/IdleState.java
*
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/ReadTimeoutException.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/util/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/timeout/WriteTimeoutHandler.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/stream/ChunkedNioStream.java
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jar/io/netty/handler/ssl/OpenSslClientSessionCache.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/BouncyCastleAlpnSslEngine.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/BouncyCastle.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslContextOption.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/Ciphers.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslProtocols.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslSessionCache.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/AsyncRunnable.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslAsyncPrivateKeyMethod.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/GroupsConverter.java  
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/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslContextOption.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslSessionId.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/BouncyCastleAlpnSslUtils.java  
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jar/io/netty/handler/ssl/PseudoRandomFunction.java  
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslPrivateKeyMethod.java  
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/address/package-info.java  
*  
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/util/TrustManagerFactoryWrapper.java  
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslMasterKeyHandler.java  
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
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jar/io/netty/handler/ssl/util/KeyManagerFactoryWrapper.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/address/DynamicAddressConnectHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/util/X509KeyManagerWrapper.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/util/SimpleKeyManagerFactory.java  
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jar/io/netty/handler/ssl/ocsp/OcspClientHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ocsp/package-info.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SniCompletionEvent.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslClientHelloHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslCloseCompletionEvent.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ConscryptAlpnSslEngine.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OptionalSslHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslCompletionEvent.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/Conscrypt.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkAlpnSslUtils.java  
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/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/JdkAlpnSslEngine.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/AbstractSniHandler.java  
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\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/logging/ByteBufferFormat.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/util/FingerprintTrustManagerFactoryBuilder.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/SslHandshakeTimeoutException.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/address/ResolveAddressHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ipfilter/IpSubnetFilterRuleComparator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ipfilter/IpSubnetFilter.java  
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\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/META-INF/maven/io.netty/netty-handler/pom.xml

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Found in path(s):

\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io.netty/handler/flow/FlowControlHandler.java

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Found in path(s):

\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/util/LazyJavaxX509Certificate.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ClientAuth.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ApplicationProtocolNegotiationHandler.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslContextBuilder.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ApplicationProtocolAccessor.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ApplicationProtocolNames.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslSessionTicketKey.java  
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\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/traffic/GlobalChannelTrafficShapingHandler.java

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```
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslHandshakeCompletionEvent.java
```

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```
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslCachingX509KeyManagerFactory.java  
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslKeyMaterial.java  
*
```

```
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslX509TrustManagerWrapper.java
```

```
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
```

jar/io/netty/handler/ssl/OpenSslCachingKeyMaterialProvider.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslX509KeyManagerFactory.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SignatureAlgorithmConverter.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslPrivateKey.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslSession.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslKeyMaterialProvider.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/DefaultOpenSslKeyMaterial.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ExtendedOpenSslSession.java  
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\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/traffic/AbstractTrafficShapingHandler.java  
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- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslServerContext.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslSessionStats.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ipfilter/IpFilterRule.java
- \*
- /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ipfilter/AbstractRemoteAddressFilter.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/SslContext.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/JdkAlpnApplicationProtocolNegotiator.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/util/ThreadLocalInsecureRandom.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/SniHandler.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ipfilter/RuleBasedIpFilter.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/traffic/GlobalChannelTrafficCounter.java
- \*
- /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslDefaultApplicationProtocolNegotiator.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/JdkSslContext.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslSessionContext.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/JdkSslClientContext.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolConfig.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/IdentityCipherSuiteFilter.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolUtil.java
- \*
- /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslNpnApplicationProtocolNegotiator.java
- \* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-

jar/io/netty/handler/ssl/CipherSuiteConverter.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/PemReader.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslEngineMap.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ipfilter/UniqueIpFilter.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkDefaultApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkBaseApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/util/BouncyCastleSelfSignedCertGenerator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SupportedCipherSuiteFilter.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ipfilter/package-info.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkSslServerContext.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ipfilter/IpSubnetFilterRule.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslEngine.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/ApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/Java7SslParametersUtils.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/SslUtils.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/OpenSslContext.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ipfilter/IpFilterRuleType.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkSslEngine.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/util/OpenJdkSelfSignedCertGenerator.java  
\*  
/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/CipherSuiteFilter.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-  
jar/io/netty/handler/ssl/JdkNpnApplicationProtocolNegotiator.java



\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/JettyAlpnSslEngine.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/JettyNpnSslEngine.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSsl.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/util/InsecureTrustManagerFactory.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslServerSessionContext.java  
\*

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\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/util/FingerprintTrustManagerFactory.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/SslProvider.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslClientContext.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/util/SimpleTrustManagerFactory.java  
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\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/flush/FlushConsolidationHandler.java  
\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/OpenSslKeyMaterialManager.java  
\*

/opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslServerContext.java

\* /opt/cola/permits/1257888733\_1643019979.68/0/netty-handler-4-1-70-final-sources-

```
jar/io/netty/handler/flush/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/ReferenceCountedOpenSslEngine.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/OpenSslCertificateException.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/util/X509TrustManagerWrapper.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/ReferenceCountedOpenSslClientContext.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/flow/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/ReferenceCountedOpenSslContext.java
*
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/PemX509Certificate.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/PemEncoded.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/DelegatingSslContext.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/PemValue.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/PemPrivateKey.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/ssl/Java8SslUtils.java
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```
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/traffic/TrafficCounter.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
```

```
jar/io/netty/handler/traffic/package-info.java
* /opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/traffic/ChannelTrafficShapingHandler.java
*
/opt/cola/permits/1257888733_1643019979.68/0/netty-handler-4-1-70-final-sources-
jar/io/netty/handler/traffic/GlobalTrafficShapingHandler.java
```

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## 1.196 protobuf-java-format 1.2

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## 1.197 opentracing-api 0.31.0

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\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/References.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/Tracer.java  
\*  
/opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/tag/AbstractTag.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/ScopeManager.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/propagation/TextMapInjectAdapter.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/tag/StringTag.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/propagation/TextMap.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/log/Fields.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/tag/IntOrStringTag.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/tag/Tags.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/tag/BooleanTag.java  
\*  
/opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/SpanContext.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/propagation/TextMapExtractAdapter.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/Span.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/tag/IntTag.java  
\* /opt/cola/permits/1258804304\_1643113379.94/0/opentracing-api-0-31-0-sources-jar/io/opentracing/propagation/Format.java

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\* /opt/cola/permits/1258811491\_1643111603.33/0/annotations-4-1-1-4-sources-jar/android/annotation/TargetApi.java

## 1.199 animal-sniffer-annotation 1.19

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## 1.200 swagger-annotations 1.6.2

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\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/ExternalDocs.java  
\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/Info.java  
\*  
/opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/ExampleProperty.java  
\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/ApiModelProperty.java  
\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/ApiModel.java  
\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/ResponseHeader.java  
\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-jar/io/swagger/annotations/Tag.java  
\* /opt/cola/permits/1260643097\_1643189570.95/0/swagger-annotations-1-6-2-sources-



```

jar/io/swagger/annotations/SwaggerDefinition.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ApiResponses.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ExtensionProperty.java
*
/opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/Extension.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ApiResponse.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/License.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/Api.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ApiImplicitParam.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/AuthorizationScope.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ApiImplicitParams.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ApiParam.java
*
/opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/ApiOperation.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/Example.java
* /opt/cola/permits/1260643097_1643189570.95/0/swagger-annotations-1-6-2-sources-
jar/io/swagger/annotations/Contact.java

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## 1.201 classgraph 4.6.32

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jar/nonapi/io/github/classgraph/classloaderhandler/FelixClassLoaderHandler.java

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## 1.203 error\_prone\_annotations 2.3.3

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```

Found in path(s):

```
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/CompatibleWith.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/FormatMethod.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/MustBeClosed.java
*
/opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/RestrictedApi.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/FormatString.java
```

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Found in path(s):

\* /opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/OverridingMethodsMustInvokeSuper.java  
\* /opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/DoNotCall.java  
\* /opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/concurrent/GuardedBy.java  
\*

/opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/CheckReturnValue.java

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\* /opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/NoAllocation.java  
\* /opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/concurrent/LockMethod.java  
\* /opt/cola/permits/1264660152\_1643871085.34/0/error-prone-annotations-2-3-3-sources-  
jar/com/google/errorprone/annotations/concurrent/UnlockMethod.java

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Found in path(s):

```
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/CompileTimeConstant.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/SuppressPackageLocation.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/Immutable.java
*
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/RequiredModifiers.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/Var.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/ForOverride.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/concurrent/LazyInit.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/CanIgnoreReturnValue.java
* /opt/cola/permits/1264660152_1643871085.34/0/error-prone-annotations-2-3-3-sources-
jar/com/google/errorprone/annotations/IncompatibleModifiers.java
```

## 1.204 swagger-annotations 2.1.6

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Found in path(s):

- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/tags/Tags.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/servers/ServerVariable.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/headers/Header.java
- \*
- /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/Parameter.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/OAuthFlows.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/media/ExampleObject.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/SecuritySchemes.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/OpenAPIDefinition.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/info/License.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/servers/Server.java
- \*
- /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/SecurityScheme.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/parameters/RequestBody.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/media/Schema.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/SecurityRequirements.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/Parameters.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/servers/Servers.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/OAuthFlow.java
- \*
- /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/media/Encoding.java
- \* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-

jar/io/swagger/v3/oas/annotations/tags/Tag.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/callbacks/Callback.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/media/DiscriminatorMapping.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/ExternalDocumentation.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/info/Info.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/OAuthScope.java  
\*  
/opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/info/Contact.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/Operation.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/Hidden.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/responses/ApiResponse.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/callbacks/Callbacks.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/security/SecurityRequirement.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/responses/ApiResponses.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/links/LinkParameter.java  
\*  
/opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/extensions/Extensions.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/media/Content.java  
\* /opt/cola/permits/1265843831\_1643957016.06/0/swagger-annotations-2-1-6-sources-jar/io/swagger/v3/oas/annotations/links/Link.java

## 1.205 dropwizard-assets 2.0.12

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## 1.206 picocontainer 2.15

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```
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/ProviderAdapter.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/ComponentLifecycle.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/security/CustomPermissionsURLClassLoader.java
*
/opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/ComponentMonitorStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/Stored.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/FactoryInjector.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/references/SimpleReference.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/Guarded.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/Provider.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/CompositeInjector.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/Injector.java
*
/opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/InjectInto.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/references/ThreadLocalMapObjectReference.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/CompositeInjection.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/Injector.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/MultiInjector.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/ObjectReference.java
```



\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/Decorated.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/Reinjection.java

\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/references/ThreadLocalReference.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/Reinjector.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/MultiInjection.java

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```

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\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/classname/ClassPathElement.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/classname/ClassName.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/classname/ClassLoadingPicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/parameters/DefaultConstructorParameter.java

\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/classname/DefaultClassLoadingPicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/parameters/NullParameter.java

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```

* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/StartableLifecycleStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/visitors/MethodCallingVisitor.java
*
/opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/AbstractMonitoringLifecycleStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/visitors/TraversalCheckingVisitor.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/converters/Converter.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/ReflectionLifecycleStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/PicoVisitor.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/ComponentAdapter.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/JavaEE5LifecycleStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/Converters.java
*
/opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/LifecycleStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/visitors/VerifyingVisitor.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/DefaultLifecycleState.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/CompositeLifecycleStrategy.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/lifecycle/ReflectionLifecycleException.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/visitors/AbstractPicoVisitor.java
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```

Found in path(s):

```

* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-

```

jar/org/picocontainer/injectors/AnnotatedFieldInjection.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/injectors/NamedFieldInjector.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/Automated.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/Locked.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/NameBinding.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/AdaptingBehavior.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/PropertyApplicator.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/injectors/AnnotatedFieldInjector.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/monitors/LifecycleComponentMonitor.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/PicoContainer.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/Automating.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/ComponentFactory.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/adapters/AbstractAdapter.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/injectors/Injectors.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/Characteristics.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/PropertyApplying.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/annotations/Inject.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/containers/TransientPicoContainer.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/DefaultPicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/lifecycle/NullLifecycleStrategy.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/parameters/BasicComponentParameter.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/Synchronizing.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/injectors/NamedMethodInjector.java

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/PicoVerificationException.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/PicoException.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/annotations/Cache.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/containers/CommandLinePicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/TypedFieldInjection.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/adapters/InstanceAdapter.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/TypedFieldInjector.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/NamedFieldInjection.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/parameters/CollectionComponentParameter.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/Locking.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/annotations/Nullable.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/Behaviors.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/AbstractInjector.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/BehaviorFactory.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/PicoBuilder.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/InjectionFactory.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/AnnotatedMethodInjector.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/ImplementationHiding.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/HiddenImplementation.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/parameters/ComponentParameter.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/containers/ImmutablePicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/Synchronized.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/injectors/SetterInjector.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/PicoClassNotFoundException.java  
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 * Original code by Paul Hammant & Obie Fernandez & Aslak Hellesøy
 */
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Found in path(s):  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/monitors/NullComponentMonitor.java  
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Found in path(s):  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/AbstractBehavior.java  
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 */
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Found in path(s):  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-  
jar/org/picocontainer/behaviors/Decorating.java

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/FieldDecorating.java

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Found in path(s):

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/monitors/ComponentMonitorHelper.java

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/monitors/WriterComponentMonitor.java

\*

/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/monitors/ConsoleComponentMonitor.java

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Found in path(s):

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/containers/AbstractDelegatingMutablePicoContainer.java

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* Original Code By: Centerline Computers, Inc. *
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\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/PrimitiveMemberChecker.java

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\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/BindKey.java

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Found in path(s):

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/ComponentMonitor.java

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* Idea by Rachel Davies, Original code by various *
*****/

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Found in path(s):

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/containers/CompositePicoContainer.java

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/MutablePicoContainer.java

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* Original code by Mauro Talevi *
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\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/monitors/AbstractComponentMonitor.java

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Found in path(s):

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/behaviors/AbstractBehaviorFactory.java

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Found in path(s):

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/containers/PropertiesPicoContainer.java

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/injectors/MethodInjector.java

\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-

jar/org/picocontainer/behaviors/Intercepting.java

\*



/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/PicoLifecycleException.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/ForgetfulConstructorInjection.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/behaviors/Intercepted.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/containers/SystemPropertiesPicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/containers/CommandLineArgumentsPicoContainer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/ParameterNameBinding.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/parameters/AbstractParameter.java  
\*  
/opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/injectors/SingleMemberInjector.java  
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\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/composers/RegexComposer.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/monitors/ComposingMonitor.java  
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\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/parameters/ConstantParameter.java  
\* /opt/cola/permits/1266565840\_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/Parameter.java

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Found in path(s):

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* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/Behavior.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/containers/EmptyPicoContainer.java

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*****/

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Found in path(s):

```

* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/Disposable.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-jar/org/picocontainer/Startable.java

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* Idea by Rachel Davies, Original code by Aslak Hellesoy and Paul Hammant *
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Found in path(s):

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* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/ThreadCached.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-

```

```

jar/org/picocontainer/behaviors/Guarding.java
*
/opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/SetterInjection.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/MethodInjection.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/AnnotatedMethodInjection.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/AdaptingInjection.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/ConstructorInjection.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/ThreadCaching.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/injectors/ConstructorInjector.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/Storing.java
*
/opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/Caching.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/PicoCompositionException.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/OptInCaching.java
* /opt/cola/permits/1266565840_1644246713.67/0/picocontainer-2-15-sources-
jar/org/picocontainer/behaviors/Cached.java

```

## 1.207 vault-java-driver 4.1.0

### 1.207.1 Available under license :

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```

/**
 * <p>Intended for internal use by other classes within the Vault driver library.</p>
 *
 * <p>JSON parsing functionality. The classes in this package are adapted from Ralf Sternberg's excellent
 * <a href="https://github.com/ralfstx/minimal-json">"minimal-json"</a> library, available under the MIT License.
 * The package names have all been changed, to prevent any conflicts should you happen to be using a different
 * version of this library elsewhere in your project dependencies.</p>
 */

```

Found in path(s):

```

* /opt/cola/permits/1268276294_1644386808.09/0/vault-java-driver-4-1-0-sources-
jar/com/bettercloud/vault/json/package-info.java

```

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- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/Json.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/PrettyPrint.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/WritingBuffer.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/WriterConfig.java

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Found in path(s):

- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonParser.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonWriter.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonLiteral.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonArray.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonObject.java
- \*
- /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonString.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonValue.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/ParseException.java
- \* /opt/cola/permits/1268276294\_1644386808.09/0/vault-java-driver-4-1-0-sources-jar/com/bettercloud/vault/json/JsonNumber.java

# 1.208 open-ldap 2.4.44-25.el7\_9

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## 1.209 javax-annotation-api 1.3.2

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\*/opt/cola/permits/1281455938\_1646319090.87/0/jul-to-slf4j-1-7-36-sources-  
 jar/org/slf4j/bridge/SLF4JBridgeHandler.java

## 1.212 error\_prone\_annotations 2.10.0

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\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/concurrent/UnlockMethod.java

\*

/opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/NoAllocation.java

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\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/MustBeClosed.java

\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/CompatibleWith.java

\*

/opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/DoNotMock.java

\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/FormatMethod.java

\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/FormatString.java

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\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/InlineMe.java

\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/Modifier.java

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\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/CheckReturnValue.java  
\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/concurrent/GuardedBy.java  
\*  
/opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/OverridingMethodsMustInvokeSuper.java  
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\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/RequiredModifiers.java  
\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/CanIgnoreReturnValue.java  
\* /opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/concurrent/LazyInit.java  
\*  
/opt/cola/permits/1287386049\_1647249958.14/0/error-prone-annotations-2-10-0-sources-jar/com/google/errorprone/annotations/Var.java

```
* /opt/cola/permits/1287386049_1647249958.14/0/error-prone-annotations-2-10-0-sources-
jar/com/google/errorprone/annotations/CompileTimeConstant.java
* /opt/cola/permits/1287386049_1647249958.14/0/error-prone-annotations-2-10-0-sources-
jar/com/google/errorprone/annotations/Immutable.java
* /opt/cola/permits/1287386049_1647249958.14/0/error-prone-annotations-2-10-0-sources-
jar/com/google/errorprone/annotations/IncompatibleModifiers.java
* /opt/cola/permits/1287386049_1647249958.14/0/error-prone-annotations-2-10-0-sources-
jar/com/google/errorprone/annotations/SuppressPackageLocation.java
* /opt/cola/permits/1287386049_1647249958.14/0/error-prone-annotations-2-10-0-sources-
jar/com/google/errorprone/annotations/ForOverride.java
```

## 1.213 jcl-over-slf4j 1.7.36

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Found in path(s):

```
* /opt/cola/permits/1288583223_1647358914.34/0/jcl-over-slf4j-1-7-36-jar/META-INF/maven/org.slf4j/jcl-over-
slf4j/pom.xml
```

## 1.214 logback-access 1.2.11

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```
/**
```

```
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## 1.216 zlib 1.2.12

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\* zlib.h -- interface of the 'zlib' general purpose compression library  
version 1.2.12, March 11th, 2022

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://tools.ietf.org/html/rfc1950> (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).

\*/

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Found in path(s):

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/math/Quantiles.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/eventbus/SubscriberRegistry.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/eventbus/Dispatcher.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/MoreObjects.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/TrustedListenableFutureTask.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ListenerCallQueue.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/eventbus/Subscriber.java

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- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/RegularImmutableMap.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableMapValues.java
- \*
- /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/StandardRowSortedTable.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/Collections2.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/Platform.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableSortedSet.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/Table.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/Range.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/PeekingIterator.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableCollection.java
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- /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/HashBasedTable.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/Serialization.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableMapKeySet.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/RegularImmutableBiMap.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/StandardTable.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableMultimap.java



\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableBiMap.java

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/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableMultiset.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableEntry.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/thirdparty/publicsuffix/PublicSuffixPatterns.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/TreeBasedTable.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableMapEntrySet.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableMap.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableListMultimap.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/UnmodifiableIterator.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/EmptyImmutableListMultimap.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/CollectPreconditions.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/ExecutionSequencer.java

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* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/Java8Compatibility.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/Java8Compatibility.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/math/ToDoubleRounder.java
*
 /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/OverflowAvoidingLockSupport.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/hash/Java8Compatibility.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/math/BigDecimalMath.java
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* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
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jar/com/google/common/util/concurrent/AtomicLongMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Present.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ListeningScheduledExecutorService.java  
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/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/primitives/UnsignedInts.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/RemovalListeners.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/Hashing.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/math/MathPreconditions.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
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jar/com/google/common/hash/AbstractCompositeHashFunction.java  
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jar/com/google/common/math/DoubleMath.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/Funnels.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/EmptyContiguousSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/Murmur3\_32HashFunction.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/TypeParameter.java

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jar/com/google/common/primitives/UnsignedLongs.java
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* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
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jar/com/google/common/reflect/Types.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/cache/RemovalNotification.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/math/IntMath.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-

```

jar/com/google/common/hash/BloomFilterStrategies.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Enums.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/ForwardingCache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/Cache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/CacheLoader.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/net/HostAndPort.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RegularContiguousSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/AbstractNonStreamingHashFunction.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/math/BigIntegerMath.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ExecutionError.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/LoadingCache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AbstractListeningExecutorService.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/MessageDigestHashFunction.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/AbstractCache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/CycleDetectingLockFactory.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/PairwiseEquivalence.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RegularImmutableMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/UncheckedExecutionException.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/TreeRangeSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/DescendingImmutableSortedMultiset.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/net/HttpHeaders.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/HashingOutputStream.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/BoundType.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/AbstractLoadingCache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/PrimitiveSink.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/ParseRequest.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/Queues.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/AbstractStreamingHasher.java  
\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Absent.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/Weigher.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/Crc32cHashFunction.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/AbstractHasher.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/Uninterruptibles.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/ForwardingLock.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/ImmutableDoubleArray.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/ImmutableIntArray.java  
\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/AbstractHashFunction.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/ImmutableLongArray.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/ForwardingCondition.java  
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/\*\*

\* Holder for web specializations of methods of { @code Shorts }. Intended to be empty for regular  
\* version.

\*/

Found in path(s):

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/ShortsMethodsForWeb.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

jar/com/google/common/collect/BaseImmutableMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/IndexedImmutableSet.java  
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```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingSetMultimap.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractSequentialIterator.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/SortedMapDifference.java  
*  
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingSortedSetMultimap.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RowSortedTable.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/UnmodifiableListIterator.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingImmutableCollection.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingListMultimap.java  
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/MinMaxPriorityQueue.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/graph/IncidentEdgeSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/CompactHashing.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/Runnables.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/eventbus/SubscriberExceptionContext.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/reflect/TypeVisitor.java  
\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/HashingInputStream.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/WrappingScheduledExecutorService.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/CharSequenceReader.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

```
jar/com/google/common/base/Utf8.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/AbstractTable.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/VerifyException.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/thirdparty/publicsuffix/PublicSuffixType.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/eventbus/SubscriberExceptionHandler.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/Verify.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/FilteredMultimapValues.java
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*/
/**
* Returns an array containing all of the elements in the specified collection. This method
* returns the elements in the order they are returned by the collection's iterator. The returned
* array is "safe" in that no references to it are maintained by the collection. The caller is
* thus free to modify the returned
array.
*
* <p>This method assumes that the collection size doesn't change while the method is running.
*
* <p>TODO(kevinb): support concurrently modified collections?
*
* @param c the collection for which to return an array of elements
*/
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ObjectArrays.java
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```

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```
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jar/com/google/common/collect/GwtTransient.java
```

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jar/com/google/common/base/Strings.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ThreadFactoryBuilder.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/Atomics.java
*
```

```
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/SortedLists.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/Monitor.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/Ascii.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ForwardingBlockingQueue.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/annotations/package-info.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ListeningExecutorService.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ContiguousSet.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/annotations/Beta.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/primitives/package-info.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/Equivalence.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/UncaughtExceptionHandler.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/net/package-info.java
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*/
/**
* Holder for web specializations of methods of { @code Floats }. Intended to be empty for regular
* version.
*/
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/primitives/FloatsMethodsForWeb.java
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jar/com/google/common/graph/AbstractValueGraph.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/MapRetrievalCache.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/DirectedNetworkConnections.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/ForwardingNetwork.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/HashMultimapGwtSerializationDependencies.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/UndirectedGraphConnections.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Comparators.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/EdgesConnecting.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/NetworkBuilder.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/StandardMutableValueGraph.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/StandardNetwork.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/ForwardingValueGraph.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/ValueGraphBuilder.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
```

jar/com/google/common/graph/MapIteratorCache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/StandardMutableGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/NetworkConnections.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/GraphBuilder.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ArrayListMultimapGwtSerializationDependencies.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/AbstractDirectedNetworkConnections.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/LinkedHashMultimapGwtSerializationDependencies.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/StandardValueGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/GraphConstants.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RangeGwtSerializationDependencies.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/EndpointPairIterator.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/ImmutableValueGraph.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/EndpointPair.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/GraphConnections.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/UndirectedMultiNetworkConnections.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/ValueGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/ForwardingGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/MultiEdgesConnecting.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/MutableValueGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/UndirectedNetworkConnections.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/AbstractGraphBuilder.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/AbstractUndirectedNetworkConnections.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/DirectedMultiNetworkConnections.java

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/StandardMutableNetwork.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/DirectedGraphConnections.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/AbstractNetwork.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/ElementOrder.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ImmutableMultisetGwtSerializationDependencies.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/AbstractGraph.java
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*/
/**
* Holder for extra methods of {@code Objects} only in web. Intended to be empty for regular
* version.
*/
```

```
Found in path(s):
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/ExtraObjectsMethodsForWeb.java
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jar/com/google/common/collect/SortedMultisets.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/SortedMultiset.java

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jar/com/google/common/collect/DescendingImmutableSortedSet.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/CompactLinkedHashSet.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RangeMap.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingDeque.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RegularImmutableAsList.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/FilteredMultimap.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingImmutableMap.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/FilteredEntrySetMultimap.java



\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/EvictingQueue.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/FilteredEntryMultimap.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/AbstractSortedKeySortedSetMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/FilteredKeyListMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/FilteredSetMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/AbstractNavigableMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/UnmodifiableSortedMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/TransformedIterator.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/TreeRangeMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/TreeTraverser.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ForwardingImmutableSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/SortedMultisetBridge.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/AllEqualOrdering.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/CompactHashSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/ForwardingBlockingDeque.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ForwardingNavigableMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/CompactHashMap.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableEnumMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/AbstractMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ForwardingNavigableSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ForwardingBlockingDeque.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ForwardingImmutableList.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

jar/com/google/common/collect/DescendingMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/FilteredKeySetMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/CompactLinkedHashMap.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/TransformedListIterator.java  
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jar/com/google/common/util/concurrent/AsyncCallable.java

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jar/com/google/common/hash/LittleEndianByteArray.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AggregateFutureState.java

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/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/MacHashFunction.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/FarmHashFingerprint64.java

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jar/com/google/common/util/concurrent/Platform.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/ReaderInputStream.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ConsumingQueueIterator.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/InterruptibleTask.java

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jar/com/google/common/util/concurrent/CombinedFuture.java

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- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/LongAdder.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/LongAdder.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/AtomicDoubleArray.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/Striped64.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Objects.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/FinalizableSoftReference.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/LineReader.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Charsets.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/FinalizableWeakReference.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/LineBuffer.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Predicate.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/ExecutionList.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/ByteStreams.java

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/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Function.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/Files.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/eventbus/AsyncEventBus.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/AbstractIterator.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/eventbus/DeadEvent.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/eventbus/package-info.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/FinalizablePhantomReference.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

jar/com/google/common/base/FinalizableReferenceQueue.java  
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/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Interners.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Predicates.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/CountingInputStream.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/CharStreams.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Suppliers.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ListenableFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Supplier.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/primitives/Primitives.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AbstractFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/eventbus/EventBus.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/CountingOutputStream.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/Closeables.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Defaults.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/Flushables.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Throwables.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/HashBiMap.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/eventbus/AllowConcurrentEvents.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/LittleEndianDataInputStream.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/Functions.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/Resources.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/FinalizableReferenceQueue.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/package-info.java

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/EnumMultiset.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/package-info.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/package-info.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/Preconditions.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/LittleEndianDataOutputStream.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/DirectExecutor.java
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* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/Graph.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/SuccessorsFunction.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/MutableGraph.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/Network.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/PredecessorsFunction.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/Graphs.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/TopKSelector.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
```

jar/com/google/common/graph/MutableNetwork.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/ImmutableGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/graph/ImmutableNetwork.java  
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jar/com/google/common/collect/MultimapBuilder.java  
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jar/com/google/common/graph/package-info.java

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 *
 * As of 2010/06/11, this method is identical to the (package private) hash method in OpenJDK 7's
 * java.util.HashMap
 * class.
 */
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/Striped.java
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 */
/**
 * Not supported. <b>You are attempting to create a map that may contain a non-{@code Comparable}
```



```
* key.<b> Proper calls will resolve to the version in { @code ImmutableSortedMap}, not this dummy
* version.
*
* @throws UnsupportedOperationException always
* @deprecated <b>Pass a key of type { @code Comparable}
to use { @link
*   ImmutableSortedMap#of(Comparable, Object)}.</b>
*/
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ImmutableSortedMapFauxverideShim.java
```

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```
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jar/com/google/common/primitives/Platform.java
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- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/BaseEncoding.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/ByteSink.java
- \*
- /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/StandardSystemProperty.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/reflect/ImmutableTypeToInstanceMap.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/CartesianList.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/ServiceManager.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableRangeMap.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/math/PairedStatsAccumulator.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/AbstractByteHasher.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/Closer.java
- \*
- /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/math/PairedStats.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/SipHashFunction.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/LongAddable.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/xml/package-info.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/reflect/ClassPath.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/CharSink.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/reflect/package-info.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/ChecksumHashFunction.java
- \*
- /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/reflect/TypeCapture.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/escape/package-info.java
- \* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

jar/com/google/common/collect/FilteredKeyMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/FileWriteMode.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/Invokable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ImmutableRangeSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/LongAddable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/CharSource.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/MutableTypeToInstanceMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/TypeToInstanceMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/math/LinearTransformation.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ListenableScheduledFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/SmoothRateLimiter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/RateLimiter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/hash/LongAddables.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/ByteSource.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/math/StatsAccumulator.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/math/Stats.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/cache/LongAddables.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/Parameter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/AbstractInvocationHandler.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/graph/AbstractBaseGraph.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/graph/Traverser.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/graph/BaseGraph.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ObjectCountHashMap.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/Shorts.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/Longs.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/MultiReader.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/escape/UnicodeEscaper.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/Doubles.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/Chars.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/net/PercentEscaper.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/internal/Finalizer.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/CharMatcher.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/thirdparty/publicsuffix/TrieParser.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Joiner.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/escape/Escaper.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Converter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/Booleans.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Stopwatch.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/FluentIterable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/Bytes.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/FileBackedOutputStream.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableSortedMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ArrayTable.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableSetMultimap.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/RegularImmutableSortedSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableTable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ComputationException.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/AbstractIndexedListIterator.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/EmptyImmutableSetMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableClassToInstanceMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableEnumSet.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ComparisonChain.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableAsList.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/SingletonImmutableTable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/RegularImmutableList.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/DiscreteDomain.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ImmutableSortedSetFauxverideShim.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/ForwardingTable.java  
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```
/**
 * Outer class that exists solely to let us write {@code Partially.GwtIncompatible} instead of plain
 * {@code GwtIncompatible}. This is more accurate for {@link Futures#catching}, which is available
 * under GWT but with a slightly different signature.
 *
 * <p>We can't use {@code PartiallyGwtIncompatible} because then the GWT compiler
 * wouldn't recognize
 * it as a {@code GwtIncompatible} annotation. And for {@code Futures.catching}, we need the GWT
 * compiler to autostrip the normal server method in order to expose the special, inherited GWT
 * version.
 */
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/Partially.java
```

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Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ForwardingMapEntry.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ExplicitOrdering.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Multiset.java
```

```
*
 /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/LexicographicalOrdering.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/AbstractIterator.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/AbstractSortedSetMultimap.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
```



jar/com/google/common/collect/UsingToStringOrdering.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RegularImmutableSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingObject.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingQueue.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/EnumBiMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/EnumHashBiMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ConcurrentHashMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/NullsFirstOrdering.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ImmutableList.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/HashMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Multimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/CompoundOrdering.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractSetMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractMapBasedMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ByFunctionOrdering.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/SortedSetMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingList.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/HashMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingSet.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractMapEntry.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/package-info.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractMultiset.java

```

* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Lists.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ForwardingListIterator.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/LinkedListMultimap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/NaturalOrdering.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ForwardingMultiset.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/AbstractBiMap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/LinkedHashMultimap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ForwardingMultimap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ReverseNaturalOrdering.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/AbstractListMultimap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ForwardingSortedMap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/SetMultimap.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Multisets.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/SingletonImmutableSet.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/MutableClassToInstanceMap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/MapDifference.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/NullsLastOrdering.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Ordering.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ImmutableSet.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/TreeMultiset.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Sets.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ForwardingCollection.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-

```

jar/com/google/common/collect/Synchronized.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ListMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ReverseOrdering.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractMapBasedMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Multimaps.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ArrayListMultimap.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingSortedSet.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingConcurrentMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/TreeMultimap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingIterator.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ClassToInstanceMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Iterators.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Maps.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ComparatorOrdering.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/LinkedHashMultiset.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Interner.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/BiMap.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Iterables.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ServiceManagerBridge.java  
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jar/com/google/common/hash/package-info.java  
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```
* This method was rewritten in Java from an intermediate step of the Murmur hash function in
* http://code.google.com/p/smhasher/source/browse/trunk/MurmurHash3.cpp, which contained the
* following header:
*
* MurmurHash3 was written by Austin Appleby, and is placed in the public domain. The author
* hereby
disclaims copyright to this source code.
*/
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Hashing.java
```

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```

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```

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*
```

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```

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*
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*/
```

Found in path(s):

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/PatternCompiler.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/CommonPattern.java
```

```
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/JdkPattern.java
```

```
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```

```
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/CommonMatcher.java
```

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```
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```

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\* This method was rewritten in Java from an intermediate step of the Murmur hash function in  
\* <http://code.google.com/p/smhasher/source/browse/trunk/MurmurHash3.cpp>, which contained the  
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Found in path(s):

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/SmallCharMatcher.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/escape/ArrayBasedUnicodeEscaper.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/MapMakerInternalMap.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AbstractExecutionThreadService.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/net/HostSpecifier.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

```

jar/com/google/common/reflect/TypeResolver.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/Platform.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/annotations/GwtIncompatible.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/annotations/GwtCompatible.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/AbstractIdleService.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/cache/ReferenceEntry.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/primitives/UnsignedBytes.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ForwardingFuture.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/escape/ArrayBasedCharEscaper.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/ByteProcessor.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/html/HtmlEscapers.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/net/UrlEscapers.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/Cut.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/Callables.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/net/InternetDomainName.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/ByteArrayDataInput.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/escape/ArrayBasedEscaperMap.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/RegularImmutableTable.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/MapMaker.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ForwardingFluentFuture.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/JdkFutureAdapters.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ForwardingListenableFuture.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/escape/Escapers.java

```

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/DenseImmutableTable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/CacheBuilder.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/ByteArrayDataOutput.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/SettableFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/Service.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/escape/Platform.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/AbstractService.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/LocalCache.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/io/LineProcessor.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/xml/XmlEscapers.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/collect/SparseImmutableTable.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/Splitter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/SignedBytes.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/util/concurrent/FuturesGetChecked.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-



jar/com/google/common/util/concurrent/TimeoutFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/FluentFuture.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/escape/CharEscaper.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/UncheckedTimeoutException.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/GwtFuturesCatchingSpecialization.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AbstractTransformFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/SimpleTimeLimiter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/PatternFilenameFilter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/CollectionFuture.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/ImmediateFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/reflect/TypeToken.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/annotations/VisibleForTesting.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/Futures.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AbstractCatchingFuture.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/CaseFormat.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/io/AppendableWriter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/GwtFluentFutureCatchingSpecialization.java  
\*  
/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/TimeLimiter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/FakeTimeLimiter.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/escape/CharEscaperBuilder.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/AggregateFuture.java  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/util/concurrent/NullnessCasts.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/base/NullnessCasts.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/NullnessCasts.java

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/\*\*  
\* Holder for web specializations of methods of { @code Doubles }. Intended to be empty for regular  
\* version.  
\*/

Found in path(s):

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/primitives/DoublesMethodsForWeb.java

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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/base/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/math/ParametricNullness.java  
\*  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/net/ElementTypesAreNonnullByDefault.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/html/ElementTypesAreNonnullByDefault.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/primitives/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/cache/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/eventbus/ElementTypesAreNonnullByDefault.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/reflect/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/escape/ParametricNullness.java  
\*  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/hash/ElementTypesAreNonnullByDefault.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/escape/ElementTypesAreNonnullByDefault.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/xml/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/html/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-jar/com/google/common/net/ParametricNullness.java  
\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-

```
jar/com/google/common/xml/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/math/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ParametricNullness.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/ParametricNullness.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/primitives/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ParametricNullness.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/eventbus/ParametricNullness.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/util/concurrent/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/graph/ParametricNullness.java
*
/opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/reflect/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/collect/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/io/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/base/ElementTypesAreNonnullByDefault.java
* /opt/cola/permits/1312950193_1650560245.64/0/guava-31-0-1-android-sources-1-
jar/com/google/common/cache/ElementTypesAreNonnullByDefault.java
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/**
```

\* Holder for web specializations of methods of { @code Ints }. Intended to be empty for regular  
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\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/primitives/IntsMethodsForWeb.java

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jar/com/google/common/collect/SortedIterables.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ImmutableSortedMultiset.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/Count.java

\*

/opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/RangeSet.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ForwardingSortedMultiset.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/ImmutableSortedMultisetFauxverideShim.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/GeneralRange.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/SortedIterable.java

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jar/com/google/common/collect/RegularImmutableSortedMultiset.java

\* /opt/cola/permits/1312950193\_1650560245.64/0/guava-31-0-1-android-sources-1-  
jar/com/google/common/collect/AbstractRangeSet.java

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## 1.222 gson 2.8.9

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 */
```

Found in path(s):

```
*/opt/cola/permits/1330613678_1652979131.328877/0/gson-2-8-9-sources-2-
jar/com/google/gson/internal/GsonBuildConfig.java
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 */
```

Found in path(s):

```
*/opt/cola/permits/1330613678_1652979131.328877/0/gson-2-8-9-sources-2-
jar/com/google/gson/internal/bind/TreeTypeAdapter.java
*/opt/cola/permits/1330613678_1652979131.328877/0/gson-2-8-9-sources-2-
jar/com/google/gson/internal/bind/DateTypeAdapter.java
*/opt/cola/permits/1330613678_1652979131.328877/0/gson-2-8-9-sources-2-
jar/com/google/gson/internal/ConstructorConstructor.java
```

```
*/
```

/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/sql/SqlDateTypeAdapter.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/UnsafeAllocator.java  
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\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/ArrayTypeAdapter.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/JsonTreeReader.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/TypeAdapterRuntimeTypeWrapper.java

\*

/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/CollectionTypeAdapterFactory.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/MapTypeAdapterFactory.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/TypeAdapterFactory.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/JsonReaderInternalAccess.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/ReflectiveTypeAdapterFactory.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/TypeAdapters.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/ObjectTypeAdapter.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/TypeAdapter.java

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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/JsonTreeWriter.java

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\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonArray.java

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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/FieldNamingStrategy.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/annotations/SerializedName.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonDeserializationContext.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/Excluder.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/FieldNamingPolicy.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/\$Gson\$Preconditions.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/bind/DefaultDateTypeAdapter.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonSerializationContext.java

\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonParseException.java

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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/internal/ObjectConstructor.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/Gson.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonIOException.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/reflect/TypeToken.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonDeserializer.java  
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\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/GsonBuilder.java  
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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonSerializer.java  
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\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/InstanceCreator.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonNull.java  
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\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/annotations/JsonAdapter.java  
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jar/com/google/gson/stream/JsonReader.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-  
jar/com/google/gson/stream/MalformedJsonException.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-  
jar/com/google/gson/stream/JsonScope.java  
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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-  
jar/com/google/gson/stream/JsonToken.java  
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jar/com/google/gson/stream/JsonWriter.java  
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jar/com/google/gson/internal/reflect/PreJava9ReflectionAccessor.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-  
jar/com/google/gson/internal/reflect/ReflectionAccessor.java  
\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-  
jar/com/google/gson/internal/reflect/UnsafeReflectionAccessor.java  
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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-  
jar/com/google/gson/internal/PreJava9DateFormatProvider.java  
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\* /opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/FieldAttributes.java

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/opt/cola/permits/1330613678\_1652979131.328877/0/gson-2-8-9-sources-2-jar/com/google/gson/JsonParser.java

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Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a

work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

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#### END OF TERMS AND CONDITIONS

#### Appendix: How to Apply These Terms to Your New Libraries

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>

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<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

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@center Version 2.1, February 1999

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@display

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@subheading Preamble

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We call this license the @dfn{Lesser} General Public License because it does @emph{Less} to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free



library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

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Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a ``work based on the library" and a ``work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

## @subheading TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

@enumerate 0

@item

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A ``library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The ``Library", below, refers to any such software library or work which has been distributed under these terms. A ``work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term ``modification".)

``Source code" for a work means the preferred form of the work for

making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

@item

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@enumerate a

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@item

You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

@item

You must

cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

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If a facility in the modified Library refers to a function or a

table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

@end enumerate

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

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In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

@item

You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

@item

A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the

Library will still fall under Section 6.)

Otherwise,

if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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As an exception to the Sections above, you may also combine or link a ``work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

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@item

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Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

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Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

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For an executable, the required form of the ``work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

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@end enumerate

@subheading END OF TERMS AND CONDITIONS

@page

@subheading How to Apply These Terms to Your New Libraries

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To apply these terms, attach the following notices to the library. It is

safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the ``copyright" line and a pointer to where the full notice is found.

```
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@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}
```

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```
@end
smallexample
```

Also add information on how to contact you by electronic and paper mail.

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```
@smallexample
Yoyodyne, Inc., hereby disclaims all copyright interest in the library
`Frob' (a library for tweaking knobs) written by James Random Hacker.
```

```
@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample
```

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# 1.224 free-type 2.12.1

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# All lines in this file are patterns, including the comment lines; this # means that e.g. `FTL.TXT' matches all files that have this string in # the file name (including the path relative to the current directory, # always starting with `./').

#

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#

builds/unix/pkg.m4

#

docs/FTL.TXT

docs/GPLv2.TXT

#

include/freetype/internal/fthash.h

#

src/base/fthash.c

src/base/md5.c

src/base/md5.h

#

src/bdf/bdf.c

src/bdf/bdf.h

src/bdf/bdfdrivr.c

src/bdf/bdfdrivr.h

src/bdf/bdferror.h

src/bdf/bdflib.c

src/bdf/module.mk

src/bdf/README

src/bdf/rules.mk

#

src/pcf/module.mk

src/pcf/pcf.c

src/pcf/pcf.h

src/pcf/pcfdrivr.c

src/pcf/pcfdrivr.h

src/pcf/pcferror.h

src/pcf/pcfread.c

src/pcf/pcfread.h

src/pcf/pcfutil.c

src/pcf/pcfutil.h

src/pcf/README

src/pcf/rules.mk

#

src/gzip/adler32.c

src/gzip/infblock.c

src/gzip/infblock.h

src/gzip/infcodes.c

src/gzip/infcodes.h

src/gzip/inffixed.h

src/gzip/inflate.c

src/gzip/inftrees.c

src/gzip/inftrees.h

src/gzip/infutil.c

src/gzip/infutil.h

src/gzip/zconf.h

```
src/gzip/zlib.h
src/gzip/zutil.c
src/gzip/zutil.h
#
src/tools/apinames.c
src/tools/frandom/frandom.c
#
subprojects/dlg
#
#
EOF
```

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## 1.226 okhttp 4.10.0

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/\*\* Templates for building ASTs during normal parsing.

- \*
- \* Deal with many combinations. Dimensions are:
- \* Auto build or rewrite
- \* no label, label, list label (label/no-label handled together)
- \* child, root
- \* token, set, rule, wildcard
- \*
- \* The situation is not too bad as rewrite (->) usage makes ^ and
- !
- \* invalid. There is no huge explosion of combinations.
- \*/

```
@rule.setErrorReturnValue() ::= <<
retval.Tree = (<ASTLabelType>)adaptor.ErrorNode(input, retval.Start, input.LT(-1), re);
<! System.out.WriteLine("<ruleName> returns "+((CommonTree)retval.tree).toStringTree()); !>
>>
```

// TOKEN AST STUFF

```
/** ID and output=AST */
tokenRef(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.tokenRef(...)>
<if(backtracking)>if (state.backtracking == 0) {<endif>
<label>_tree = <createNodeFromToken(...)>;
adaptor.AddChild(root_0, <label>_tree);
<if(backtracking)>}<endif>
>>
```

```
/** ID! and output=AST (same as plain tokenRef) */
tokenRefBang(token,label,elementIndex) ::= "<super.tokenRef(...)>"
```

```

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.tokenRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<label>_tree = <createNodeFromToken(...)>;
root_0 = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_0);
<if(backtracking)>}<endif>
>>

/**
ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefBang(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRef(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefRuleRoot(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending on the operator. I don't like making
// the template name have the operator as the number of templates gets
//
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label plus ... The combinations might require complicated
// rather than just added on code. Investigate that refactoring when
// I have more time.

matchSet(s,label,elementIndex,postmatchCode,terminalOptions={ }) ::= <<
<super.matchSet(postmatchCode={<if(backtracking)>if (<actions.(actionScope).synpredgate>)
<endif>adaptor.AddChild(root_0, <createNodeFromToken(...)>);}, ...)>
>>

```

```

matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={}) ::= <<
<matchSet(...)>
>>

```

```

matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= "<super.matchSet(...)>"

```

```

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts: (A|B|...|C)

```

```

matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={}) ::= <<
<if(label)>
<label>=(<labelType>)input.LT(1);
<endif>
<super.matchSet(postmatchCode={ <if(backtracking)>if
(<actions.(actionScope).synpredgate>) <endif>root_0 =
(<ASTLabelType>)adaptor.BecomeRoot(<createNodeFromToken(...)>, root_0);}, ...)>
>>

```

```

// RULE REF AST

```

```

/** rule when output=AST */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>adaptor.AddChild(root_0, <label>.Tree);
>>

```

```

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

```

```

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>root_0 =
(<ASTLabelType>)adaptor.BecomeRoot(<label>.Tree, root_0);
>>

```

```

/** x+=rule when output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabelElem(elem={ <label>.Tree },elemType=ASTLabelType,...)>
>>

```

```

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope)
::= <<
<ruleRefBang(...)>
<listLabelElem(elem={ <label>.Tree },elemType=ASTLabelType,...)>
>>

```

```

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabelElem(elem={<label>.Tree},elemType=ASTLabelType,...)>
>>

// WILDCARD AST

wildcard(token,label,elementIndex,terminalOptions={}) ::= <<
<super.wildcard(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<label>_tree = (<ASTLabelType>)adaptor.Create(<label>);
adaptor.AddChild(root_0, <label>_tree);
<if(backtracking)>}<endif>
>>

wildcardBang(label,elementIndex) ::= "<super.wildcard(token=[],...)>"

wildcardRuleRoot(token,label,elementIndex,terminalOptions={}) ::= <<
<super.wildcard(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<label>_tree = (<ASTLabelType>)adaptor.Create(<label>);
root_0 = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_0);
<if(backtracking)>}<endif>
>>

createNodeFromToken(label,terminalOptions={})
::= <%
<if(terminalOptions.node)>
new
<terminalOptions.node>(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.text)>,<terminalOptions.text; format="string"><endif>)
<else>
(<ASTLabelType>)adaptor.Create(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.text)>,<terminalOptions.text; format="string"><endif>)
<endif>
%>

ruleCleanUp() ::= <<
<super.ruleCleanUp()>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
retval.Tree = (<ASTLabelType>)adaptor.RulePostProcessing(root_0);
adaptor.SetTokenBoundaries(retval.Tree, retval.Start, retval.Stop);
<if(backtracking)>}<endif>
>>

```

Found in path(s):



\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-

jar/org/antlr/codegen/templates/CSharp2/ASTParser.stg

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\*/

/\*\* Template subgroup to add template rewrite output

\* If debugging, then you'll also get STDbg.stg loaded.

\*/

```
@outputFile.imports() ::= <<
```

```
<@super.imports(>
```

```
using Antlr3.ST;
```

```
using Antlr3.ST.Language;
```

```
>>
```

```
@genericParser.members() ::= <<
```

```
<@super.members(>
```

```
private StringTemplateGroup _templateGroup = new StringTemplateGroup("<name>Templates",
    typeof(AngleBracketTemplateLexer) );
```

```
public StringTemplateGroup TemplateGroup
{
    get { return _templateGroup; }
    set { _templateGroup = value; }
}
>>
```

```
ruleReturnBaseType() ::= <%
Template<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope\<StringTemplate, <labelType>>>
%>
```

```
/** x+=rule when output=template */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabelElem(elem={<label>.Template},elemType="StringTemplate",...)>
>>
```

```
rewriteTemplate(alts) ::= <<
```

```
// TEMPLATE REWRITE
<if(backtracking)>
if (<actions.(actionScope).synpredgate>)
{
    <alts:rewriteTemplateAlt(); separator="else ">
    <if(rewriteMode)><replaceTextInLine()><endif>
}
<else>
<alts:rewriteTemplateAlt(); separator="else ">
<if(rewriteMode)><replaceTextInLine()><endif>
<endif>
>>
```

```
replaceTextInLine() ::= <<
<if(TREE_PARSER)>
((TokenRewriteStream)input.TokenStream).Replace(
    input.TreeAdaptor.GetTokenStartIndex(retval.Start),
    input.TreeAdaptor.GetTokenStopIndex(retval.Start),
    retval.Template);
<else>
((TokenRewriteStream)input).Replace(
    retval.Start.TokenIndex,
    input.LT(-1).TokenIndex,
    retval.Template);
<endif>
>>
```

```

rewriteTemplateAlt(it)
 ::= <<
// <it.description>
<if(it.pred)>
if (<it.pred>)
{
    retval.Template = <it.alt>;
}<\n>
<else>
{
    retval.Template = <it.alt>;
}<\n>
<endif>
>>

```

```

rewriteEmptyTemplate(alts) ::= <<
null;
>>

```

```

/** Invoke a template with a set of attribute name/value pairs.
 * Set the value of the rule's template after having set
 * the attributes because the rule's template might be used as
 * an attribute to build a bigger template; you get a self-embedded
 * template.
 */

```

```

rewriteExternalTemplate(name,args) ::= <%
TemplateGroup.GetInstanceOf("<name>"<optionalArguments(args)>)
%>

```

```

/** expr is a string expression that says what template to load */
rewriteIndirectTemplate(expr,args) ::= <%
TemplateGroup.GetInstanceOf(<expr><optionalArguments(args)>)
%>

```

```

/** Invoke an inline template with a set of attribute name/value pairs */
rewriteInlineTemplate(args,
    template) ::= <%
new StringTemplate(TemplateGroup, "<template>"<optionalArguments(args)>)
%>

```

```

optionalArguments(args) ::= <<
<if(args)>,
    new Dictionary<string, object>() { <args:optionalArgument(); separator=", "> }
<endif>
>>

```

```

optionalArgument(it) ::= <<

```

```

{"<it.name>", <it.value>}
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
<action>
>>

/** An action has %st.attrName=expr; or % {st}.attrName=expr; */
actionSetAttribute(st,attrName,expr) ::= <<
(<st>).SetAttribute("<attrName>",<expr>);
>>

/** Translate % {stringExpr} */
actionStringConstructor(stringExpr) ::= <<
new StringTemplate(TemplateGroup,<stringExpr>)
>>

```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/CSharp3/ST.stg  
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```
*/
```

```
/*
```

New style messages. This file only contains the messages in English, but no information about which file, line, or column it occurred in.

The location and message ids are taken out of the formats directory.

Kay Roepke

```
*/
```

```
group en_US;
```

```
// TOOL ERRORS
```

```
// file errors
```

```
CANNOT_WRITE_FILE(arg,exception,stackTrace) ::= <<
```

```
cannot write file <arg>: <exception>
```

```
<stackTrace; separator="\n">
```

```
>>
```

```
CANNOT_CLOSE_FILE(arg,exception,stackTrace) ::= "cannot close file <arg>: <exception>"
```

```

CANNOT_FIND_TOKENS_FILE(arg)
::= "cannot find tokens file <arg>"
ERROR_READING_TOKENS_FILE(arg,exception,stackTrace) ::= <<
problem reading token vocabulary file <arg>: <exception>
<stackTrace; separator="\n">
>>
DIR_NOT_FOUND(arg,exception,stackTrace) ::= "directory not found: <arg>"
OUTPUT_DIR_IS_FILE(arg,exception,stackTrace) ::= "output directory is a file: <arg>"
CANNOT_OPEN_FILE(arg,exception,stackTrace) ::= "cannot find or open file: <arg><if(exception)>; reason:
<exception><endif>"
CIRCULAR_DEPENDENCY() ::= "your grammars contain a circular dependency and cannot be sorted into a valid
build order."

INTERNAL_ERROR(arg,arg2,exception,stackTrace) ::= <<
internal error: <arg> <arg2><if(exception)>: <exception><endif>
<stackTrace; separator="\n">
>>
INTERNAL_WARNING(arg) ::= "internal warning: <arg>"
ERROR_CREATING_ARTIFICIAL_RULE(arg,exception,stackTrace) ::= <<
problems creating lexer rule listing all tokens: <exception>
<stackTrace; separator="\n">
>>
TOKENS_FILE_SYNTAX_ERROR(arg,arg2)
::=
"problems parsing token vocabulary file <arg> on line <arg2>"
CANNOT_GEN_DOT_FILE(arg,exception,stackTrace) ::=
"cannot write DFA DOT file <arg>: <exception>"
BAD_ACTION_AST_STRUCTURE(exception,stackTrace) ::=
"bad internal tree structure for action '<arg>': <exception>"
BAD_AST_STRUCTURE(arg,exception,stackTrace) ::= <<
bad internal tree structure '<arg>': <exception>
<stackTrace; separator="\n">
>>
FILE_AND_GRAMMAR_NAME_DIFFER(arg,arg2) ::=
"file <arg2> contains grammar <arg>; names must be identical"
FILENAME_EXTENSION_ERROR(arg) ::=
"file <arg> must end in a file extension, normally .g"

// code gen errors
MISSING_CODE_GEN_TEMPLATES(arg) ::=
"cannot find code generation templates <arg>.stg"
MISSING_CYCLIC_DFA_CODE_GEN_TEMPLATES() ::=
"cannot find code generation cyclic DFA templates for language <arg>"
CODE_GEN_TEMPLATES_INCOMPLETE(arg) ::=
"at least one code generation template missing for language <arg>"
CANNOT_CREATE_TARGET_GENERATOR(arg,exception,stackTrace)
::=
"cannot create target <arg> code generator: <exception>"

```

```

STRING_TEMPLATE_ERROR(arg,exception,stackTrace) ::=
"template error: <arg>"
CANNOT_COMPUTE_SAMPLE_INPUT_SEQ() ::=
"cannot generate a sample input sequence from lookahead DFA"

// grammar interpretation errors
/*
NO_VIABLE_DFA_ALT(arg,arg2) ::=
"no viable transition from state <arg> on <arg2> while interpreting DFA"
*/

// GRAMMAR ERRORS
SYNTAX_ERROR(arg) ::= "syntax error: <arg>"
RULE_REDEFINITION(arg) ::=
"rule <arg> redefinition"
LEXER_RULES_NOT_ALLOWED(arg) ::=
"lexer rule <arg> not allowed in parser"
PARSER_RULES_NOT_ALLOWED(arg) ::=
"parser rule <arg> not allowed in lexer"
CANNOT_FIND_ATTRIBUTE_NAME_IN_DECL(arg) ::=
"cannot find an attribute name in attribute declaration"
NO_TOKEN_DEFINITION(arg) ::=
"no lexer rule corresponding to token: <arg>"
UNDEFINED_RULE_REF(arg) ::=
"reference to undefined rule: <arg>"
LITERAL_NOT_ASSOCIATED_WITH_LEXER_RULE(arg) ::=
"literal has no associated lexer rule: <arg>"
CANNOT_ALIAS_TOKENS_IN_LEXER(arg)
::=
"literals are illegal in lexer tokens{ } section: <arg>"
ATTRIBUTE_REF_NOT_IN_RULE(arg,arg2) ::=
"reference to attribute outside of a rule: <arg><if(arg2)>.<arg2><endif>"
UNKNOWN_ATTRIBUTE_IN_SCOPE(arg,arg2) ::=
"unknown attribute for <arg>: <arg2>"
UNKNOWN_RULE_ATTRIBUTE(arg,arg2) ::=
"unknown attribute for rule <arg>: <arg2>"
UNKNOWN_SIMPLE_ATTRIBUTE(arg,args2) ::=
"attribute is not a token, parameter, or return value: <arg>"
ISOLATED_RULE_SCOPE(arg) ::=
"missing attribute access on rule scope: <arg>"
INVALID_RULE_PARAMETER_REF(arg,arg2) ::=
"cannot access rule <arg>'s parameter: <arg2>"
INVALID_RULE_SCOPE_ATTRIBUTE_REF(arg,arg2) ::=
"cannot access rule <arg>'s dynamically-scoped attribute: <arg2>"
SYMBOL_CONFLICTS_WITH_GLOBAL_SCOPE(arg) ::=
"symbol <arg> conflicts with global dynamic scope with same name"
WRITE_TO_READONLY_ATTR(arg,arg2,arg3) ::=
"cannot write to read only attribute: $<arg><if(arg2)>.<arg2><endif>"

```

```

LABEL_CONFLICTS_WITH_RULE(arg)
 ::=
 "label <arg> conflicts with rule with same name"
LABEL_CONFLICTS_WITH_TOKEN(arg) ::=
 "label <arg> conflicts with token with same name"
LABEL_CONFLICTS_WITH_RULE_SCOPE_ATTRIBUTE(arg,arg2) ::=
 "label <arg> conflicts with rule <arg2>'s dynamically-scoped attribute with same name"
LABEL_CONFLICTS_WITH_RULE_ARG_RETVAL(arg,arg2) ::=
 "label <arg> conflicts with rule <arg2>'s return value or parameter with same name"
ATTRIBUTE_CONFLICTS_WITH_RULE(arg,arg2) ::=
 "rule <arg2>'s dynamically-scoped attribute <arg> conflicts with the rule name"
ATTRIBUTE_CONFLICTS_WITH_RULE_ARG_RETVAL(arg,arg2) ::=
 "rule <arg2>'s dynamically-scoped attribute <arg> conflicts with<arg2>'s return value or parameter with same
name"
LABEL_TYPE_CONFLICT(arg,arg2) ::=
 "label <arg> type mismatch with previous definition: <arg2>"
ARG_RETVAL_CONFLICT(arg,arg2) ::=
 "rule <arg2>'s argument <arg> conflicts a return value with same name"
NONUNIQUE_REF(arg) ::=
 "<arg> is a non-unique reference"
FORWARD_ELEMENT_REF(arg)
 ::=
 "illegal forward reference: <arg>"
MISSING_RULE_ARGS(arg) ::=
 "missing parameter(s) on rule reference: <arg>"
RULE_HAS_NO_ARGS(arg) ::=
 "rule <arg> has no defined parameters"
ARGS_ON_TOKEN_REF(arg) ::=
 "token reference <arg> may not have parameters"
ILLEGAL_OPTION(arg) ::=
 "illegal option <arg>"
LIST_LABEL_INVALID_UNLESS_RETVAL_STRUCT(arg) ::=
 "rule '+=' list labels are not allowed w/o output option: <arg>"
UNDEFINED_TOKEN_REF_IN_REWRITE(arg) ::=
 "reference to undefined token in rewrite rule: <arg>"
REWRITE_ELEMENT_NOT_PRESENT_ON_LHS(arg) ::=
 "reference to rewrite element <arg> without reference on left of ->"
UNDEFINED_LABEL_REF_IN_REWRITE(arg) ::=
 "reference to undefined label in rewrite rule: $<arg>"
NO_GRAMMAR_START_RULE (arg) ::=
 "grammar <arg>: no start rule (no rule can obviously be followed by EOF)"
EMPTY_COMPLEMENT(arg) ::= <<
<if(arg)>
set complement ~<arg> is empty
<else>
set complement is empty
<endif>
>>

```



UNKNOWN\_DYNAMIC\_SCOPE(arg) ::=  
 "unknown  
 dynamic scope: <arg>"

UNKNOWN\_DYNAMIC\_SCOPE\_ATTRIBUTE(arg,arg2) ::=  
 "unknown dynamically-scoped attribute for scope <arg>: <arg2>"

RULE\_REF\_AMBIG\_WITH\_RULE\_IN\_ALT(arg) ::=  
 "reference \$<arg> is ambiguous; rule <arg> is enclosing rule and referenced in the production (assuming enclosing rule)"

ISOLATED\_RULE\_ATTRIBUTE(arg) ::=  
 "reference to locally-defined rule scope attribute without rule name: <arg>"

INVALID\_ACTION\_SCOPE(arg,arg2) ::=  
 "unknown or invalid action scope for <arg2> grammar: <arg>"

ACTION\_REDEFINITION(arg) ::=  
 "redefinition of <arg> action"

DOUBLE\_QUOTES\_ILLEGAL(arg) ::=  
 "string literals must use single quotes (such as '\begin\'): <arg>"

INVALID\_TEMPLATE\_ACTION(arg) ::=  
 "invalid StringTemplate % shorthand syntax: '<arg>'"

MISSING\_ATTRIBUTE\_NAME() ::=  
 "missing attribute name on \$ reference"

ARG\_INIT\_VALUES\_ILLEGAL(arg) ::=  
 "rule parameters may not have init values: <arg>"

REWRITE\_OR\_OP\_WITH\_NO\_OUTPUT\_OPTION(arg) ::=  
 "<if(arg)>rule <arg> uses <endif>rewrite  
 syntax or operator with no output option; setting output=AST"

AST\_OP\_WITH\_NON\_AST\_OUTPUT\_OPTION(arg) ::=  
 "AST operator with non-AST output option: <arg>"

NO\_RULES(arg) ::= "grammar file <arg> has no rules"

MISSING\_AST\_TYPE\_IN\_TREE\_GRAMMAR(arg) ::=  
 "tree grammar <arg> has no ASTLabelType option"

REWRITE\_FOR\_MULTI\_ELEMENT\_ALT(arg) ::=  
 "with rewrite=true, alt <arg> not simple node or obvious tree element; text attribute for rule not guaranteed to be correct"

RULE\_INVALID\_SET(arg) ::=  
 "Cannot complement rule <arg>; not a simple set or element"

HETERO\_ILLEGAL\_IN\_REWRITE\_ALT(arg) ::=  
 "alts with rewrites can't use heterogeneous types left of ->"

NO\_SUCH\_GRAMMAR\_SCOPE(arg,arg2) ::=  
 "reference to undefined grammar in rule reference: <arg>.<arg2>"

NO\_SUCH\_RULE\_IN\_SCOPE(arg,arg2) ::=  
 "rule <arg2> is not defined in grammar <arg>"

TOKEN\_ALIAS\_CONFLICT(arg,arg2) ::=  
 "cannot alias <arg>; string already assigned to <arg2>"

TOKEN\_ALIAS\_REASSIGNMENT(arg,arg2) ::=  
 "cannot alias <arg>;  
 token name already assigned to <arg2>"

TOKEN\_VOCAB\_IN\_DELEGATE(arg,arg2) ::=  
 "tokenVocab option ignored in imported grammar <arg>"

```

INVALID_IMPORT(arg,arg2) ::=
"<arg.grammarTypeString> grammar <arg.name> cannot import <arg2.grammarTypeString> grammar
<arg2.name>"
IMPORTED_TOKENS_RULE_EMPTY(arg,arg2) ::=
"no lexer rules contributed to <arg> from imported grammar <arg2>"
IMPORT_NAME_CLASH(arg,arg2) ::=
"combined grammar <arg.name> and imported <arg2.grammarTypeString> grammar <arg2.name> both generate
<arg2.recognizerName>; import ignored"
AST_OP_IN_ALT_WITH_REWRITE(arg,arg2) ::=
"rule <arg> alt <arg2> uses rewrite syntax and also an AST operator"
WILDCARD_AS_ROOT(arg) ::= "Wildcard invalid as root; wildcard can itself be a tree"
CONFLICTING_OPTION_IN_TREE_FILTER(arg,arg2) ::= "option <arg>=<arg2> conflicts with tree grammar
filter mode"
ILLEGAL_OPTION_VALUE(arg, arg2) ::= "value '<arg2>' invalid for option <arg>"
ALL_OPS_NEED_SAME_ASSOC(arg) ::= "all operators of alt <alt> of
left-recursive rule must have same associativity"
RANGE_OP_ILLEGAL(arg) ::= "the .. range operator isn't allowed in parser rules"

// GRAMMAR WARNINGS

GRAMMAR_NONDETERMINISM(input,conflictingAlts,paths,disabled,hasPredicateBlockedByAction) ::=
<<
<if(paths)>
Decision can match input such as "<input>" using multiple alternatives:
<paths:{ it | alt <it.alt> via NFA path <it.states; separator=","><\n}>
<else>
Decision can match input such as "<input>" using multiple alternatives: <conflictingAlts; separator=",">
<endif>
<if(disabled)><\n>As a result, alternative(s) <disabled; separator=","> were disabled for that
input<endif><if(hasPredicateBlockedByAction)><\n>Semantic predicates were present but were hidden by
actions.<endif>
>>

DANGLING_STATE(danglingAlts,input) ::= <<
the decision cannot distinguish between alternative(s) <danglingAlts; separator=","> for input such as "<input>"
>>

UNREACHABLE_ALTS(alts) ::= <<
The following alternatives can never be matched: <alts; separator=","><\n>
>>

INSUFFICIENT_PREDICATES(upon,altToLocations,hasPredicateBlockedByAction)
::= <<
Input such as "<upon>" is insufficiently covered with predicates at locations: <altToLocations.keys: {alt|alt <alt>:
<altToLocations.(alt):{loc| line <loc.line>:<loc.column> at <loc.text>}; separator=",">; separator=",
"><if(hasPredicateBlockedByAction)><\n>Semantic predicates were present but were hidden by actions.<endif>
>>

```

DUPLICATE\_SET\_ENTRY(arg) ::= <<  
"duplicate token type <arg> when collapsing subrule into set"

ANALYSIS\_ABORTED(enclosingRule) ::= <<  
ANTLR could not analyze this decision in rule <enclosingRule>; often this is because of recursive rule references visible from the left edge of alternatives. ANTLR will re-analyze the decision with a fixed lookahead of k=1. Consider using "options {k=1;}" for that decision and possibly adding a syntactic predicate.  
>>

RECURSION\_OVERFLOW(alt,input,targetRules,callSiteStates) ::= <<  
Alternative <alt>: after matching input such as <input> decision cannot predict what comes next due to recursion overflow <targetRules,callSiteStates:{t,c|to <t> from <c:{s|<s.enclosingRule.name>};separator=",">}; separator=" and ">  
>>

LEFT\_RECURSION(targetRules,alt,callSiteStates) ::= <<  
Alternative <alt> discovers infinite left-recursion <targetRules,callSiteStates:{t,c|to <t> from <c:{s|<s.enclosingRule>};separator=",">}; separator=" and ">  
>>

UNREACHABLE\_TOKENS(tokens) ::= <<  
The following token definitions can never be matched because prior tokens match the same input: <tokens; separator=",">  
>>

TOKEN\_NONDETERMINISM(input,conflictingTokens,paths,disabled,hasPredicateBlockedByAction) ::= <<  
<if(paths)>  
Decision can match input such as "<input>" using multiple alternatives:  
<paths:{ it | alt <it.alt> via NFA path <it.states; separator=","><\n>}>  
<else>  
Multiple token rules can match input such as "<input>": <conflictingTokens; separator=","><\n>  
<endif>  
<if(disabled)><\n>As a result, token(s) <disabled; separator=","> were disabled for that input<endif><if(hasPredicateBlockedByAction)><\n>Semantic predicates were present but were hidden by actions.<endif>  
>>

LEFT\_RECURSION\_CYCLES(listOfCycles) ::= <<  
The following sets of rules are mutually left-recursive <listOfCycles:{c| [<c:{r|<r.name>}; separator=",">]; separator=" and ">  
>>

NONREGULAR\_DECISION(ruleName,alts) ::= <<  
[fatal] rule <ruleName> has non-LL(\*) decision due to recursive rule invocations reachable from alts <alts; separator=",">. Resolve by left-factoring or using syntactic predicates or using backtrack=true option.  
>>

```
/* 110n for message levels */
```

```
warning() ::= "warning"
```

```
error() ::= "error"
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
```

```
jar/org/antlr/tool/templates/messages/languages/en.stg
```

No license file was found, but licenses were detected in source scan.

```
/*
```

```
[The "BSD license"]
```

```
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```

```
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```

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```
*/
```

```
/*
```

New style messages. This file contains the actual layout of the messages emitted by ANTLR.

The text itself is coming out of the languages/\*stg files, according to the chosen locale.

This file contains the format that mimicks GCC output.

```
*/
```

```
group gnu;
```

```
location(file, line, column) ::= "<file>:<line>:"
```

```
message(id, text) ::= "<text> (<id>)"
```

report(location, message, type) ::= "<location> <type>: <message>"

wantsSingleLineMessage() ::= "true"

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/tool/templates/messages/formats/gnu.stg

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\*/

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/ObjC/Dbg.stg

No license file was found, but licenses were detected in source scan.

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\* Conversion to C#:

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 \*/

```
csharpVisibilityMap ::= [
  "private": "private",
  "protected": "protected",
  "public": "public",
  "fragment": "private",
  default: "private"
]
```

```
/** The overall file structure of a recognizer; stores methods for rules
 * and cyclic DFAs plus support code.
 */
```

```
outputFile( LEXER,PARSER,TREE_PARSER, actionScope, actions,
  docComment, recognizer,
  name,
  tokens, tokenNames, rules, cyclicDFAs,
  bitsets, buildTemplate, buildAST, rewriteMode, profile,
  backtracking, synpreds, memoize, numRules,
  fileName, ANTLRVersion, generatedTimestamp, trace,
  scopes, superClass, literals) ::=
```

```
<<
```

```
//-----
```

```

//\<auto-generated>
// This code was generated by a tool.
// ANTLR Version: <ANTLRVersion>
//
// Changes to this file may cause incorrect behavior and will be lost if
// the code is regenerated.
//\</auto-generated>
//-----

// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>

// The variable 'variable' is assigned but its value is never used.
#pragma warning disable 219
// Unreachable code detected.
#pragma warning disable 162
// Missing XML comment for publicly visible type or member 'Type_or_Member'
#pragma warning disable 1591
// CLS compliance checking will not
// be performed on 'type' because it is not visible from outside this assembly.
#pragma warning disable 3019

<actions.(actionScope).header>

<@imports>
using System.Collections.Generic;
using Antlr.Runtime;
using Antlr.Runtime.Misc;
<if(TREE_PARSER)>
using Antlr.Runtime.Tree;
using RewriteRuleITokenStream = Antlr.Runtime.Tree.RewriteRuleTokenStream;
<endif>
<@end>
<if(actions.(actionScope).namespace)>
namespace <actions.(actionScope).namespace>
{
<endif>
<docComment>
<recognizer>
<if(actions.(actionScope).namespace)>

} // namespace <actions.(actionScope).namespace>
<endif>
>>

lexerInputStreamType() ::= <<
<actions.(actionScope).inputStreamType; null="ICharStream">
>>

```

```

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode, labelType="CommonToken",
superClass={ <if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else>Antlr.Runtime.Lexer
<endif>},
    rewriteElementType={}, ASTLabelType={}) ::= <<
[System.CodeDom.Compiler.GeneratedCode("ANTLR", "<ANTLRVersion>")]
[System.CLSCompliant(false)]
<parserModifier(grammar=grammar,
actions=actions)> partial class <grammar.recognizerName> : <@superClassName><superClass><@end>
{
    <tokens: { it|public const int <it.name; format="id">=<it.type>; }; separator="\n">
    <scopes: { it|<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif> }>
    <actions.lexer.members>

    // delegates
    <grammar.delegates:
        { g|private <g.recognizerName> <g.delegateName()>; }; separator="\n">
    // delegators
    <grammar.delegators:
        { g|private <g.recognizerName> <g.delegateName()>; }; separator="\n">
    <last(grammar.delegators): { g|private <g.recognizerName> gParent; }>

    <actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>()<! needed by subclasses !>
    {
        OnCreated();
    }

    <actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>(<lexerInputStreamType()>
input<grammar.delegates: { g|, <g.recognizerName> <g.delegateName()>}> )
    : this(input, new RecognizerSharedState()<grammar.delegators: { g|,
    <g.delegateName()>}>)
    {
    }

    <actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>(<lexerInputStreamType()> input,
RecognizerSharedState state<grammar.delegators: { g|, <g.recognizerName> <g.delegateName()>}>)
    : base(input, state)
    {
    <if(memoize)>
    <if(grammar.grammarIsRoot)>
        state.ruleMemo = new System.Collections.Generic.Dictionary<int, int>[<numRules>+1];<\n><! index from 1..n !>
    <endif>
    <endif>

    <grammar.directDelegates:
        { g|<g.delegateName()> = new <g.recognizerName>(input, this.state<trunc(g.delegators): { p|,
    <p.delegateName()>}>, this); }; separator="\n">
    <grammar.delegators:
        { g|this.<g.delegateName()> = <g.delegateName()>; }; separator="\n">
    <last(grammar.delegators): { g|gParent = <g.delegateName()>; }>

```



```

    OnCreated();
}
public override string GrammarFileName { get { return "<fileName>"; } }

<if(grammar.hasDelegates)>
public override <lexerInputStreamType> CharStream
{
    get
    {
        return base.CharStream;
    }
    set
    {
        base.CharStream
= value;
        <grammar.directDelegates:
        {g|<g.delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators):{p|, <p.delegateName()>>,
this);}; separator="\n">
        <grammar.delegators:
        {g|this.<g.delegateName()> = <g.delegateName()>; separator="\n">
        <last(grammar.delegators):{g|gParent = <g.delegateName()>;}>
        }
        }
}

<if(grammar.delegates)>
public override void SetState(RecognizerSharedState state)
{
    base.SetState(state);
    <grammar.delegates:{g|<g.delegateName()>.SetState(state);}; separator="\n">
}
<endif>

<endif>
<if(filterMode)>
    <filteringNextToken()>
<endif>

partial void OnCreated();
partial void EnterRule(string ruleName, int ruleIndex);
partial void LeaveRule(string ruleName, int ruleIndex);

<rules; separator="\n">

<insertLexerSynpreds(synpreds)>

#region DFA

```

```
<cyclicDFAs:{ dfa | DFA<dfa.decisionNumber> dfa<dfa.decisionNumber>;}; separator="\n">
```

```
protected override void InitDFAs()
{
    base.InitDFAs();
    <cyclicDFAs:{ dfa | dfa<dfa.decisionNumber>
= new DFA<dfa.decisionNumber>(this<if(dfa.specialStateSTs)>,
SpecialStateTransition<dfa.decisionNumber><endif>;); separator="\n">
}
```

```
<cyclicDFAs:cyclicDFA()><! dump tables for all DFA !>
#endregion
```

```
}
>>
```

```
/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
public override IToken NextToken()
{
    while (true)
    {
        if (input.LA(1) == CharStreamConstants.EndOfFile)
        {
            IToken eof = new CommonToken((ICharStream)input, CharStreamConstants.EndOfFile, TokenChannels.Default,
input.Index, input.Index);
            eof.Line = Line;
            eof.CharPositionInLine = CharPositionInLine;
            return eof;
        }
        state.token = null;
        state.channel = TokenChannels.Default;
        state.tokenStartCharIndex
= input.Index;
        state.tokenStartCharPositionInLine = input.CharPositionInLine;
        state.tokenStartLine = input.Line;
        state.text = null;
        try
        {
            int m = input.Mark();
            state.backtracking=1;<! means we won't throw slow exception !>
            state.failed=false;
            mTokens();
```

```

state.backtracking=0;
<! mTokens backtracks with synpred at backtracking==2
  and we set the synpredgate to allow actions at level 1. !>
if (state.failed)
{
  input.Rewind(m);
  input.Consume();<! advance one char and try again !>
}
else
{
  Emit();
  return state.token;
}
}
catch (RecognitionException re)
{
  // shouldn't happen in backtracking mode, but...
  ReportError(re);
  Recover(re);
}
}
}

public override void Memoize(IIntStream input, int ruleIndex, int ruleStartIndex)
{
  if (state.backtracking > 1)
    base.Memoize(input, ruleIndex, ruleStartIndex);
}

public override bool AlreadyParsedRule(IIntStream input, int ruleIndex)
{
  if (state.backtracking > 1)
    return
      base.AlreadyParsedRule(input, ruleIndex);

  return false;
}
>>

actionGate() ::= "state.backtracking == 0"

filteringActionGate() ::= "state.backtracking == 1"

/** How to generate a parser */
genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
  bitsets, inputStreamType, superClass,
  labelType, members, rewriteElementType,
  filterMode, ASTLabelType="object") ::= <<

```

```

[System.CodeDom.Compiler.GeneratedCode("ANTLR", "<ANTLRVersion>")]
[System.CLSCompliant(false)]
<parserModifier(grammar=grammar, actions=actions)> partial class <grammar.recognizerName> :
<@superClassName><superClass><@end>
{
<if(grammar.grammarIsRoot)>
internal static readonly string[] tokenNames = new string[] {
    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>", <tokenNames; separator=", ">
};
<endif>
<tokens:{it|public const int <it.name; format="id">=<it.type>;}; separator="\n">

<if(grammar.delegates)>
// delegates
<grammar.delegates:
    {g|private <g.recognizerName>
<g.delegateName()>;}; separator="\n">
<endif>
<if(grammar.delegators)>
// delegators
<grammar.delegators:
    {g|private <g.recognizerName> <g.delegateName()>;}; separator="\n">
<last(grammar.delegators):{g|private <g.recognizerName> gParent;}>
<endif>

<if(grammar.delegates)>
public override void SetState(RecognizerSharedState state)
{
    base.SetState(state);
    <grammar.delegates:{g|<g.delegateName()>.SetState(state);}; separator="\n">
}

<if(TREE_PARSER)>
public override void SetTreeNodeStream(ITreeNodeStream input)
{
    base.SetTreeNodeStream(input);
    <grammar.delegates:{g|<g.delegateName()>.SetTreeNodeStream(input);}; separator="\n">
}
<endif>
<endif>

<scopes:{it|<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>
<@members()>

public override string[] TokenNames { get { return
<grammar.composite.rootGrammar.recognizerName>.tokenNames; } }
public override string GrammarFileName { get { return "<fileName>"; } }

```

```

<members>

partial void
OnCreated();
partial void EnterRule(string ruleName, int ruleIndex);
partial void LeaveRule(string ruleName, int ruleIndex);

#region Rules
<rules; separator="\n">
#endregion Rules

<if(grammar.delegatedRules)>
<! generate rule/method definitions for imported rules so they
appear to be defined in this recognizer. !>
#region Delegated rules
<grammar.delegatedRules:{ ruleDescriptor|
<ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> <return Type(ruleDescriptor)>
<ruleDescriptor.name; format="id"><ruleDescriptor.parameterScope:parameterScope()><!throws
RecognitionException !>{ <if(ruleDescriptor.hasReturnValue)>return
<endif><ruleDescriptor.grammar:delegateName()>.<ruleDescriptor.name;
format="id"><ruleDescriptor.parameterScope><ruleDescriptor.parameterScope.attributes:{ a|<a.name;
format="id">}; separator=", "><endif>}; \} }; separator="\n">
#endregion Delegated rules
<endif>

<insertSynpreds(synpreds)>

<if(cyclicDFAs)>
#region DFA
<cyclicDFAs:{ dfa | private
DFA<dfa.decisionNumber> dfa<dfa.decisionNumber>;}; separator="\n">

protected override void InitDFAs()
{
base.InitDFAs();
<cyclicDFAs:{ dfa | dfa<dfa.decisionNumber> = new DFA<dfa.decisionNumber>( this<if(dfa.specialStateSTs)>,
SpecialStateTransition<dfa.decisionNumber><endif> );}; separator="\n">
}

<cyclicDFAs:cyclicDFA()><! dump tables for all DFA !>
#endregion DFA
<endif>

<if(bitsets)>
#region Follow sets
private static class Follow
{
<bitsets:{ it|bitset(name={_<it.name>_in_<it.inName><it.tokenIndex>}, words64=it.bits)>;}; separator="\n">

```

```

}
#endregion Follow sets
<endif>
}
>>

@genericParser.members() ::= <<
<! WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>
<actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName><(inputStreamType>
input<grammar.delegators:{ g|, <g.recognizerName> <g.delegateName()>}>)
: this(input, new RecognizerSharedState()<grammar.delegators:{ g|, <g.delegateName()>}>)
{
}
<actions.(actionScope).ctorModifier; null="public">
<grammar.recognizerName><(inputStreamType> input, RecognizerSharedState state<grammar.delegators:{ g|,
<g.recognizerName> <g.delegateName()>}>)
: base(input, state)
{
<if(grammar.directDelegates)>
<grammar.directDelegates:
{ g|<g.delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators):{ p|, <p.delegateName()>}>,
this);}; separator="\n">
<endif>
<if(grammar.indirectDelegates)>
<grammar.indirectDelegates:{ g | <g.delegateName()> = <g.delegator.delegateName()>.<g.delegateName()>};
separator="\n">
<endif>
<if(grammar.delegators)>
<last(grammar.delegators):{ g|gParent = <g.delegateName()>};>
<endif>
<parserCtorBody()>
OnCreated();
}
>>

// imported grammars are 'public' (can't be internal because their return scope classes must be accessible)
parserModifier(grammar, actions) ::= <<
<if(grammar.grammarIsRoot)><actions.(actionScope).modifier; null="public"><else>public<endif>
>>

parserCtorBody() ::= <<
<if(memoize)>
<if(grammar.grammarIsRoot)>
this.state.ruleMemo
= new System.Collections.Generic.Dictionary<int, int>[<length(grammar.allImportedRules)>+1];<\n><! index
from 1..n !>
<endif>
<endif>

```

```

<grammar.delegators:
{g|this.<g.delegateName()> = <g.delegateName()>;}; separator="\n">
>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets,
    ASTLabelType="object",
superClass={<if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else>Antlr.Runtime.Parser
<endif>}, labelType="IToken",
    members={<actions.parser.members>}) ::= <<
<genericParser(inputStreamType="ITokenStream", rewriteElementType="IToken", filterMode=false, ...)>
>>

/** How to generate a tree parser; same as parser except the input
* stream is a different type.
*/
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={<ASTLabelType>}, ASTLabelType="object",
superClass={<if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else>Antlr.Runtime.Tree.<
if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif><endif>},
    members={<actions.treeparser.members>}) ::= <<
<genericParser(inputStreamType="ITreeNodeStream", rewriteElementType="Node", ...)>
>>

/** A simpler version of a rule template that is specific to the imaginary
* rules created for syntactic predicates. As they never have return values
* nor parameters etc..., just give simplest possible method. Don't do
* any of the normal memoization stuff in here either; it's a waste.
* As predicates cannot be inlined into the invoking rule, they need to
* be in a rule by themselves.
*/
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<

partial void EnterRule_<ruleName>_fragment();
partial void LeaveRule_<ruleName>_fragment();

// $ANTLR start <ruleName>
<ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> void
<ruleName>_fragment(<ruleDescriptor.parameterScope:parameterScope()>)
{
    <ruleLabelDefs(...)>
    EnterRule_<ruleName>_fragment();
    EnterRule("<ruleName>_fragment",
    <ruleDescriptor.index>);
    TraceIn("<ruleName>_fragment", <ruleDescriptor.index>);
    try
    {
        <block>

```

```

}
finally
{
  TraceOut("<ruleName>_fragment", <ruleDescriptor.index>);
  LeaveRule("<ruleName>_fragment", <ruleDescriptor.index>);
  LeaveRule_<ruleName>_fragment();
}
}
// $ANTLR end <ruleName>
>>

```

```

insertLexerSynpreds(synpreds) ::= <<
<insertSynpreds(synpreds)>
>>

```

```

insertSynpreds(synpreds) ::= <<
<if(synpreds)>
#region Synpreds
private bool EvaluatePredicate(System.Action fragment)
{
  bool success = false;
  state.backtracking++;
  <@start()>
  try { DebugBeginBacktrack(state.backtracking);
  int start = input.Mark();
  try
  {
    fragment();
  }
  catch ( RecognitionException re )
  {
    System.Console.Error.WriteLine("impossible: "+re);
  }
  success = !state.failed;
  input.Rewind(start);
  } finally { DebugEndBacktrack(state.backtracking, success); }
  <@stop()>
  state.backtracking--;
  state.failed=false;
  return
  success;
}
#endregion Synpreds
<endif>
>>

```

```

ruleMemoization(name) ::= <<
<if(memoize)>

```



```

if (state.backtracking > 0 && AlreadyParsedRule(input, <ruleDescriptor.index>)) { <returnFromRule()> }
<endif>
>>

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
<if(backtracking)>if (state.failed) <returnFromRule()><endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>if (state.backtracking>0) {state.failed=true; <returnFromRule()>}<endif>
>>

ruleWrapperMap ::= [
  "bottomup":{<ruleWrapperBottomup()>},
  "topdown":{<ruleWrapperTopdown()>},
  default:""
]

ruleWrapperBottomup() ::= <<
<if(TREE_PARSER && filterMode)>
protected override <if(buildAST)>IAstRuleReturnScope<else>void<endif> Bottomup() { <if(buildAST)>return
<endif>bottomup(); }
<endif>
>>

ruleWrapperTopdown() ::= <<
<if(TREE_PARSER && filterMode)>
protected override <if(buildAST)>IAstRuleReturnScope<else>void<endif>
  Topdown() { <if(buildAST)>return <endif>topdown(); }
<endif>
>>

/** How to generate code for a rule. This includes any return type
 * data aggregates required for multiple return values.
 */
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
<returnScope(ruleDescriptor.returnScope)>
partial void EnterRule_<ruleName>();
partial void LeaveRule_<ruleName>();
<ruleWrapperMap.(ruleName)>
// $ANTLR start "<ruleName>"
// <fileName>:<description>
[GrammarRule("<ruleName>")]
<ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> <returnType(ruleDescriptor)> <ruleName>;
format="id">(<ruleDescriptor.parameterScope:parameterScope()>)

```

```

{
EnterRule_<ruleName>();
EnterRule("<ruleName>", <ruleDescriptor.index>);
TraceIn("<ruleName>", <ruleDescriptor.index>);
<ruleScopeSetUp()>
<ruleDeclarations()>
<ruleLabelDefs(...)>
<ruleDescriptor.actions.init>
try { DebugEnterRule(GrammarFileName, "<ruleName>");
DebugLocation(<ruleDescriptor.tree.line>,
<ruleDescriptor.EORNode.charPositionInLine>);
<@preamble()>
try
{
<ruleMemoization(name=ruleName)>
<block>
<ruleCleanUp()>
<(ruleDescriptor.actions.after):execAction()>
}
<if(exceptions)>
<exceptions: {e|<catch(decl=e.decl,action=e.action)><\n>}>
<else>
<if(!emptyRule)>
<if(actions.(actionScope).rulecatch)>
<actions.(actionScope).rulecatch>
<else>
catch (RecognitionException re)
{
ReportError(re);
Recover(input,re);
<@setErrorReturnValue()>
}
<endif>
<endif>
<endif>
finally
{
TraceOut("<ruleName>", <ruleDescriptor.index>);
LeaveRule("<ruleName>", <ruleDescriptor.index>);
LeaveRule_<ruleName>();
<memoize()>
<ruleScopeCleanUp()>
<finally>
}
DebugLocation(<ruleDescriptor.EORNode.line>, <ruleDescriptor.EORNode.charPositionInLine>);
} finally { DebugExitRule(GrammarFileName, "<ruleName>"); }
<@postamble()>
<returnFromRule()><\n>

```

```

}
// $ANTLR end "<ruleName>"
>>

// imported grammars need to have internal
rules
ruleModifier(grammar,ruleDescriptor) ::= <<
<if(grammar.grammarIsRoot)><csharpVisibilityMap.(ruleDescriptor.modifier);
null="private"><else>internal<endif>
>>

// imported grammars need to have public return scopes
returnScopeModifier(grammar,ruleDescriptor) ::= <<
<if(grammar.grammarIsRoot)><csharpVisibilityMap.(ruleDescriptor.modifier);
null="private"><else>public<endif>
>>

catch(decl,action) ::= <<
catch (<e.decl>)
{
<e.action>
}
>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<returnType(ruleDescriptor)> retval = new
<returnType(ruleDescriptor)><(if(ruleDescriptor.returnScope.attributes)>this<endif>);
retval.Start = (<labelType>)input.LT(1);
<elseif(ruleDescriptor.returnScope)>
<ruleDescriptor.returnScope.attributes: { a |
<a.type> <a.name; format="id"> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
int <ruleDescriptor.name>_startIndex = input.Index;
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: { it|<it>_stack.Push(new
<it>_scope(this));<it>_scopeInit(<it>_stack.Peek());}; separator="\n">
<ruleDescriptor.ruleScope: { it|<it.name>_stack.Push(new
<it.name>_scope(this));<it.name>_scopeInit(<it.name>_stack.Peek());}; separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: { it|<it>_scopeAfter(<it>_stack.Peek());<it>_stack.Pop();}; separator="\n">

```

```

<ruleDescriptor.ruleScope:{it|<it.name>_scopeAfter(<it.name>_stack.Peek());<it.name>_stack.Pop()};
separator="\n">
>>

ruleLabelDefs(ruleDescriptor, labelType, ASTLabelType, rewriteElementType) ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
:{it|<labelType> <it.label.text> = default(<labelType>);}; separator="\n"
>
<ruleDescriptor.tokenListLabels
:{it|List<<labelType>> list_<it.label.text> = null;}; separator="\n"
>
<[ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]
:{it|List<<ASTLabelType>> list_<it.label.text>
= null;}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
<ruleDescriptor.ruleListLabels:ruleLabelDef(); separator="\n">
>>

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
:{it|<labelType> <it.label.text> = default(<labelType>);}; separator="\n"
>
<[ruleDescriptor.charListLabels,
ruleDescriptor.charLabels]
:{it|int <it.label.text> = 0;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
:{it|List<<labelType>> list_<it.label.text> = null;}; separator="\n"
>
<ruleDescriptor.charListLabels:{it|List<int> list_<it.label.text> = null;}; separator="\n"
>
>>

returnFromRule() ::= <%
return
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<! This comment is a hack to make sure the following
single space appears in the output. !> <ruleDescriptor.singleValueReturnName>
<else>
<!!>

```

```

    retval
<endif>
<endif>
<endif>
;
%>

ruleCleanUp() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
    retval.Stop = (<labelType>)input.LT(-1);
<endif>
<endif>
>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
    if (state.backtracking > 0) { Memoize(input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<

partial void EnterRule_<ruleName>();
partial void LeaveRule_<ruleName>();

// $ANTLR start "<ruleName>"
[GrammarRule("<ruleName>")]
<ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> void
m<ruleName>(<ruleDescriptor.parameterScope:parameterScope(>>)
{
    EnterRule_<ruleName>();
    EnterRule("<ruleName>", <ruleDescriptor.index>);
    TraceIn("<ruleName>", <ruleDescriptor.index>);
    <ruleScopeSetUp()>
    <ruleDeclarations()>
    try
    {
<if(nakedBlock)>
        <ruleMemoization(name=ruleName)>
        <lexerRuleLabelDefs()>
        <ruleDescriptor.actions.init>
        <block>

```

```

<else>
  int
  _type = <ruleName>;
  int _channel = DefaultTokenChannel;
  <ruleMemoization(name=ruleName)>
  <lexerRuleLabelDefs()>
  <ruleDescriptor.actions.init>
  <block>
  <ruleCleanUp()>
  state.type = _type;
  state.channel = _channel;
  <(ruleDescriptor.actions.after):execAction()>
<endif>
}
finally
{
  TraceOut("<ruleName>", <ruleDescriptor.index>);
  LeaveRule("<ruleName>", <ruleDescriptor.index>);
  LeaveRule_<ruleName>();
  <ruleScopeCleanUp()>
  <memoize()>
}
}
// $ANTLR end "<ruleName>"
>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<

public override void mTokens()
{
  <block><\n>
}
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
//
  <fileName>:<description>
  int alt<decisionNumber>=<maxAlt>;
  <decls>
  <@predecision()>
  try { DebugEnterSubRule(<decisionNumber>);
  try { DebugEnterDecision(<decisionNumber>, false<!<decision.dfa.hasSynPred>!>);

```

```

<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
<@prebranch()>
switch (alt<decisionNumber>)
{
<alts:{a|altSwitchCase(i,a)}>
}
} finally { DebugExitSubRule(<decisionNumber>); }
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
int alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
try { DebugEnterDecision(<decisionNumber>, false<!<decision.dfa.hasSynPred>!>);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
switch (alt<decisionNumber>)
{
<alts:{a|altSwitchCase(i,a)}>
}
}
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description)
::= <<
// <fileName>:<description>
<decls>
<@prealt()>
DebugEnterAlt(1);
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
DebugEnterAlt(1);
<alts>
<@postalt()>
>>

```

```

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
int cnt<decisionNumber>=0;
<decls>
<@preloop()>
try { DebugEnterSubRule(<decisionNumber>);
while (true)
{
int alt<decisionNumber>=<maxAlt>;
<@predecision()>
try { DebugEnterDecision(<decisionNumber>, false<!<decision.dfa.hasSynPred!>);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
switch (alt<decisionNumber>)
{
<alts:{a|<altSwitchCase(i,a)>}>
default:
if (cnt<decisionNumber> >= 1)
goto loop<decisionNumber>;

<ruleBacktrackFailure()>
EarlyExitException
eee<decisionNumber> = new EarlyExitException( <decisionNumber>, input );
DebugRecognitionException(eee<decisionNumber>);
<@earlyExitException()>
throw eee<decisionNumber>;
}
cnt<decisionNumber>++;
}
loop<decisionNumber>:
;

} finally { DebugExitSubRule(<decisionNumber>); }
<@postloop()>
>>

```

positiveClosureBlockSingleAlt ::= positiveClosureBlock

```

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
// <fileName>:<description>
<decls>
<@preloop()>
try { DebugEnterSubRule(<decisionNumber>);

```



```

while (true)
{
int alt<decisionNumber>=<maxAlt>;
<@predecision()>
try { DebugEnterDecision(<decisionNumber>, false<!<decision.dfa.hasSynPred>!>);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
switch ( alt<decisionNumber> )
{
<alts:{a|<altSwitchCase(i,a)>}>
default:
goto loop<decisionNumber>;
}
}

loop<decisionNumber>:
;

}
finally { DebugExitSubRule(<decisionNumber>); }
<@postloop()>
>>

```

```
closureBlockSingleAlt ::= closureBlock
```

```

/** Optional blocks (x)? are translated to (x|) by before code generation
* so we can just use the normal block template
*/

```

```
optionalBlock ::= block
```

```
optionalBlockSingleAlt ::= block
```

```

/** A case in a switch that jumps to an alternative given the alternative
* number. A DFA predicts the alternative and then a simple switch
* does the jump to the code that actually matches that alternative.
*/

```

```

altSwitchCase(altNum,alt) ::= <<
case <altNum>:
<@prealt()>
DebugEnterAlt(<altNum>);
<alt>
break;<\n>
>>

```

```

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<
// <fileName>:<description>

```

```

{
<@declarations()>
<elements:element()>
<rew>
<@cleanup()>
}
>>

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel,
treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element(it) ::= <%
<@prematch()>
DebugLocation(<it.line>, <it.pos>);<\n>
<it.el><\n>
%>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(label)><label>=(<labelType>)<endif>Match(input,<token>,Follow._<token>_in_<ruleName><elementIndex>);
<checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRef(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

listLabel(label,elem) ::= <<
#error The listLabel template should not be used with this target.<\n>
>>

listLabelElem(label,elem,elemType) ::= <<
if (list_<label>==null) list_<label>=new List<<elemType; null={ <labelType> }>>();
list_<label>.Add(<elem>);<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = input.LA(1);<\n>

```

```

<endif>
Match(<char>); <checkRuleBacktrackFailure()>
>>

/**
 match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
MatchRange(<a>,<b>); <checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="",terminalOptions={ }) ::= <<
<if(label)>
<matchSetLabel()>
<endif>
if (<s>)
{
input.Consume();
<postmatchCode>
<if(!LEXER)>state.errorRecovery=false;<endif><if(backtracking)>state.failed=false;<endif>
}
else
{
<ruleBacktrackFailure()>
MismatchedSetException mse = new MismatchedSetException(null,input);
DebugRecognitionException(mse);
<@mismatchedSetException()>
<if(LEXER)>
Recover(mse);
throw mse;
<else>
throw mse;
<! use following code to make it recover inline; remove throw mse;
recoverFromMismatchedSet(input,mse,Follow._set_in_<ruleName><elementIndex>);
!>
<endif>
}<\n>
>>

matchSetUnchecked(s,label,elementIndex,postmatchCode=false) ::= <%
<if(label)>
<matchSetLabel()><\n>
<endif>
input.Consume();<\n>
<if(postmatchCode)>

```

```

<postmatchCode><\n>
<endif>
<if(!LEXER)>state.errorRecovery=false;<endif><if(backtracking)>state.failed=false;<endif>
%>

matchSetLabel()
 ::= <%
<if(LEXER)>
<label>= input.LA(1);
<else>
<label>=(<labelType>)input.LT(1);
<endif>
%>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** Match a string literal */
lexerStringRef(string,label,elementIndex) ::= <%
<if(label)>
int <label>Start = CharIndex;<\n>
Match(<string>); <checkRuleBacktrackFailure()><\n>
int <label>StartLine<elementIndex> = Line;<\n>
int <label>StartCharPos<elementIndex> = CharPositionInLine;<\n>
<label> = new <labelType>(input, TokenTypes.Invalid, TokenChannels.Default, <label>Start, CharIndex-1);<\n>
<label>.Line = <label>StartLine<elementIndex>;<\n>
<label>.CharPositionInLine = <label>StartCharPos<elementIndex>;
<else>
Match(<string>); <checkRuleBacktrackFailure()><\n>
<endif>
%>

wildcard(token,label,elementIndex,terminalOptions={ })
 ::= <<
<if(label)>
<label>=(<labelType>)input.LT(1);<\n>
<endif>
MatchAny(input); <checkRuleBacktrackFailure()>
>>

wildcardAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<wildcard(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

```

```

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
MatchAny(); <checkRuleBacktrackFailure()>
>>

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
PushFollow(Follow._<rule.name>_in_<ruleName><elementIndex>);
<if(label)><label>=<endif><if(scope)><scope:delegateName()>.<endif><rule.name>;
format="id"><args; separator="," ">;
PopFollow();
<checkRuleBacktrackFailure()>
>>

/** ids+=r */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabelElem(elem=label,elemType={<ASTLabelType>},...)>
>>

/** A lexer rule reference.
 *
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <%
<if(label)>
int <label>Start<elementIndex> = CharIndex;<\n>
int <label>StartLine<elementIndex> = Line;<\n>
int <label>StartCharPos<elementIndex> = CharPositionInLine;<\n>
<if(scope)><scope:delegateName()>.<endif>m<rule.name><args; separator="," ">;
<checkRuleBacktrackFailure()><\n>
<label> = new <labelType>(input, TokenTypes.Invalid, TokenChannels.Default, <label>Start<elementIndex>,

```

```

CharIndex-1);<\n>
<label>.Line
= <label>StartLine<elementIndex>;<\n>
<label>.CharPositionInLine = <label>StartCharPos<elementIndex>;
<else>
<if(scope)><scope.delegateName()>.<endif>m<rule.name>(<args; separator=", ">);
<checkRuleBacktrackFailure()>
<endif>
%>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <%
<if(label)>
int <label>Start<elementIndex> = CharIndex;<\n>
int <label>StartLine<elementIndex> = Line;<\n>
int <label>StartCharPos<elementIndex> = CharPositionInLine;<\n>
Match(EOF); <checkRuleBacktrackFailure()><\n>
<labelType> <label> = new <labelType>(input, EOF, TokenChannels.Default, <label>Start<elementIndex>,
CharIndex-1);<\n>
<label>.Line = <label>StartLine<elementIndex>;<\n>
<label>.CharPositionInLine = <label>StartCharPos<elementIndex>;
<else>
Match(EOF); <checkRuleBacktrackFailure()>
<endif>
%>

// used for left-recursive
rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()            ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> \<= <opPrec>"
recRuleSetResultAction() ::= "root_0=${<ruleName>}_primary.tree;"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if (input.LA(1) == TokenType.Down)
{
Match(input, TokenType.Down, null); <checkRuleBacktrackFailure()>

```

```

<children:element()>
Match(input, TokenType.Up, null); <checkRuleBacktrackFailure()>
}
<else>
Match(input, TokenType.Down, null); <checkRuleBacktrackFailure()>
<children:element()>
Match(input, TokenType.Up, null); <checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description)
 ::= <<
if (!(<evalPredicate(...)>))
{
<ruleBacktrackFailure()>
throw new FailedPredicateException(input, "<ruleName>", "<description>");
}
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
int LA<decisionNumber>_<k> = input.LA(<k>);<\n>
<edges; separator="\nelse ">
else
{
<if(eotPredictsAlt)>
alt<decisionNumber> = <eotPredictsAlt>;
<else>
<ruleBacktrackFailure()>
NoViableAltException nvae = new NoViableAltException("<description>", <decisionNumber>, <stateNumber>,
input, <k>);
DebugRecognitionException(nvae);
<@noViableAltException()>
throw nvae;
<endif>
}
>>

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState)

```

```

 ::= <<
int LA<decisionNumber>_<k> = input.LA(<k>);<\n>
<edges; separator="\nelse ">
>>

/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
int LA<decisionNumber>_<k> = input.LA(<k>);<\n>
<edges; separator="\nelse "><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber> = <eotPredictsAlt>;<! if no edges, don't gen ELSE !>
<else>
else
{
alt<decisionNumber> = <eotPredictsAlt>;
}<\n>
<endif>
<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber> = <alt>;"

/** A simple edge with an expression. If the expression is satisfied,
 * enter
 * to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.
 */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ((<labelExpr>)<if(predicates)> && (<predicates>)<endif>)
{
<targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch (input.LA(<k>))

```



```

{
<edges; separator="\n">
default:
<if(eotPredictsAlt)>
alt<decisionNumber>=<eotPredictsAlt>;
break;<\n>
<else>
{
<ruleBacktrackFailure()>
NoViableAltException nvae = new NoViableAltException("<description>", <decisionNumber>, <stateNumber>,
input, <k>);
DebugRecognitionException(nvae);
<@noViableAltException()>
throw nvae;
}
<endif>
}<\n>
>>

```

```

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch (input.LA(<k>))
{
<edges;
separator="\n">
}<\n>
>>

```

```

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch (input.LA(<k>))
{
<edges; separator="\n">
<if(eotPredictsAlt)>
default:
alt<decisionNumber>=<eotPredictsAlt>;
break;<\n>
<endif>
}<\n>
>>

```

```

dfaEdgeSwitch(labels, targetState) ::= <<
<labels: {it|case <it>;}; separator="\n">
{
<targetState>
}
break;
>>

```

```

// C y c l i c D F A

```

```

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
try
{
alt<decisionNumber> = dfa<decisionNumber>.Predict(input);
}
catch (NoViableAltException nvae)
{
DebugRecognitionException(nvae);
throw;
}
>>

/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated
 * strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */
cyclicDFA(dfa) ::= <<
private class DFA<dfa.decisionNumber> : DFA
{
private const string DFA<dfa.decisionNumber>_eotS =
"<dfa.javaCompressedEOT; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_eofS =
"<dfa.javaCompressedEOF; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_minS =
"<dfa.javaCompressedMin; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_maxS =
"<dfa.javaCompressedMax; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_acceptS =
"<dfa.javaCompressedAccept; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_specialS =
"<dfa.javaCompressedSpecial; wrap=\""+\n\t\t\">}>";
private static readonly string[] DFA<dfa.decisionNumber>_transitionS
=
{
<dfa.javaCompressedTransition:{s|<s; wrap=\""+\n\t\t\">} separator=",\n">
};

private static readonly short[] DFA<dfa.decisionNumber>_eot =

```

```

DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_eotS);
private static readonly short[] DFA<dfa.decisionNumber>_eof =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_eofS);
private static readonly char[] DFA<dfa.decisionNumber>_min =
DFA.UnpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_minS);
private static readonly char[] DFA<dfa.decisionNumber>_max =
DFA.UnpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_maxS);
private static readonly short[] DFA<dfa.decisionNumber>_accept =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_acceptS);
private static readonly short[] DFA<dfa.decisionNumber>_special =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_specialS);
private static readonly short[][] DFA<dfa.decisionNumber>_transition;

static DFA<dfa.decisionNumber>()
{
int numStates = DFA<dfa.decisionNumber>_transitionS.Length;
DFA<dfa.decisionNumber>_transition
= new short[numStates][];
for ( int i=0; i < numStates; i++ )
{
DFA<dfa.decisionNumber>_transition[i] =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_transitionS[i]);
}
}

public DFA<dfa.decisionNumber>( BaseRecognizer recognizer<if(dfa.specialStateSTs)>,
SpecialStateTransitionHandler specialStateTransition<endif> )
<if(dfa.specialStateSTs)>
: base(specialStateTransition)
<endif>
{
this.recognizer = recognizer;
this.decisionNumber = <dfa.decisionNumber>;
this.eot = DFA<dfa.decisionNumber>_eot;
this.eof = DFA<dfa.decisionNumber>_eof;
this.min = DFA<dfa.decisionNumber>_min;
this.max = DFA<dfa.decisionNumber>_max;
this.accept = DFA<dfa.decisionNumber>_accept;
this.special = DFA<dfa.decisionNumber>_special;
this.transition = DFA<dfa.decisionNumber>_transition;
}

public override string Description { get { return "<dfa.description>"; } }

public override void Error(NoViableAltException nvae)
{
DebugRecognitionException(nvae);
}

```

```

}<\n>
<if(dfa.specialStateSTs)>
private
int SpecialStateTransition<dfa.decisionNumber>(DFA dfa, int s, IIntStream _input)<! throws
NoViableAltException!>
{
<if(LEXER)>
IIntStream input = _input;
<endif>
<if(PARSER)>
ITokenStream input = (ITokenStream)_input;
<endif>
<if(TREE_PARSER)>
ITreeNodeStream input = (ITreeNodeStream)_input;
<endif>
int _s = s;
s = -1;
<! pull these outside the switch cases to save space on locals !>
int LA<dfa.decisionNumber>_1 = input.LA(1);
int index<dfa.decisionNumber>_1 = input.Index;
switch (_s)
{
<dfa.specialStateSTs:{state |case <i0>:<! compressed special state numbers 0..n-1 !>
<state>}; separator="\n">

default:
break;
}

if (s >= 0)
return s;

<if(backtracking)>
if (state.backtracking > 0) {state.failed=true; return -1;}
<endif>
NoViableAltException nvae = new NoViableAltException(dfa.Description, <dfa.decisionNumber>, _s, input);
dfa.Error(nvae);
throw nvae;
}
<endif>
>>

/** A state in a cyclic
DFA; it's a special state and part of a big switch on
* state.
*/
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
{

```

```

<if(semPredState)>
  <! get next lookahead symbol to test edges, then rewind !>
  input.Rewind();
<endif>
<edges; separator="\nelse ">
<if(semPredState)>
  <! return input cursor to state before we rewound !>
  input.Seek(index<decisionNumber>-1);
<endif>
  break;
}
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ((<labelExpr><if(predicates)> && (<predicates><endif>) {s = <targetStateNumber>;}<\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n>
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "(<left>&&<right>)"

orPredicates(operands)
::= "(<operands; separator= \"||\">)"

notPredicate(pred) ::= "!(<evalPredicate(...)>)"

evalPredicate(pred,description) ::= "(<pred>)"

evalSynPredicate(pred,description) ::= "EvaluatePredicate(<pred>_fragment)"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<k>===<atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "input.LA(<k>)==<atom>"

```

```

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
(LA<decisionNumber>_<k><ge()><lower> && LA<decisionNumber>_<k><le()><upper>)
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::=
"(input.LA(<k>)<ge()><lower> && input.LA(<k>)<le()><upper>)"

le() ::= "\<="
ge() ::= ">="

setTest(ranges) ::= <<
<ranges; separator="|">
>>

// A T T R I B U T E S

attributeScope(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
protected sealed partial class
<scope.name>_scope
{
<scope.attributes:{it|public <it.decl>;}; separator="\n">

public <scope.name>_scope(<grammar.recognizerName> grammar) { OnCreated(grammar); }
partial void OnCreated(<grammar.recognizerName> grammar);
}
<if(scope.actions.scopeinit)>
protected void <scope.name>_scopeInit( <scope.name>_scope scope )
{
<scope.actions.scopeinit>
}
<else>
partial void <scope.name>_scopeInit( <scope.name>_scope scope );
<endif>
<if(scope.actions.scopeafter)>
protected void <scope.name>_scopeAfter( <scope.name>_scope scope )
{
<scope.actions.scopeafter>
}
<else>
partial void <scope.name>_scopeAfter( <scope.name>_scope scope );
<endif>
protected readonly ListStack\<<scope.name>_scope> <scope.name>_stack = new
ListStack\<<scope.name>_scope>();
<endif>
<endif>
>>

```

```

globalAttributeScope(scope) ::= <<
<attributeScope(...)>
>>

ruleAttributeScope(scope) ::= <<
<attributeScope(...)>
>>

returnStructName(it) ::= "<it.name>_return"

returnType(ruleDescriptor) ::= <%
<if(ruleDescriptor.returnScope.attributes
&& ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.grammar.recognizerName>.<ruleDescriptor:returnStructName()>
<elseif(ruleDescriptor.hasMultipleReturnValues)>
<ruleReturnBaseType()>
<elseif(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
%>

/** Generate the C# type associated with a single or multiple return
* values.
*/
ruleLabelType(referencedRule) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
<ruleReturnBaseType()>
<elseif(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
%>

delegateName(it) ::= <<
<if(it.label)><it.label><else>g<it.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
* must be an object, default value is "null".
*/
initValue(typeName) ::= <<
default(<typeName>)
>>

```

```

/** Define a rule label including default value */
ruleLabelDef(label) ::= <%
<ruleLabelType(label.referencedRule)> <label.label.text>
= <initValue(ruleLabelType(label.referencedRule))>;
%>

/** Define a return struct for a rule if the code needs to access its
* start/stop tokens, tree stuff, attributes, ... Leave a hole for
* subgroups to stick in members.
*/
returnScope(scope) ::= <<
<if(scope.attributes && ruleDescriptor.hasMultipleReturnValues)>
<returnScopeModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> sealed partial class
<ruleDescriptor:returnStructName()> : <ruleReturnBaseType()><@ruleReturnInterfaces()>
{
<scope.attributes: {it|public <it.decl>;}; separator="\n">
<@ruleReturnMembers()>
}
<endif>
>>

ruleReturnBaseType() ::= <%
<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope\<<labelType>>
%>

@returnScope.ruleReturnMembers() ::= <<
public <ruleDescriptor:returnStructName()>(<grammar.recognizerName> grammar) { OnCreated(grammar);}
partial void OnCreated(<grammar.recognizerName> grammar);
>>

parameterScope(scope) ::= <<
<scope.attributes: {it|<it.decl>;}; separator=", ">
>>

parameterAttributeRef(attr)
::= <<
<attr.name; format="id">
>>

parameterSetAttributeRef(attr,expr) ::= <<
<attr.name; format="id"> =<expr>;
>>

scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack[<scope>_stack.Count - <negIndex> - 1].<attr.name; format="id">
<else>
<if(index)>

```



```

<scope>_stack[<index>].<attr.name; format="id">
<else>
<scope>_stack.Peek().<attr.name; format="id">
<endif>
<endif>
%>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack[<scope>_stack.Count - <negIndex> - 1].<attr.name; format="id"> = <expr>;
<else>
<if(index)>
<scope>_stack[<index>].<attr.name; format="id"> = <expr>;
<else>
<scope>_stack.Peek().<attr.name; format="id"> = <expr>;
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.Count>0 && $function::name.Equals("foo")}?
 */
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/**
reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
(<scope>!=null?(<returnType(referencedRule)><scope>).<attr.name; format="id">:<initValue(attr.type)>)
<else>
<scope>
<endif>
%>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name; format="id">
<else>
<attr.name; format="id">
<endif>
%>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name; format="id"> =<expr>;
<else>
<attr.name; format="id"> =<expr>;

```

```

<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "(<scope>!=null?<scope>.Text:default(string))"
tokenLabelPropertyRef_type(scope,attr) ::= "(<scope>!=null?<scope>.Type:0)"
tokenLabelPropertyRef_line(scope,attr)
::= "(<scope>!=null?<scope>.Line:0)"
tokenLabelPropertyRef_pos(scope,attr) ::= "(<scope>!=null?<scope>.CharPositionInLine:0)"
tokenLabelPropertyRef_channel(scope,attr) ::= "(<scope>!=null?<scope>.Channel:0)"
tokenLabelPropertyRef_index(scope,attr) ::= "(<scope>!=null?<scope>.TokenIndex:0)"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "(<scope>!=null?int.Parse(<scope>.Text):0)"

ruleLabelPropertyRef_start(scope,attr) ::= "(<scope>!=null?((<labelType><scope>.Start):default(<labelType>))"
ruleLabelPropertyRef_stop(scope,attr) ::= "(<scope>!=null?((<labelType><scope>.Stop):default(<labelType>))"
ruleLabelPropertyRef_tree(scope,attr) ::=
"(<scope>!=null?((<ASTLabelType><scope>.Tree):default(<ASTLabelType>))"
ruleLabelPropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
(<scope>!=null?(input.TokenStream.ToString(
input.TreeAdaptor.GetTokenStartIndex(<scope>.Start),
input.TreeAdaptor.GetTokenStopIndex(<scope>.Start))):default(string))
<else>
(<scope>!=null?input.ToString(<scope>.Start,<scope>.Stop):default(string))
<endif>
%>

ruleLabelPropertyRef_st(scope,attr)
::= "(<scope>!=null?<scope>.Template:null)"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::=
"(<scope>!=null?<scope>.Type:0)"

lexerRuleLabelPropertyRef_line(scope,attr) ::=
"(<scope>!=null?<scope>.Line:0)"

```

```

lexerRuleLabelPropertyRef_pos(scope,attr) ::=
    "<scope>!=null?<scope>.CharPositionInLine:-1)"

lexerRuleLabelPropertyRef_channel(scope,attr) ::=
    "<scope>!=null?<scope>.Channel:0)"

lexerRuleLabelPropertyRef_index(scope,attr) ::=
    "<scope>!=null?<scope>.TokenIndex:0)"

lexerRuleLabelPropertyRef_text(scope,attr) ::=
    "<scope>!=null?<scope>.Text:default(string))"

lexerRuleLabelPropertyRef_int(scope,attr) ::=
    "<scope>!=null?int.Parse(<scope>.Text):0)"

// Somebody may ref
$template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "retval.Start"
rulePropertyRef_stop(scope,attr) ::= "retval.Stop"
rulePropertyRef_tree(scope,attr) ::= "retval.Tree"
rulePropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
input.TokenStream.ToString(
    input.TreeAdaptor.GetTokenStartIndex(retval.Start),
    input.TreeAdaptor.GetTokenStopIndex(retval.Start))
<else>
input.ToString(retval.Start,input.LT(-1))
<endif>
%>
rulePropertyRef_st(scope,attr) ::= "retval.Template"

lexerRulePropertyRef_text(scope,attr) ::= "Text"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"
lexerRulePropertyRef_start(scope,attr) ::= "state.tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(CharIndex-1)"
lexerRulePropertyRef_int(scope,attr)
::: "int.Parse(<scope>.Text)"

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.Tree = <expr>;"
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.Template =<expr>;"

/** How to execute an action (only when not backtracking) */

```

```

execAction(action) ::= <%
<if(backtracking)>
if (<actions.(actionScope).synpredgate><\n>
{<\n>
<@indentedAction()><\n>
}
<else>
<action>
<endif>
%>

@execAction.indentedAction() ::= <<
<action>
>>

/** How to always execute an action even when backtracking */
execForcedAction(action) ::= "<action>"

// M I S C (properties, etc...)

bitset(name, words64) ::= <<
public static readonly BitSet <name> = new BitSet(new ulong[] { <words64: {it|<it>UL}; separator=", "> });
>>

codeFileExtension() ::= ".cs"

true_value() ::= "true"
false_value() ::= "false"

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp3/CSharp3.stg
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\*/  
 /\*\* Template subgroup to add template rewrite output  
 \* If debugging, then you'll also get STDbg.stg loaded.  
 \*/

```
@outputFile.imports() ::= <<
<@super.imports()>
using Antlr.StringTemplate;
using Antlr.StringTemplate.Language;
<if(!backtracking)>
using Hashtable = System.Collections.Hashtable;
<endif>
```

```
>>
```

```
/** Add this
to each rule's return value struct */
@returnScope.ruleReturnMembers() ::= <<
private StringTemplate _st;
public StringTemplate Template { get { return _st; } set { _st = value; } }
public override string ToString() { return (Template==null) ? string.Empty : Template.ToString(); }
>>
```

```
@genericParser.members() ::= <<
<@super.members()>
protected StringTemplateGroup templateLib = new StringTemplateGroup("<name>Templates",
typeof(AngleBracketTemplateLexer) );
```

```
public StringTemplateGroup TemplateLib
{
get { return this.templateLib; }
set { this.templateLib = value; }
```

```

}

/// \<summary> Allows convenient multi-value initialization:
/// "new STAttrMap().Add(...).Add(...)"
/// \</summary>
protected class STAttrMap : Hashtable
{
public STAttrMap Add(string attrName, object value)
{
    base.Add(attrName, value);
    return this;
}
public STAttrMap Add(string attrName, int value)
{
    base.Add(attrName, value);
    return this;
}
}
>>

/** x+=rule when output=template */
ruleRefAndListLabel(rule,label,elementIndex,args,scope)
::= <<
<ruleRef(...)>
<listLabel(elem=label+".Template",...)>
>>

rewriteTemplate(alts) ::= <<

// TEMPLATE REWRITE
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> )
{
    <alts:rewriteTemplateAlt(); separator="else ">
    <if(rewriteMode)><replaceTextInLine()><endif>
}
<else>
<alts:rewriteTemplateAlt(); separator="else ">
<if(rewriteMode)><replaceTextInLine()><endif>
<endif>
>>

replaceTextInLine() ::= <<
<if(TREE_PARSER)>
((TokenRewriteStream)input.TokenStream).Replace(
input.TreeAdaptor.GetTokenStartIndex(retval.Start),
input.TreeAdaptor.GetTokenStopIndex(retval.Start),
retval.Template);

```

```

<else>
((TokenRewriteStream)input).Replace(
  ((IToken)retval.Start).TokenIndex,
  input.LT(-1).TokenIndex,
  retval.Template);
<endif>
>>

rewriteTemplateAlt() ::= <<
// <it.description>
<if(it.pred)>
if (<it.pred>) {
  retval.Template = <it.alt>;
}<\n>
<else>
{
  retval.Template = <it.alt>;
}<\n>
<endif>
>>

rewriteEmptyTemplate(alts)
::= <<
null;
>>

/** Invoke a template with a set of attribute name/value pairs.
 * Set the value of the rule's template *after* having set
 * the attributes because the rule's template might be used as
 * an attribute to build a bigger template; you get a self-embedded
 * template.
 */
rewriteExternalTemplate(name,args) ::= <<
templateLib.GetInstanceOf("<name>"<if(args)>,
  new STAttrMap()<args:{a | .Add("<a.name>", <a.value>)}>
  <endif>)
>>

/** expr is a string expression that says what template to load */
rewriteIndirectTemplate(expr,args) ::= <<
templateLib.GetInstanceOf(<expr><if(args)>,
  new STAttrMap()<args:{a | .Add("<a.name>", <a.value>)}>
  <endif>)
>>

/** Invoke an inline template with a set of attribute name/value pairs */
rewriteInlineTemplate(args, template) ::= <<
new StringTemplate(templateLib, "<template>"<if(args)>,

```

```
new STAttrMap(<args:{a | .Add("<a.name>", <a.value>)}>
<endif>)
>>
```

```
/** plain -> {foo} action */
rewriteAction(action) ::= <<
<action>
>>
```

```
/**
An action has %st.attrName=expr; or % {st}.attrName=expr; */
actionSetAttribute(st,attrName,expr) ::= <<
(<st>).SetAttribute("<attrName>",<expr>);
>>
```

```
/** Translate % {stringExpr} */
actionStringConstructor(stringExpr) ::= <<
new StringTemplate(templateLib,<stringExpr>)
>>
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/CSharp2/ST.stg  
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```

```
*/
```

```
/** Templates for building ASTs during tree parsing.
```

```
*
```

```
* Deal with many combinations. Dimensions are:
```

```
* Auto build or rewrite
```

```
* no label, label, list label (label/no-label handled together)
```

```
* child, root
```

```
* token, set, rule, wildcard
```

```
*
```

```
* Each combination has its own template except that label/no label
```

```
* is combined into tokenRef, ruleRef, ...
```

```
*/
```

```
/** Add a variable to track last element matched */
```

```
ruleDeclarations() ::= <<
```

```
<super.ruleDeclarations()>
```

```
<if(!ruleDescriptor.isSynPred)>
```

```
<ASTLabelType> _first_0 = default(<ASTLabelType>);
```

```
<ASTLabelType> _last = default(<ASTLabelType>);
```

```
<endif>
```

```
>>
```

```
/** What to emit when there is no rewrite rule. For auto build
```

```
* mode, does nothing.
```

```
*/
```

```
noRewrite(rewriteBlockLevel=false, treeLevel=false) ::= <<
```

```
<if(!ruleDescriptor.isSynPred)>
```

```
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
```

```
<if(rewriteMode)>
```

```
retval.Tree = (<ASTLabelType>)_first_0;
```

```
if (adaptor.GetParent(retval.Tree)!=null && adaptor.IsNil(adaptor.GetParent(retval.Tree)))
```

```
    retval.Tree = (<ASTLabelType>)adaptor.GetParent(retval.Tree);
```

```
<endif>
```

```
<if(backtracking)>}<endif>
```

```
<endif>
```

```
>>
```

```
/** match ^(root children) in tree parser; override here to
```

```
* add tree construction actions.
```

```
*/
```

```
tree(root, actionsAfterRoot, children, nullableChildList,
```

```

    enclosingTreeLevel, treeLevel)
  ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
  {
  <ASTLabelType> _save_last_<treeLevel> = _last;
  <ASTLabelType> _first_<treeLevel> = default(<ASTLabelType>);
  <if(!rewriteMode)>
  <ASTLabelType> root_<treeLevel> = (<ASTLabelType>)adaptor.Nil();
  <endif>
  <root:element()>
  <if(rewriteMode)>
  <if(backtracking)>if (<actions.(actionScope).synpredgate><endif>
  <if(root.el.rule)>
  if (_first_<enclosingTreeLevel> == null) _first_<enclosingTreeLevel> = <root.el.label>.Tree;
  <else>
  if (_first_<enclosingTreeLevel> == null) _first_<enclosingTreeLevel> = <root.el.label>;
  <endif>
  <endif>
  <actionsAfterRoot:element()>
  <if(nullableChildList)>
  if (input.LA(1) == TokenType.Down) {
    Match(input, TokenType.Down, null); <checkRuleBacktrackFailure()>
    <children:element()>
    Match(input, TokenType.Up, null); <checkRuleBacktrackFailure()>
  }
  <else>
  Match(input, TokenType.Down, null); <checkRuleBacktrackFailure()>
  <children:element()>
  Match(input, TokenType.Up, null); <checkRuleBacktrackFailure()>
  <endif>
  <if(!rewriteMode)>
  adaptor.AddChild(root_<enclosingTreeLevel>,
    root_<treeLevel>);
  <endif>
  _last = _save_last_<treeLevel>;
  }
  <else>
  <super.tree(...)>
  <endif>
  >>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex,terminalOptions) ::= <<

```

```

<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<else>
<super.tokenRefBang(...)>
<endif>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<if(terminalOptions.node)>
<label>_tree = new
<terminalOptions.node>(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.tex
t)>,<terminalOptions.text; format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(termin
alOptions.text)>,<terminalOptions.text;
format="string"><endif>);
<endif><\n>
adaptor.AddChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if (<actions.(actionScope).synpredgate>)<endif>
if (_first_<treeLevel> == null) _first_<treeLevel> = <label>;
<endif>
<else>
<super.tokenRef(...)>
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
<tokenRef(...)>
<listLabelElem(elem=label,...)>
<else>
<super.tokenRefAndListLabel(...)>
<endif>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<

```

```

<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.actionScope>.synpredgate) {<endif>
<if(terminalOptions.node)>
<label>_tree
  = new
<terminalOptions.node>(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.tex
t)>,<terminalOptions.text; format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(termin
alOptions.text)>,<terminalOptions.text; format="string"><endif>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_<treeLevel>);
<if(backtracking)>}<endif>
<endif>
<else>
<super.tokenRefRuleRoot(...)>
<endif>
>>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
<tokenRefRuleRoot(...)>
<listLabelElem(elem=label,...)>
<else>
<super.tokenRefRuleRootAndListLabel(...)>
<endif>
>>

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.wildcard(...)>
<if(!rewriteMode)>
<if(backtracking)>if
  (<actions.actionScope>.synpredgate) {<endif>
<label>_tree = (<ASTLabelType>)adaptor.DupTree(<label>);
adaptor.AddChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if (<actions.actionScope>.synpredgate)<endif>
if (_first_<treeLevel> == null) _first_<treeLevel> = <label>;
<endif>

```

```

<else>
<super.wildcard(...)>
<endif>
>>

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
  <super.matchSet(postmatchCode={
  <if(!rewriteMode)>
  <if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
  <if(terminalOptions.node)>
  <label>_tree = new
  <terminalOptions.node>(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.tex
  t)>,<terminalOptions.text; format="string"><endif>);
  <else>
  <label>_tree =
  (<ASTLabelType>)adaptor.DupNode(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(termin
  alOptions.text)>,<terminalOptions.text;
  format="string"><endif>);
  <endif><\n>
  adaptor.AddChild(root_<treeLevel>, <label>_tree);
  <if(backtracking)>}\}<endif>
  <endif>
  }, ...
  )>
  <else>
  <super.matchSet(...)>
  <endif>
  >>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
<if(!ruleDescriptor.isSynPred)>
  <matchSet(...)>
  <noRewrite(...)> <! set return tree !>
  <else>
  <super.matchRuleBlockSet(...)>
  <endif>
  >>

matchSetBang(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
  <super.matchSet(...)>
  <else>
  <super.matchSetBang(...)>

```

```

<endif>
>>

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
<if(!ruleDescriptor.isSynPred)>
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<if(terminalOptions.node)>
<label>_tree = new
<terminalOptions.node><(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.tex
t)>,<terminalOptions.text;
format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(termin
alOptions.text)>,<terminalOptions.text; format="string"><endif>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_<treeLevel>);
<if(backtracking)>}\}<endif>
<endif>
}, ...
)>
<else>
<super.matchSetRuleRoot(...)>
<endif>
>>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>)<endif>
<if(!rewriteMode)>
adaptor.AddChild(root_<treeLevel>, <label>.Tree);
<else> <! rewrite mode !>
if (_first_<treeLevel> == null) _first_<treeLevel> = <label>.Tree;
<endif>
<else>
<super.ruleRef(...)>
<endif>
>>

/** x+=rule auto construct

```

```

*/
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<ruleRef(...)>
<listLabelElem(elem={<label>.Tree},...)>
<else>
<super.ruleRefAndListLabel(...)>
<endif>
>>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>root_<treeLevel> =
(<ASTLabelType>)adaptor.BecomeRoot(<label>.Tree, root_<treeLevel>);
<endif>
<else>
<super.ruleRefRuleRoot(...)>
<endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<ruleRefRuleRoot(...)>
<listLabelElem(elem={<label>.Tree},...)>
<else>
<super.ruleRefRuleRootAndListLabel(...)>
<endif>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last
= (<ASTLabelType>)input.LT(1);
<super.ruleRefTrack(...)>
<else>
<super.ruleRefTrack(...)>
<endif>
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>

```

```

_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefTrackAndListLabel(...)>
<else>
<super.ruleRefTrackAndListLabel(...)>
<endif>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefRootTrack(...)>
<else>
<super.ruleRefRuleRootTrack(...)>
<endif>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefRuleRootTrackAndListLabel(...)>
<else>
<super.ruleRefRuleRootTrackAndListLabel(...)>
<endif>
>>

/** Streams for token refs are tree nodes now;
  override to
  * change NextToken to NextNode.
  */
createRewriteNodeFromElement(token,terminalOptions,args) ::= <%
<if(terminalOptions.node)>
new
<terminalOptions.node><(if(terminalOptions.type)><terminalOptions.type><endif>stream_<token>.NextNode())
<else>
stream_<token>.NextNode()
<endif>
%>

ruleCleanup() ::= <<
<super.ruleCleanup(>
<if(!ruleDescriptor.isSynPred)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
retval.Tree = (<ASTLabelType>)adaptor.RulePostProcessing(root_0);
<if(backtracking)>}<endif>
<endif>

```



<endif>

>>

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/CSharp2/ASTTreeParser.stg

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/\*

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\*/

group AST;

@outputFile.imports() ::= <<

<@super.imports()><if(!TREE\_PARSER)><! tree parser would already have imported !>

Antlr.Runtime.Tree,<\n><endif>

>>

@genericParser.members() ::= <<

<@super.members()>

```

<parserMembers()>
>>

@genericParser.membersConstructor() ::= <<
<@super.membersConstructor()>
<parserMembersConstructor()>
>>

@genericParser.membersImplementation()
::= <<
<@super.membersImplementation()>
<parserMembersImplementation()>
>>

/** Add an adaptor property that knows how to build trees */
parserMembers() ::= <<
strict protected
  FAdaptor: ITreeAdaptor;
  procedure SetAdaptor(const Value: ITreeAdaptor);
  property Adaptor: ITreeAdaptor read FAdaptor;
public
  property TreeAdaptor: ITreeAdaptor read FAdaptor write SetAdaptor;

>>

parserMembersConstructor() ::= <<
FAdaptor := TCommonTreeAdaptor.Create;
>>

parserMembersImplementation() ::= <<
procedure T<grammar.recognizerName>.SetAdaptor(const Value: ITreeAdaptor);
begin
  FAdaptor := Value;
  <grammar.directDelegates: {g|<g:delegateName()>.TreeAdaptor := FAdaptor;}>
end;
>>

@returnScope.ruleReturnMembers() ::= <<
function T<grammar.recognizerName>.T<ruleDescriptor:returnStructName()>.GetTree: IANTLRInterface;
begin
  Result := FTree;
end;

procedure T<grammar.recognizerName>.T<ruleDescriptor:returnStructName()>.SetTree(const Value:
IANTLRInterface);
begin
  FTree := Value

```

```

    as I<ASTLabelType>;
end;
>>

@returnScopeDeclaration.ruleReturnMembers() ::= <<
strict private
FTree: I<ASTLabelType>;
protected
{ IRuleReturnScope }
function GetTree: IANTLRInterface; override;
procedure SetTree(const Value: IANTLRInterface); override;
>>

/** Add a variable to track rule's return AST */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
Root[0] := nil;<\n>
>>

ruleDeclarationVars() ::= <<
<super.ruleDeclarationVars()>
Root: array [0..63] of I<ASTLabelType>;
>>

ruleLabelDefs() ::= <<
<super.ruleLabelDefs()>
<ruleDescriptor.tokenLabels: { <it.label.text>_tree := nil; }; separator="\n">
<ruleDescriptor.tokenListLabels: { <it.label.text>_tree := nil; }; separator="\n">
<ruleDescriptor.allTokenRefsInAltsWithRewrites: {Locals['Stream_<it>'] :=
TRewriteRule<rewriteElementType>Stream.Create(Adaptor,'token <it>'); }; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites: {Locals['Stream_<it>'] :=
TRewriteRuleSubtreeStream.Create(Adaptor,'rule <it>'); }; separator="\n">
>>

ruleLabelDefVars()
::= <<
<super.ruleLabelDefVars()>
<ruleDescriptor.tokenLabels: { <it.label.text>_tree: I<ASTLabelType>; }; separator="\n">
<ruleDescriptor.tokenListLabels: { <it.label.text>_tree: I<ASTLabelType>; }; separator="\n">
>>
/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same alternative
 * block.
 */
@alt.declarations() ::= <<
<if(autoAST)>
<if(outerAlt)>

```

```

<if(!rewriteMode)>
Root[0] := Adaptor.GetNilNode as I<ASTLabelType>;
<endif>
<endif>
<endif>
>>

// Tracking Rule Elements

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if (State.Backtracking = 0) then <endif>(Locals['Stream_<token>'] as
IRewriteRuleElementStream).Add(<label>);<\n>
>>

/** ids+=ID and track
it for use in a rewrite rule; adds to ids *and*
* to the tracking list stream_ID for use in the rewrite.
*/
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefTrack(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if (State.Backtracking = 0) then <endif>(Locals['Stream_<token>'] as
IRewriteRuleElementStream).Add(<label>);<\n>
>>

/** Match ^(label+=TOKEN ...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabel(elem=label,...)>
>>

wildcardTrack(label,elementIndex) ::= <<
<super.wildcard(...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (State.Backtracking = 0) then <endif>(Locals['Stream_<rule.name>'] as
IRewriteRuleElementStream).Add(<label>.Tree);<\n>
>>

```

```

/**
 x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabel(elem=label+".Tree",...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<if(backtracking)>if (State.Backtracking = 0) then <endif>(Locals['Stream_<rule>'] as
IRewriteRuleElementStream).Add(<label>.Tree);
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRootTrack(...)>
<listLabel(elem=label+".Tree",...)>
>>

// R e w r i t e

rewriteCode(
alts, description,
referencedElementsDeep, // ALL referenced elements to right of ->
referencedTokenLabels,
referencedTokenListLabels,
referencedRuleLabels,
referencedRuleListLabels,
referencedWildcardLabels,
referencedWildcardListLabels,
rewriteBlockLevel, enclosingTreeLevel, treeLevel) ::=
<<

// AST
REWRITE
// elements: <referencedElementsDeep; separator=", ">
// token labels: <referencedTokenLabels; separator=", ">
// rule labels: <referencedRuleLabels; separator=", ">
// token list labels: <referencedTokenListLabels; separator=", ">
// rule list labels: <referencedRuleListLabels; separator=", ">
<if(backtracking)>
if (State.Backtracking = 0) then
begin<\n>
<endif>
<prevRuleRootRef(>.Tree := Root[0];
<rewriteCodeLabels(>

```

```

Root[0] := Adaptor.GetNilNode as I<ASTLabelType>;
<alts:rewriteAlt(); separator="else ">
<! if tree parser and rewrite=true !>
<if(TREE_PARSER)>
<if(rewriteMode)>
<prevRuleRootRef(>).Tree = (<ASTLabelType>)adaptor.rulePostProcessing(root[0]);
input.ReplaceChildren(adaptor.GetParent(retval.Start),
                    adaptor.GetChildIndex(retval.Start),
                    adaptor.GetChildIndex(_last),
                    retval.Tree);
<endif>
<endif>
<! if parser or rewrite!=true, we need to set result !>
<if(!TREE_PARSER)>
<prevRuleRootRef(>).Tree
:= Root[0];<\n>
<endif>
<if(!rewriteMode)>
<prevRuleRootRef(>).Tree := Root[0];<\n>
<endif>
<if(backtracking)>
end;
<endif>
>>

rewriteCodeLabels() ::= <<
<referencedTokenLabels
: {Locals['Stream_<it>'] := TRewriteRule<rewriteElementType>Stream.Create(Adaptor, 'token <it>', <it>);};
separator="\n"
>
<referencedTokenListLabels
: {Locals['Stream_<it>'] := TRewriteRule<rewriteElementType>Stream.Create(Adaptor, 'token <it>', list_<it>);};
separator="\n"
>
<referencedRuleLabels: {
if Assigned(<it>) then
Locals['Stream_<it>'] := TRewriteRuleSubtreeStream.Create(Adaptor, 'token <it>', <it>.Tree)
else
Locals['Stream_<it>'] := TRewriteRuleSubtreeStream.Create(Adaptor, 'token <it>', nil);}; separator="\n">
<referencedRuleListLabels
: {Locals['Stream_<it>'] := TRewriteRuleSubtreeStream.Create(Adaptor, 'token <it>', list_<it>);};
separator="\n"
>
>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
* list rather shallow

```

```

like other blocks.
*/
rewriteOptionalBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements,    // elements in immediately block; no nested blocks
  description) ::=
<<
(* <fileName>:<description> *)
if (<referencedElementsDeep:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).HasNext}; separator="
or ">) then
begin
  <alt>
end;
<referencedElementsDeep:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).Reset;<\n>}>
>>

rewriteClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements,    // elements in immediately block; no nested blocks
  description) ::=
<<
(* <fileName>:<description> *)
while (<referencedElements:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).HasNext}; separator=" or
">) do
begin
  <alt>
end;
<referencedElements:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).Reset();<\n>}>
>>

rewritePositiveClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep,
  // all nested refs
  referencedElements,    // elements in immediately block; no nested blocks
  description) ::=
<<
if (not (<referencedElements:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).HasNext}; separator=" or
">)) then
  raise ERewriteEarlyExitException.Create("");

while (<referencedElements:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).HasNext}; separator=" or
">) do
begin
  <alt>
end;

```

```

<referencedElements:{el | (Locals['Stream_<el>'] as IRewriteRuleElementStream).Reset();<\n>}>
>>

rewriteAlt(a) ::= <<
(* <a.description> *)
<if(a.pred)>
if (<a.pred>) then
begin
  <a.alt>
end<\n>
<else>
begin
  <a.alt>
end;<\n>
<endif>
>>

/** For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "Root[0] = null;"

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<
(* <fileName>:<description> *)
begin
  Root[<treeLevel>] := Adaptor.GetNilNode as I<ASTLabelType>;
  <root:rewriteElement()>
  <children:rewriteElement()>
  Adaptor.AddChild(Root[<enclosingTreeLevel>],
  Root[<treeLevel>]);
end;<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <<
<@pregen()>
<e.el>
>>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,terminalOptions,args) ::= <<
Adaptor.AddChild(Root[<treeLevel>], <createRewriteNodeFromElement(...)>);<\n>
>>

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
Adaptor.AddChild(Root[<treeLevel>], (Locals['Stream_<label>'] as
IRewriteRuleElementStream).NextNode());<\n>
>>

```



```

/** Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
Adaptor.AddChild(Root[<treeLevel>], (Locals['Stream_<label>'] as IRewriteRuleElementStream).NextNode);<\n>
>>

/** Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot((Locals['Stream_<label>'] as
IRewriteRuleElementStream).NextNode(), Root[<treeLevel>]) as I<ASTLabelType>;<\n>
>>

/**
Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^ID ... or ^ID[args] ... */
rewriteTokenRefRoot(token,elementIndex,terminalOptions,args) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot(<createRewriteNodeFromElement(...)>, Root[<treeLevel>]) as
I<ASTLabelType>;<\n>
>>

rewriteImaginaryTokenRef(args,token,terminalOptions,elementIndex) ::= <<
Adaptor.AddChild(Root[<treeLevel>], <createImaginaryNode(tokenType=token, ...)>);<\n>
>>

rewriteImaginaryTokenRefRoot(args,token,terminalOptions,elementIndex) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot(<createImaginaryNode(tokenType=token, ...)>, Root[<treeLevel>]) as
I<ASTLabelType>;<\n>
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
Root[0] = <action>;<\n>
>>

/** What is the name of the previous value of this rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting in retval struct to hold the
* value of Root[0] right
* before I set it during rewrites. The assign will be to retval.Tree.
*/
prevRuleRootRef() ::= "RetVal"

rewriteRuleRef(rule) ::= <<
Adaptor.AddChild(Root[<treeLevel>], (Locals['Stream_<rule>'] as IRewriteRuleElementStream).NextTree());<\n>
>>

```

```

rewriteRuleRefRoot(rule) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot((Locals['Stream_<rule>'] as IRewriteRuleElementStream).NextNode,
Root[<treeLevel>]) as I<ASTLabelType>;<\n>
>>

rewriteNodeAction(action) ::= <<
Adaptor.AddChild(Root[<treeLevel>], <action>);<\n>
>>

rewriteNodeActionRoot(action) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot(<action>, Root[<treeLevel>]) as I<ASTLabelType>;<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
Adaptor.AddChild(Root[<treeLevel>], (Locals['Stream_<label>'] as IRewriteRuleElementStream).NextTree());<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
Adaptor.AddChild(Root[<treeLevel>],
(Locals['Stream_<label>'] as IRewriteRuleElementStream).NextTree());<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot((Locals['Stream_<label>'] as IRewriteRuleElementStream).NextNode,
Root[<treeLevel>]) as I<ASTLabelType>;<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label) ::= <<
Root[<treeLevel>] := Adaptor.BecomeRoot((Locals['Stream_<label>'] as IRewriteRuleElementStream).NextNode,
Root[<treeLevel>]) as I<ASTLabelType>;<\n>
>>

createImaginaryNode(tokenType,terminalOptions,args) ::= <<
<if(terminalOptions.node)>
<! new MethodNode(IDLabel, args) !>
T<terminalOptions.node>.Create(<tokenType><if(args)>, <args; separator=", "><endif>)
<else>
Adaptor.CreateNode(<tokenType>, <args; separator=", "><if(!args)>'<tokenType>'<endif>) as I<ASTLabelType>
<endif>
>>

createRewriteNodeFromElement(token,terminalOptions,args) ::= <<
<if(terminalOptions.node)>
T<terminalOptions.node>.Create((Locals['Stream_<token>']

```

```
as IRewriteRuleElementStream).NextToken<if(args)>, <args; separator=", "><endif>)
<else>
<if(args)> <! must create new node from old !>
Adaptor.Create(<token>, <args; separator=", ">)
<else>
(Locals['Stream_<token>'] as IRewriteRuleElementStream).NextNode
<endif>
<endif>
>>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Delphi/AST.stg
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```
*/
```

```
/** Template overrides to add debugging to normal C output;
```

```
* If ASTs are built, then you'll also get ASTDbg.stg loaded.
```

```
*/
```

```

@genericParser.members() ::= <<
<if(grammar.grammarIsRoot)>
const char *
ruleNames[] =
{
  "invalidRule", <grammar.allImportedRules:{rST | "<rST.name>"}; wrap="\n ", separator=", ">
};<\n>
<endif>
<if(grammar.grammarIsRoot)> <! grammar imports other grammar(s) !>
static ANTLR3_UINT32
ruleLevel = 0;
static ANTLR3_UINT32 getRuleLevel()
{
  return ruleLevel;
}
static void incRuleLevel()
{
  ruleLevel++;
}
static void decRuleLevel()
{
  ruleLevel--;
}
<else> <! imported grammar !>
static ANTLR3_UINT32
getRuleLevel()
{
  return <grammar.delegators:{g| <g.delegateName()>}>->getRuleLevel();
}
static void incRuleLevel()
{
  <grammar.delegators:{g| <g.delegateName()>}>->incRuleLevel();
}
static void
decRuleLevel()
{
  <grammar.delegators:{g| <g.delegateName()>}>.decRuleLevel();
}
<endif>
<if(profile)>
// Profiling not yet implemented for C target
//
<endif>
<if(grammar.grammarIsRoot)>
<ctorForPredefinedListener()>
<else>
<ctorForDelegateGrammar()>
<endif>

```

```

static ANTLR3_BOOLEAN
evalPredicate(p<name> ctx, ANTLR3_BOOLEAN result, const char * predicate)
{
    DBG->semanticPredicate(DBG, result, predicate);
    return result;
}<\n>
>>

@genericParser.debugStuff() ::= <<
<if(grammar.grammarIsRoot)>
<createListenerAndHandshake(>
<endif>
>>

ctorForProfilingRootGrammar() ::=
<<
>>

/** Basically we don't want to set any dbg listeners as root will have it. */
ctorForDelegateGrammar() ::= <<

>>

ctorForPredefinedListener() ::= <<

>>

createListenerAndHandshake() ::= <<
{
    // DEBUG MODE code
    //
    pANTLR3_DEBUG_EVENT_LISTENER proxy;
    proxy = antlr3DebugListenerNew();
    proxy->grammarFileName = INPUT->tokenSource->strFactory->newStr8(INPUT->tokenSource->strFactory,
    (pANTLR3_UINT8)ctx->getGrammarFileName());

    <if(TREE_PARSER)>
    proxy->adaptor = ADAPTOR;
    <endif>
    PARSER->setDebugListener(PARSER, proxy);

    // Try to connect to the debugger (waits forever for a connection)
    //
    proxy->handshake(proxy);

    // End DEBUG MODE code
    //

```

```
}  
>>
```

```
@rule.preamble() ::= <<  
if ( getRuleLevel()==0 )  
{  
  DBG->commence(DBG);  
}  
DBG->enterRule(DBG, getGrammarFileName(), (const char *)"<ruleName>");  
incRuleLevel();  
DBG->location(DBG, <ruleDescriptor.tree.line>, <ruleDescriptor.tree.column>);<\n>  
>>
```

```
@rule.postamble() ::= <<  
DBG->location(DBG, <ruleDescriptor.EORNode.line>, <ruleDescriptor.EORNode.column>);<\n>  
DBG->exitRule(DBG,  
  getGrammarFileName(), (const char *)"<ruleName>");  
decRuleLevel();  
if ( getRuleLevel()==0 )  
{  
  DBG->terminate(DBG);  
}  
<\n>  
>>
```

```
@checkRuleBacktrackFailure.debugClean() ::= <<  
DBG->exitRule(DBG, getGrammarFileName(), (const char *)"<ruleName>");  
decRuleLevel();  
>>
```

```
@synpred.start() ::= "DBG->beginBacktrack(DBG, BACKTRACKING);"
```

```
@synpred.stop() ::= "DBG->endBacktrack(DBG, BACKTRACKING, success);"
```

```
// Common debug event triggers used by region overrides below
```

```
enterSubRule() ::=  
  "DBG->enterSubRule(DBG, <decisionNumber>);<\n>"
```

```
exitSubRule() ::=  
  "DBG->exitSubRule(DBG, <decisionNumber>);<\n>"
```

```
enterDecision() ::=  
  "DBG->enterDecision(DBG, <decisionNumber>);<\n>"
```

```
exitDecision() ::=  
  "DBG->exitDecision(DBG, <decisionNumber>);<\n>"
```

```

enterAlt(n) ::= "DBG->enterAlt(DBG, <n>;<\n>"

// Region overrides that tell various constructs to add debugging triggers

@block.predecision() ::= "<enterSubRule()><enterDecision()>"

@block.postdecision()
::= "<exitDecision()>"

@block.postbranch() ::= "<exitSubRule()>"

@ruleBlock.predecision() ::= "<enterDecision()>"

@ruleBlock.postdecision() ::= "<exitDecision()>"

@ruleBlockSingleAlt.prealt() ::= "<enterAlt(n=\"1\")>"

@blockSingleAlt.prealt() ::= "<enterAlt(n=\"1\")>"

@positiveClosureBlock.preloop() ::= "<enterSubRule()>"

@positiveClosureBlock.postloop() ::= "<exitSubRule()>"

@positiveClosureBlock.predecision() ::= "<enterDecision()>"

@positiveClosureBlock.postdecision() ::= "<exitDecision()>"

@positiveClosureBlock.earlyExitException() ::=
  "DBG->recognitionException(DBG, EXCEPTION);<\n>"

@closureBlock.preloop() ::= "<enterSubRule()>"

@closureBlock.postloop() ::= "<exitSubRule()>"

@closureBlock.predecision() ::= "<enterDecision()>"

@closureBlock.postdecision() ::= "<exitDecision()>"

@altSwitchCase.prealt() ::= "<enterAlt(altNum)>"

@element.prematch() ::=
  "DBG->location(DBG, <e.line>, <e.pos>);" // e is arg of element

@matchSet.mismatchedSetException() ::=
  "DBG->recognitionException(DBG, EXCEPTION);"

@newNVEException.noViableAltException() ::= "DBG->recognitionException(DBG, EXCEPTION);"

```

```

dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = cdfa<decisionNumber>.predict(ctx, RECOGNIZER, ISTREAM,
&cdfa<decisionNumber>);
if (HASEXCEPTION())
{
DBG->recognitionException(DBG, EXCEPTION);
goto rule<ruleDescriptor.name>Ex;
}
<checkRuleBacktrackFailure()>
>>

```

```

@cyclicDFA.errorMethod() ::= <<
//static void
//dfaError(p<name> ctx)
//{
// DBG->recognitionException(DBG, EXCEPTION);
//}
>>

```

```

/** Force predicate validation to trigger an event */
evalPredicate(pred,description) ::= <<
evalPredicate(ctx, <pred>, (const char *)"<description>")
>>

```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/C/Dbg.stg  
No license file was found, but licenses were detected in source scan.

```

/*
[The "BSD license"]
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```

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\*/

/\*\* The API version of the runtime that recognizers generated by this runtime

\* need.

\*/

apiVersion() ::= "1"

/\*\* The overall file structure of a recognizer; stores methods for rules

\* and cyclic DFAs plus support code.

\*/

```
outputFile(LEXER,PARSER,TREE_PARSER, actionScope, actions,
           docComment, recognizer,
           name, tokens, tokenNames, rules, cyclicDFAs,
           bitsets, buildTemplate, buildAST, rewriteMode, profile,
           backtracking, synpreds, memoize,
           numRules,
           fileName, ANTLRVersion, generatedTimestamp, trace,
           scopes, superClass, literals) ::=
```

<<

```
# $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>
```

```
<@imports>
```

```
import sys
```

```
from antlr3 import *
```

```
<if(TREE_PARSER)>
```

```
from antlr3.tree import *<\n>
```

```
<endif>
```

```
<@end>
```

```
<actions.(actionScope).header>
```

```
<! <docComment> !>
```

```
# for convenience in actions
```

```
HIDDEN = BaseRecognizer.HIDDEN
```

```
# token types
```

```
<tokens:{it | <it.name>=<it.type>}; separator="\n">
```

```
# token names
```

```

tokenNamesMap = {
    0: "\<invalid>", 1: "\<EOR>", 2: "\<DOWN>", 3: "\<UP>",
    <tokens:{it | <it.type>: "<it.name>"}; wrap, separator=", ">
}
Token.registerTokenNamesMap(tokenNamesMap)

<recognizer>

<if(actions.(actionScope).main)>
<actions.(actionScope).main>
<else>
def main(argv, stdin=sys.stdin, stdout=sys.stdout, stderr=sys.stderr):
<if(LEXER)>
    from antlr3.main import LexerMain
    main = LexerMain(<recognizer.name>)<\n>
<endif>
<if(PARSER)>
    from antlr3.main import ParserMain
    main = ParserMain("<recognizer.grammar.name>Lexer",
<recognizer.name>)<\n>
<endif>
<if(TREE_PARSER)>
    from antlr3.main import WalkerMain
    main = WalkerMain(<recognizer.name>)<\n>
<endif>
    main.stdin = stdin
    main.stdout = stdout
    main.stderr = stderr
    main.execute(argv)<\n>
<endif>

<actions.(actionScope).footer>

if __name__ == '__main__':
    main(sys.argv)

>>

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode,
    labelType="CommonToken", superClass="Lexer") ::= <<
<if(grammar.directDelegates)>
# path hack to allow absolute import of related grammars.
from os.path import dirname
__path__ = [dirname(__file__)]
del dirname

<grammar.directDelegates:
{g|from .<g.recognizerName> import <g.recognizerName>}; separator="\n">

```

```

<endif>

class <grammar.recognizerName>(<@superClassName><superClass><@end>):
  <scopes:{it|<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>

  grammarFileName = "<fileName>"
  api_version = <apiVersion()>

  def __init__(self<grammar.delegators:{g|,
<g:delegateName()>>}, input=None, state=None):
    if state is None:
      state = RecognizerSharedState()
    super().__init__(input, state)

<if(memoize)>
<if(grammar.grammarIsRoot)>
  self._state.ruleMemo = {}
<endif>
<endif>

  <grammar.directDelegates:
    {g|self.<g:delegateName()> = <g.recognizerName>(<trunc(g.delegators):{p|<p:delegateName()>, }>self, input,
state)); separator="\n">
  <grammar.directDelegates:
    {g|<g.delegates:{h|self.<h:delegateName()> = self.<g:delegateName()>.<h:delegateName()>};
separator="\n">}; separator="\n">
  <grammar.delegators:
    {g|self.<g:delegateName()> = <g:delegateName()>}; separator="\n">
  <last(grammar.delegators):
    {g|self.gParent = <g:delegateName()>}; separator="\n">
  self.delegates = [<grammar.delegates: {g|self.<g:delegateName()>}; separator = ", ">]

  <cyclicDFAs:{dfa | <cyclicDFAInit(dfa)>}; separator="\n">

<actions.lexer.init>

  <actions.lexer.members>

<if(filterMode)>
  <filteringNextToken()>
<endif>
  <rules; separator="\n\n">

  <synpreds:{p | <lexerSynpred(p)>}>

```

```
<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>
```

```
>>
```

```
/** A override of Lexer.nextToken() that backtracks over mTokens() looking  
 * for matches. No error can be generated upon error; just rewind, consume  
 * a token and then try again. backtracking needs to be set as well.  
 * Make rule memoization happen only at levels above 1 as we start mTokens  
 * at backtracking==1.  
 */
```

```
filteringNextToken() ::= <<
```

```
def nextToken(self):
```

```
    while True:
```

```
        if self.input.LA(1) == EOF:
```

```
            return self.makeEOFToken()
```

```
        self._state.token = None
```

```
        self._state.channel = DEFAULT_CHANNEL
```

```
        self._state.tokenStartCharIndex = self.input.index()
```

```
        self._state.tokenStartCharPositionInLine = self.input.charPositionInLine
```

```
        self._state.tokenStartLine = self.input.line
```

```
        self._state._text
```

```
    = None
```

```
        try:
```

```
            m = self.input.mark()
```

```
            try:
```

```
                # means we won't throw slow exception
```

```
                self._state.backtracking = 1
```

```
            try:
```

```
                self.mTokens()
```

```
            finally:
```

```
                self._state.backtracking = 0
```

```
        except BacktrackingFailed:
```

```
            # mTokens backtracks with synpred at backtracking==2
```

```
            # and we set the synpredgate to allow actions at level 1.
```

```
            self.input.rewind(m)
```

```
            self.input.consume() # advance one char and try again
```

```
        else:
```

```
            self.emit()
```

```
            return self._state.token
```

```
    except RecognitionException as re:
```

```
        # shouldn't happen in backtracking mode, but...
```

```
        self.reportError(re)
```

```
        self.recover(re)
```

```

def memoize(self, input, ruleIndex, ruleStartIndex, success):
    if self._state.backtracking > 1:
        # is Lexer always superclass?

    super().memoize(input, ruleIndex, ruleStartIndex, success)

def alreadyParsedRule(self, input, ruleIndex):
    if self._state.backtracking > 1:
        return super().alreadyParsedRule(input, ruleIndex)
    return False

>>

actionGate() ::= "self._state.backtracking == 0"

filteringActionGate() ::= "self._state.backtracking == 1"

/** How to generate a parser */

genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
              bitsets, inputStreamType, superClass, labelType, members,
              rewriteElementType, filterMode, init, ASTLabelType="Object") ::= <<
# token names
tokenNames = [
    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>",
    <tokenNames; wrap, separator=", ">
]

<scopes:{it|<if(it.isDynamicGlobalScope)><globalAttributeScopeClass(scope=it)><endif>>>

<if(grammar.directDelegates)>
# path hack to allow absolute import of related grammars.
from os.path import dirname
__path__ = [dirname(__file__)]
del dirname

<grammar.directDelegates:
{g|from
.<g.recognizerName> import <g.recognizerName>}; separator="\n">
<endif>

<rules:{it|<ruleAttributeScopeClass(scope=it.ruleDescriptor.ruleScope)>>>

class <grammar.recognizerName>(<@superClassName><superClass><@end>):

```

```

grammarFileName = "<fileName>"
api_version = <apiVersion()>
tokenNames = tokenNames

def __init__(self<grammar.delegators:{g|,<g:delegateName()>>}, input, state=None, *args, **kwargs):
    if state is None:
        state = RecognizerSharedState()

    <@args()>
    super().__init__(input, state, *args, **kwargs)

<if(memoize)>
<if(grammar.grammarIsRoot)>
    self._state.ruleMemo = {}
<endif>
<endif>

    <cyclicDFAs:{ dfa | <cyclicDFAInit(dfa)>}; separator="\n">

    <scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeStack(scope=it)><endif>>}>
    <rules:{it | <ruleAttributeScopeStack(scope=it.ruleDescriptor.ruleScope)>>}>

    <init>

    <grammar.delegators:
        {g|self.<g:delegateName()> = <g:delegateName()>};
separator="\n">
    <grammar.directDelegates:
        {g|self.<g:delegateName()> = <g.recognizerName>(<trunc(g.delegators):{p|<p:delegateName()>, }>self, input,
state)}; separator="\n">
    <grammar.directDelegates:
        {g|<g.delegates:{h|self.<h:delegateName()> = self.<g:delegateName()>.<h:delegateName()>}};
separator="\n">}; separator="\n">
    <last(grammar.delegators):
        {g|self.gParent = self.<g:delegateName()>}; separator="\n">
self.delegates = [<grammar.delegates: {g|self.<g:delegateName()>}; separator = ", ">]

    <@init><@end>

<@members><@end>

<members>

<rules; separator="\n\n">

<! generate rule/method definitions for imported rules so they
    appear to be defined in this recognizer. !>

```

```

<grammar.delegatedRules:{ruleDescriptor| <delegateRule(ruleDescriptor)> }; separator="\n">

<synpreds:{p | <synpred(p)>}>

<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

<bitsets:{it | FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>
= frozenset([<it.tokenTypes:{it | <it>};separator=", ">])<\n>}>

>>

delegateRule(ruleDescriptor) ::= <<
def <ruleDescriptor.name>(self, <ruleDescriptor.parameterScope:parameterScope()>):
<\> <if(ruleDescriptor.hasReturnValue)>return
<endif>self.<ruleDescriptor.grammar:delegateName()>.<ruleDescriptor.name><(if(ruleDescriptor.parameterScope)
><ruleDescriptor.parameterScope.attributes:{a|<a.name>} ; separator=", "><endif>)

>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets,
    ASTLabelType="Object", superClass="Parser", labelType="Token",
    members={<actions.parser.members>},
    init={<actions.parser.init>}
) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TokenStream", superClass,
    labelType, members, "Token",
    false, init, ASTLabelType)>

>>

/** How to generate a tree parser; same as parser except the input
* stream
* is a different type.
*/
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={<ASTLabelType>}, ASTLabelType="Object",
superClass={<if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif>},
members={<actions.treeparser.members>},
init={<actions.treeparser.init>}
) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TreeNodeStream", superClass,
    labelType, members, "Node",
    filterMode, init, ASTLabelType)>

>>

/** A simpler version of a rule template that is specific to the imaginary

```

```

* rules created for syntactic predicates. As they never have return values
* nor parameters etc..., just give simplest possible method. Don't do
* any of the normal memoization stuff in here either; it's a waste.
* As predicates cannot be inlined into the invoking rule,
they need to
* be in a rule by themselves.
*/
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
# $ANTLR start "<ruleName>"
def <ruleName>_fragment(self, <ruleDescriptor.parameterScope:parameterScope(>):
    <ruleLabelDefs(>
<if(trace)>
    self.traceIn("<ruleName>_fragment", <ruleDescriptor.index>)
    try:
        <block>

    finally:
        self.traceOut("<ruleName>_fragment", <ruleDescriptor.index>)

<else>
    <block>
<endif>
# $ANTLR end "<ruleName>"

>>

synpred(name) ::= <<
def <name>(self):
    self._state.backtracking += 1
    <@start(>
    start = self.input.mark()
    try:
        self.<name>_fragment()
    except BacktrackingFailed:
        success = False
    else:
        success = True
    self.input.rewind(start)
    <@stop(>
    self._state.backtracking -= 1
    return success

>>

lexerSynpred(name) ::= <<

```



```

<synpred(name)>
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if self._state.backtracking > 0 and self.alreadyParsedRule(self.input,
<ruleDescriptor.index>):
    # for cached failed rules, alreadyParsedRule will raise an exception
    success = True
    return <ruleReturnValue()>

<endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>
if self._state.backtracking > 0:
    raise BacktrackingFailed

<endif>
>>

/** How to generate code for a rule. This includes any return type
 * data aggregates required for multiple return values.
 */
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<returnScope(scope=ruleDescriptor.returnValue)>

# $ANTLR start "<ruleName>"
# <fileName>:<description>
<ruleDescriptor.actions.decorate>
def <ruleName>(self, <ruleDescriptor.parameterScope:parameterScope()>):
<if(trace)>
    self.traceIn("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
    <ruleScopeSetUp()>
    <ruleDeclarations()>
    <ruleLabelDefs()>
    <ruleDescriptor.actions.init>
    <@preamble()>

    <@body><ruleBody()><@end>
    <@postamble()>
    return <ruleReturnValue()>

# $ANTLR end "<ruleName>"
>>

```

```

ruleBody() ::= <<
<if(memoize)>
<if(backtracking)>
success = False<\n>
<endif>
<endif>
try:
  try:
    <ruleMemoization(name=ruleName)>
    <block>
    <ruleCleanup()>
    <(ruleDescriptor.actions.after):execAction()>

<if(memoize)>
<if(backtracking)>
  success = True<\n>
<endif>
<endif>
<if(exceptions)>
  <exceptions:{e|<catch(decl=e.decl,action=e.action)><\n>}>
<else>
<if(!emptyRule)>
<if(actions.(actionScope).rulecatch)>
  <actions.(actionScope).rulecatch>
<else>
  except RecognitionException as re:
    self.reportError(re)
    self.recover(self.input, re)
  <@setErrorReturnValue()>

<endif>
<else>
  finally:
    pass

<endif>
<endif>
finally:
<if(trace)>
  self.traceOut("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
  <memoize()>
  <ruleScopeCleanup()>
  <finally>
    pass
>>

```

```

catch(decl,action) ::= <<
except <e.decl>:
  <e.action>

>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval = self.<ruleDescriptor.name>_return()
retval.start = self.input.LT(1)<\n>
<elseif(ruleDescriptor.returnScope)>
<ruleDescriptor.returnScope.attributes: { a |
<a.name> = <if(a.initValue)><a.initValue><else>None<endif>
}>
<endif>
<if(memoize)>
<ruleDescriptor.name>_startIndex = self.input.index()
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: { it | self.<it>_stack.append(<it>_scope()); separator="\n">
<ruleDescriptor.ruleScope: { it | self.<it.name>_stack.append(<it.name>_scope()); separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: { it | self.<it>_stack.pop(); separator="\n">
<ruleDescriptor.ruleScope: { it | self.<it.name>_stack.pop(); separator="\n">
>>

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: { it | <it.label.text> = None }; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,
ruleDescriptor.wildcardTreeListLabels]
: { it | list_<it.label.text> = None }; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
<ruleDescriptor.ruleListLabels: { it | <it.label.text> = None }; separator="\n">
>>

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: { it | <it.label.text> = None }; separator="\n"

```

```

>
<ruleDescriptor.charLabels:{it | <it.label.text> = None}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
: {it | list_<it.label.text> = None}; separator="\n"
>
>>

ruleReturnValue() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
%>

ruleCleanUp() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
retval.stop
= self.input.LT(-1)<\n>
<endif>
<endif>
>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if self._state.backtracking > 0:
self.memoize(self.input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex, success)

<endif>
<endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
* fragment rules.
*/
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
# $ANTLR start "<ruleName>"
def m<ruleName>(self, <ruleDescriptor.parameterScope:parameterScope()>):
<if(trace)>
self.traceIn("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>

```

```

    <ruleScopeSetUp()>
    <ruleDeclarations()>
<if(memoize)>
<if(backtracking)>
    success = False<\n>
<endif>
<endif>
    try:
<if(nakedBlock)>
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block><\n>
<else>
    _type = <ruleName>
    _channel = DEFAULT_CHANNEL

    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block>
    <ruleCleanUp()>
    self._state.type = _type
    self._state.channel = _channel
    <(ruleDescriptor.actions.after):execAction()>
<endif>
<if(memoize)>
<if(backtracking)>
    success = True<\n>
<endif>
<endif>

    finally:
<if(trace)>
    self.traceOut("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
    <ruleScopeCleanUp()>
    <memoize()>
    pass

# $ANTLR end "<ruleName>"

>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */

```

```

tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
def mTokens(self):
    <block><\n>

>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
# <fileName>:<description>
alt<decisionNumber> = <maxAlt>
<decls>
<@body><blockBody()><@end>
>>

blockBody() ::= <<
<@predecision()>
<@decision><decision><@end>
<@postdecision()>
<@prebranch()>
<alts:{ a
| <altSwitchCase(i, a)>}; separator="\nel">
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
# <fileName>:<description>
alt<decisionNumber> = <maxAlt>
<decls>
<@predecision()>
<@decision><decision><@end>
<@postdecision()>
<alts:{ a | <altSwitchCase(i, a)>}; separator="\nel">
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
# <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<

```

```

# <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
 ::= <<
# <fileName>:<description>
cnt<decisionNumber> = 0
<decls>
<@preloop()>
<@loopBody>
<positiveClosureBlockLoop()>
<@end>
<@postloop()>
>>

positiveClosureBlockLoop() ::= <<
while True: #loop<decisionNumber>
  alt<decisionNumber> = <maxAlt>
  <@predecision()>
  <@decisionBody><decision><@end>
  <@postdecision()>
  <alts:{a | <altSwitchCase(i, a)>} ; separator="\n"
  else:
    if cnt<decisionNumber> >= 1:
      break #loop<decisionNumber>

  <ruleBacktrackFailure()>
  eee = EarlyExitException(<decisionNumber>, self.input)
  <@earlyExitException()>
  raise eee

  cnt<decisionNumber> += 1
>>

positiveClosureBlockSingleAlt ::= positiveClosureBlock

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
# <fileName>:<description>
<decls>
<@preloop()>

```

```

<@loopBody>
<closureBlockLoop()>
<@end>
<@postloop()>
>>

closureBlockLoop()
::= <<
while True: #loop<decisionNumber>
  alt<decisionNumber> = <maxAlt>
  <@predecision()>
  <@decisionBody><decision><@end>
  <@postdecision()>
  <alts:{a | <altSwitchCase(i, a)>} ; separator="\nel">
  else:
    break #loop<decisionNumber>
>>

closureBlockSingleAlt ::= closureBlock

/** Optional blocks (x)? are translated to (x|) by before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase(altNum,alt) ::= <<
if alt<decisionNumber> == <altNum>:
  <@prealt()>
  <alt>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt, treeLevel,rew) ::= <<
#
<fileName>:<description>
pass <! so empty alternatives are a valid block !>
<@declarations()>
<elements:element()>
<rew>
<@cleanup()>
>>

```



```

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// ELEMENTS

/** Dump the elements one per line */
element(e) ::= <<
<@prematch()>
<e.el><\n>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions={}) ::= <<
<if(label)><label> = <endif>self.match(self.input, <token>,
self.FOLLOW_<token>_in_<ruleName><elementIndex>)
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRef(token,label,elementIndex,terminalOptions)>
<listLabel(label, label)>
>>

listLabel(label, elem) ::= <<
if list_<label> is None:
    list_<label> = []
list_<label>.append(<elem>)<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = self.input.LA(1)<\n>
<endif>
self.match(<char>)
>>

/**
    match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = self.input.LA(1)<\n>
<endif>
self.matchRange(<a>, <b>)
>>

```

```

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="",terminalOptions={}) ::= <<
<if(label)>
<label> = self.input.LT(1)<\n>
<endif>
if <s>:
  self.input.consume()
  <postmatchCode>
<if(!LEXER)>
  self._state.errorRecovery = False<\n>
<endif>

else:
  <ruleBacktrackFailure()>
  mse = MismatchedSetException(None, self.input)
  <@mismatchedSetException()>
<if(LEXER)>
  self.recover(mse)
  raise mse
<else>
  raise mse
  <! use following code to make it recover inline; remove throw mse;
  self.recoverFromMismatchedSet(
    self.input, mse, self.FOLLOW_set_in_<ruleName><elementIndex>
  )
  !>
<endif>
<\n>
>>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(label, label)>
>>

/**
  Match a string literal */
lexerStringRef(string,label,elementIndex="0") ::= <<
<if(label)>
<label>Start = self.getCharIndex()
self.match(<string>)
<label>StartLine<elementIndex> = self.getLine()
<label>StartCharPos<elementIndex> = self.getCharPositionInLine()
<label> = <labelType>(input=self.input, type=INVALID_TOKEN_TYPE, channel=DEFAULT_CHANNEL,
start=<label>Start, stop=self.getCharIndex()-1)
<label>.line = <label>StartLine<elementIndex>

```

```

<label>.charPositionInLine = <label>StartCharPos<elementIndex>
<else>
self.match(<string>)
<endif>
>>

wildcard(token,label,elementIndex,terminalOptions={}) ::= <<
<if(label)>
<label> = self.input.LT(1)<\n>
<endif>
self.matchAny()
>>

wildcardAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<wildcard(...)>
<listLabel(label,label)>
>>

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = self.input.LA(1)<\n>
<endif>
self.matchAny()
>>

wildcardCharListLabel(label, elementIndex) ::=
<<
<wildcardChar(label, elementIndex)>
<listLabel(label, label)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
self._state.following.append(self.FOLLOW_<rule.name>_in_<ruleName><elementIndex>)
<if(label)><label> = <endif>self.<if(scope)><scope:delegateName()>.<endif><rule.name>(<args; separator="
">)<\n>
self._state.following.pop()
>>

/** ids+=rule */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(rule,label,elementIndex,args,scope)>

```

```

<listLabel(label, label)>
>>

/** A lexer rule reference
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope)
 ::= <<
<if(label)>
<label>Start<elementIndex> = self.getCharIndex()
self.<if(scope)><scope:delegateName().<endif>m<rule.name>(<args; separator=", ">)
<label>StartLine<elementIndex> = self.getLine()
<label>StartCharPos<elementIndex> = self.getCharPositionInLine()
<label> = <labelType>(
  input=self.input,
  type=INVALID_TOKEN_TYPE,
  channel=DEFAULT_CHANNEL,
  start=<label>Start<elementIndex>,
  stop=self.getCharIndex()-1)
<label>.line = <label>StartLine<elementIndex>
<label>.charPositionInLine = <label>StartCharPos<elementIndex>
<else>
self.<if(scope)><scope:delegateName().<endif>m<rule.name>(<args; separator=", ">)
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(rule,label,args,elementIndex,scope)>
<listLabel(label, label)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
<label>Start<elementIndex> = self.getCharIndex()
<label>StartLine<elementIndex>
= self.getLine()
<label>StartCharPos<elementIndex> = self.getCharPositionInLine()
self.match(EOF)
<label> = <labelType>(input=self.input, type=EOF, channel=DEFAULT_CHANNEL,
start=<label>Start<elementIndex>, stop=self.getCharIndex()-1)
<label>.line = <label>StartLine<elementIndex>
<label>.charPositionInLine = <label>StartCharPos<elementIndex>
<else>
self.match(EOF)

```

```

<endif>
>>

// used for left-recursive rules
recRuleDefArg()          ::= "<recRuleArg()>"
recRuleArg()             ::= "_p"
recRuleAltPredicate(ruleName, opPrec) ::= "<recRuleArg()> |<= <opPrec>"
recRuleSetResultAction() ::= "root_0 = $<ruleName>_primary.tree"
recRuleSetReturnAction(src, name)  ::= "$<name> = $<src>.<name>"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
    enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if self.input.LA(1) == DOWN:
    self.match(self.input,
        DOWN, None)
    <children:element()>
    self.match(self.input, UP, None)

<else>
self.match(self.input, DOWN, None)
<children:element()>
self.match(self.input, UP, None)
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if not (<evalPredicate(pred, description)>):
    <ruleBacktrackFailure()>
    raise FailedPredicateException(self.input, "<ruleName>", "<description>")

>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = self.input.LA(<k>)<\n>
<edges; separator="\n">
else:
<if(eotPredictsAlt)>
    alt<decisionNumber> = <eotPredictsAlt>
<else>

```

```

<ruleBacktrackFailure()>
  nvae = NoViableAltException("<description>", <decisionNumber>, <stateNumber>, self.input)<\n>
  <@noViableAltException()>
  raise nvae<\n>
<endif>
>>

/**
  Same as a normal DFA state except that we don't examine lookahead
  * for the bypass alternative. It delays error detection but this
  * is faster, smaller, and more what people expect. For (X)? people
  * expect "if ( LA(1)==X ) match(X);" and that's it.
  */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = self.input.LA(<k>)<\n>
<edges; separator="\n" >
>>

/** A DFA state that is actually the loopback decision of a closure
  * loop. If end-of-token (EOT) predicts any of the targets then it
  * should act like a default clause (i.e., no error can be generated).
  * This is used only in the lexer so that for ('a')* on the end of a rule
  * anything other than 'a' predicts exiting.
  */
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = self.input.LA(<k>)<\n>
<edges; separator="\n" ><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber>
= <eotPredictsAlt> <! if no edges, don't gen ELSE !>
<else>
else:
  alt<decisionNumber> = <eotPredictsAlt>
<\n>
<endif>
<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber> = <alt>"

/** A simple edge with an expression. If the expression is satisfied,
  * enter to the target state. To handle gated productions, we may
  * have to evaluate some predicates for this edge.
  */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if (<labelExpr>) <if(predicates)>and (<predicates>)<endif>:

```

```

    <targetState>
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
<!
  FIXME: this is one of the few occasion, where I miss a switch statement
  in Python. ATM this is implemented as a list of if .. elif ..
  This
  may be replaced by faster a dictionary lookup, when I find a solution
  for the cases when an edge is not a plain dfaAcceptState.
!>
LA<decisionNumber> = self.input.LA(<k>)
<edges; separator="\n">
else:
<if(eotPredictsAlt)>
  alt<decisionNumber> = <eotPredictsAlt>
<else>
  <ruleBacktrackFailure()>
  nvae = NoViableAltException("<description>", <decisionNumber>, <stateNumber>, self.input)<\n>
  <@noViableAltException()>
  raise nvae<\n>
<endif>

>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber> = self.input.LA(<k>)
<edges; separator="\n">
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber> = self.input.LA(<k>)
<edges; separator="\n">
<if(eotPredictsAlt)>
else:
  alt<decisionNumber> = <eotPredictsAlt>
<endif>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
if LA<decisionNumber> in {<labels; separator=",">}:
  <targetState>
>>

```

```

// C y c l
i c D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = self.dfa<decisionNumber>.predict(self.input)
>>

/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */
cyclicDFA(dfa) ::= <<
# lookup tables for DFA #<dfa.decisionNumber>

DFA<dfa.decisionNumber>_eot = DFA.unpack(
    "<dfa.javaCompressedEOT; wrap=\"\\n \\\">"
)

DFA<dfa.decisionNumber>_eof = DFA.unpack(
    "<dfa.javaCompressedEOF; wrap=\"\\n \\\">"
)

DFA<dfa.decisionNumber>_min = DFA.unpack(
    "<dfa.javaCompressedMin; wrap=\"\\n \\\">"
)

DFA<dfa.decisionNumber>_max = DFA.unpack(
    "<dfa.javaCompressedMax; wrap=\"\\n \\\">"
)

DFA<dfa.decisionNumber>_accept = DFA.unpack(
    "<dfa.javaCompressedAccept; wrap=\"\\n \\\">"
)

DFA<dfa.decisionNumber>_special = DFA.unpack(
    "<dfa.javaCompressedSpecial; wrap=\"\\n \\\">"
)

```



```

DFA<dfa.decisionNumber>_transition = [
  <dfa.javaCompressedTransition:{s|DFA.unpack("<s; wrap=\"\n\"")}); separator=",\n">
]

# class definition for DFA #<dfa.decisionNumber>

class DFA<dfa.decisionNumber>(DFA):
  pass

  <@errorMethod()>

  <if(dfa.specialStateSTs)>
  def specialStateTransition(self_, s, input):
    # convince pylint that my self_ magic is ok ;
    # pylint: disable-msg=E0213

    # pretend we are a member of the recognizer
    # thus semantic predicates can be evaluated
    self = self._recognizer

    _s = s

    <dfa.specialStateSTs:{state
| if s == <i0>: <! compressed special state numbers 0..n-1 !>
<state>}; separator="\n!>

  <if(backtracking)>
    if self._state.backtracking > 0:
      raise BacktrackingFailed

  <endif>
    nvae = NoViableAltException(self_.getDescription(), <dfa.decisionNumber>, _s, input)
    self_.error(nvae)
    raise nvae<\n>
  <endif>

  >>

  cyclicDFAInit(dfa) ::= <<
self.dfa<dfa.decisionNumber> = self.DFA<dfa.decisionNumber>(
  self, <dfa.decisionNumber>,
  eot = self.DFA<dfa.decisionNumber>_eot,
  eof = self.DFA<dfa.decisionNumber>_eof,
  min = self.DFA<dfa.decisionNumber>_min,
  max = self.DFA<dfa.decisionNumber>_max,
  accept = self.DFA<dfa.decisionNumber>_accept,
  special = self.DFA<dfa.decisionNumber>_special,
  transition = self.DFA<dfa.decisionNumber>_transition

```

```

    )<\n>
>>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
 * state.
 */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState)
 ::= <<
LA<decisionNumber>_<stateNumber> = input.LA(1)<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
index<decisionNumber>_<stateNumber> = input.index()
input.rewind()<\n>
<endif>
s = -1
<edges; separator="\n!">
<if(semPredState)> <! return input cursor to state before we rewound !>
input.seek(index<decisionNumber>_<stateNumber>)<\n>
<endif>
if s >= 0:
    return s
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if (<labelExpr>)<if(predicates)> and (<predicates>)<endif>:
    s = <targetStateNumber><\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
se:
    s = <targetStateNumber><\n>
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "((<left>) and (<right>))"

orPredicates(operands)
 ::= "(<operands; separator=\" or \">>)"

notPredicate(pred) ::= "not (<evalPredicate(pred, { })>)"

```

```

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "self.<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber> == <atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "self.input.LA(<k>) == <atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
<lower> \<= LA<decisionNumber>_<stateNumber> \<= <upper>
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "<lower> \<=
self.input.LA(<k>) \<= <upper>"

lookaheadSetTest(values,k,valuesAsInt) ::= <%
LA<decisionNumber>_<stateNumber> in {<values; separator="," ">}
%>

isolatedLookaheadSetTest(values,k,valuesAsInt) ::= <%
self.input.LA(<k>) in {<values; separator="," ">}
%>

lookaheadVarName(k)
::= "LA<decisionNumber>_<stateNumber>"
isolatedLookaheadVarName(k) ::= "self.input.LA(<k>)"

setTest(ranges) ::= "<ranges; separator=\" or \>"

// A T T R I B U T E S

globalAttributeScopeClass(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
class <scope.name>_scope(object):
  def __init__(self):
    <scope.attributes:{it | self.<it.decl> = None}; separator="\n">

<endif>
<endif>
>>

globalAttributeScopeStack(scope) ::= <<
<if(scope)>
<if(scope.attributes)>

```

```

self.<scope.name>_stack = []<\n>
<endif>
<endif>
>>

ruleAttributeScopeClass(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
class <scope.name>_scope(object):
    def __init__(self):
        <scope.attributes:{it | self.<it.decl> = None}; separator="\n">

<endif>
<endif>
>>

ruleAttributeScopeStack(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
self.<scope.name>_stack = []<\n>
<endif>
<endif>
>>

delegateName(d) ::= <<
<if(d.label)><d.label><else>g<d.name><endif>
>>

/** Define a rule label including
    default value */
ruleLabelDef(label) ::= <<
<label.label.text> = None
>>

returnStructName(r) ::= "<r.name>_return"

/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
class <ruleDescriptor:returnStructName()><(if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope):
    def __init__(self):
        super().__init__()

        <if(scope)><scope.attributes:{it | self.<it.decl> = None}; separator="\n"><endif>
        <@ruleReturnInit()>

```

```

<@ruleReturnMembers()>

<endif>
>>

parameterScope(scope) ::= <<
<if(scope)><scope.attributes:{it | <it.decl>}; separator=", "><endif>
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> = <expr>"

scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
self.<scope>_stack[-<negIndex>].<attr.name>
<else>
<if(index)>
self.<scope>_stack[<index>].<attr.name>
<else>
self.<scope>_stack[-1].<attr.name>
<endif>
<endif>
%>

/*
not applying patch because of bug in action parser!

<if(negIndex)>
((len(self.<scope>_stack) - <negIndex> - 1) >= 0 and [self.<scope>_stack[-<negIndex>].<attr.name>] or [None])[0]
<else>
<if(index)>
((<index> < len(self.<scope>_stack)) and [self.<scope>_stack[<index>].<attr.name>] or [None])[0]
<else>
((len(self.<scope>_stack) > 0) and [self.<scope>_stack[-1].<attr.name>] or [None])[0]
<endif>
<endif>

*/

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
<if(negIndex)>
<!--FIXME: this seems not to be used by ActionTranslator...!-->
self.<scope>_stack[-<negIndex>].<attr.name> = <expr>
<else>
<if(index)>
<!--FIXME: this seems not to be used by ActionTranslator...!-->

```

```

self.<scope>_stack[<index>].<attr.name> = <expr>
<else>
self.<scope>_stack[-1].<attr.name> = <expr>
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {function.size()>0 && function::name.equals("foo")}?
 */
isolatedDynamicScopeRef(scope) ::= "self.<scope>_stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
((<scope> is not None) and [<scope>.<attr.name>] or [None])[0]
<else>
<scope>
<endif>
%>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
<attr.name>
<endif>
%>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> = <expr>
<else>
<attr.name> = <expr>
<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach; and they are evaluated early;
// they cannot

```

see TREE\_PARSER or PARSER attributes for example. :(

```
tokenLabelPropertyRef_text(scope,attr) ::= "<scope>.text"
tokenLabelPropertyRef_type(scope,attr) ::= "<scope>.type"
tokenLabelPropertyRef_line(scope,attr) ::= "<scope>.line"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>.charPositionInLine"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>.channel"
tokenLabelPropertyRef_index(scope,attr) ::= "<scope>.index"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"

ruleLabelPropertyRef_start(scope,attr) ::= "<scope>.start"
ruleLabelPropertyRef_stop(scope,attr) ::= "<scope>.stop"
ruleLabelPropertyRef_tree(scope,attr) ::= "<scope>.tree"
ruleLabelPropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
((<scope> is not None) and [self.input.getTokenStream().toString(
    self.input.getTreeAdaptor().getTokenStartIndex(<scope>.start),
    self.input.getTreeAdaptor().getTokenStopIndex(<scope>.start)
    ]) or [None])[0]
<else>
((<scope> is not None) and [self.input.toString(<scope>.start,<scope>.stop)]
or [None])[0]
<endif>
%>
ruleLabelPropertyRef_st(scope,attr) ::= "((<scope> is not None) and [<scope>.st] or [None])[0]"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "((<scope> is not None) and [<scope>.type] or [0])[0]"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "((<scope> is not None) and [<scope>.line] or [0])[0]"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "((<scope> is not None) and [<scope>.charPositionInLine] or [0])[0]"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "((<scope> is not None) and [<scope>.channel] or [0])[0]"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "((<scope> is not None) and [<scope>.index] or [0])[0]"
lexerRuleLabelPropertyRef_text(scope,attr) ::= "((<scope> is not None) and [<scope>.text] or [None])[0]"
lexerRuleLabelPropertyRef_int(scope,attr) ::= "((<scope> is not None) and [int(<scope>.text)] or [0])[0]"

// Somebody may ref $template
or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "retval.start"
rulePropertyRef_stop(scope,attr) ::= "retval.stop" //mmm... or input.LT(-1)??
rulePropertyRef_tree(scope,attr) ::= "retval.tree"
rulePropertyRef_text(scope,attr) ::= "self.input.toString(retval.start, self.input.LT(-1))"
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "self.text"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
```

```
lexerRulePropertyRef_line(scope,attr) ::= "self._state.tokenStartLine"  
lexerRulePropertyRef_pos(scope,attr) ::= "self._state.tokenStartCharPositionInLine"  
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer  
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"  
lexerRulePropertyRef_start(scope,attr) ::= "self._state.tokenStartCharIndex"  
lexerRulePropertyRef_stop(scope,attr) ::= "(self.getCharIndex()-1)"  
lexerRulePropertyRef_int(scope,attr) ::= "int(<scope>.text)"
```

```
// setting $st and $tree is allowed
```

```
in local rule. everything else
```

```
// is flagged as error
```

```
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree =<expr>"
```

```
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>"
```

```
/** How to execute an action (only when not backtracking) */
```

```
execAction(action) ::= <<
```

```
<if(backtracking)>
```

```
<if(actions.(actionScope).synpredgate)>
```

```
if <actions.(actionScope).synpredgate>:
```

```
    pass
```

```
    <action>
```

```
<else>
```

```
if <actions.(actionScope).synpredgate>:
```

```
    pass
```

```
    <action>
```

```
<endif>
```

```
<else>
```

```
#action start
```

```
<action>
```

```
#action end
```

```
<endif>
```

```
>>
```

```
/** How to always execute an action even when backtracking */
```

```
execForcedAction(action) ::= "<action>"
```

```
// M I S C (properties, etc...)
```

```
codeFileExtension() ::= ".py"
```

```
true_value() ::= "True"
```

```
false_value() ::= "False"
```

```
Found in path(s):
```



\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-

jar/org/antlr/codegen/templates/Python3/Python3.stg

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\*/

/\*\* Templates for building ASTs during normal parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* The situation is not too bad as rewrite (->) usage makes ^ and !

\* invalid.

There is no huge explosion of combinations.

```
*/

@rule.setErrorReturnValue() ::= <<
retval.Tree = (<ASTLabelType>)adaptor.ErrorNode(input, retval.Start, input.LT(-1), re);
<! System.out.WriteLine("<ruleName> returns "+((CommonTree)retval.tree).toStringTree()); !>
>>

// TOKEN AST STUFF

/** ID and output=AST */
tokenRef(token,label,elementIndex,terminalOptions={}) ::= <%
<super.tokenRef(...)>
<if(!ruleDescriptor.isSynPred)>
<if(backtracking)><\n>if (state.backtracking == 0) {<endif>
<\n><label>_tree = <createNodeFromToken(...)>;
<\n>adaptor.AddChild(root_0, <label>_tree);
<if(backtracking)><\n>}<endif>
<endif>
%>

/** ID! and output=AST (same as plain tokenRef) */
tokenRefBang(token,label,elementIndex,terminalOptions={}) ::= "<super.tokenRef(...)>"

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions={}) ::= <%
<super.tokenRef(...)>
<if(!ruleDescriptor.isSynPred)>
<if(backtracking)><\n>if (<actions.(actionScope).synpredgate>) {<endif>
<\n><label>_tree =
<createNodeFromToken(...)>;
<\n>root_0 = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_0);
<if(backtracking)><\n>}<endif>
<endif>
%>

/** ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRefBang(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRef(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>
```

```

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRefRuleRoot(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending
// on the operator. I don't like making
// the template name have the operator as the number of templates gets
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label plus ... The combinations might require complicated
// rather than just added on code. Investigate that refactoring when
// I have more time.

matchSet(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= <<
<super.matchSet(postmatchCode={ <if(!ruleDescriptor.isSynPred)><if(backtracking)>if
(<actions.(actionScope).synpredgate>) <endif>adaptor.AddChild(root_0, <createNodeFromToken(...)>);<endif>},
...)>
>>

matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={}) ::= <<
<matchSet(...)>
>>

matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= "<super.matchSet(...)>"

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts:
(A|B|...|C)

matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={}) ::= <<
<if(label)>
<label>=(<labelType>)input.LT(1);
<endif>
<super.matchSet(postmatchCode={ <if(!ruleDescriptor.isSynPred)><if(backtracking)>if
(<actions.(actionScope).synpredgate>) <endif>root_0 =
(<ASTLabelType>)adaptor.BecomeRoot(<createNodeFromToken(...)>, root_0);<endif>}, ...)>
>>

// RULE REF AST

/** rule when output=AST */

```

```

ruleRef(rule,label,elementIndex,args,scope) ::= <%
<super.ruleRef(...)>
<if(!ruleDescriptor.isSynPred)>
<\n><if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>adaptor.AddChild(root_0, <label>.Tree);
<endif>
%>

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>root_0 =
(<ASTLabelType>)adaptor.BecomeRoot(<label>.Tree, root_0);
>>

/** x+=rule when
output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabelElem(elem={<label>.Tree},elemType=ASTLabelType,...)>
>>

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefBang(...)>
<listLabelElem(elem={<label>.Tree},elemType=ASTLabelType,...)>
>>

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabelElem(elem={<label>.Tree},elemType=ASTLabelType,...)>
>>

// WILDCARD AST

wildcard(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.wildcard(...)>
<if(!ruleDescriptor.isSynPred)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<label>_tree = (<ASTLabelType>)adaptor.Create(<label>);
adaptor.AddChild(root_0, <label>_tree);
<if(backtracking)>}<endif>
<endif>
>>

```

```
wildcardBang(label,elementIndex) ::= "<super.wildcard(token=[],...)>"
```

```
wildcardRuleRoot(token,label,elementIndex,terminalOptions={ })  
 ::= <<  
 <super.wildcard(...)>  
 <if(!ruleDescriptor.isSynPred)>  
 <if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>  
 <label>_tree = (<ASTLabelType>)adaptor.Create(<label>);  
 root_0 = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_0);  
 <if(backtracking)>}<endif>  
 <endif>  
 >>
```

```
createNodeFromToken(label,terminalOptions={ }) ::= <%  
 <if(terminalOptions.node)>  
 new  
 <terminalOptions.node><if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.text)>,<terminalOptions.text; format="string"><endif>  
 <else>  
 (<ASTLabelType>)adaptor.Create(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.text)>,<terminalOptions.text; format="string"><endif>  
 <endif>  
 %>
```

```
ruleCleanUp() ::= <<  
 <super.ruleCleanUp()>  
 <if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>  
 retval.Tree = (<ASTLabelType>)adaptor.RulePostProcessing(root_0);  
 adaptor.SetTokenBoundaries(retval.Tree, retval.Start, retval.Stop);  
 <if(backtracking)>}<endif>  
 >>
```

Found

in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/CSharp3/ASTParser.stg

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\*/

/\*\* Template overrides to add debugging to AST stuff. Dynamic inheritance

\* hierarchy is set up as ASTDbg : AST : Dbg : Java by code generator.

\*/

```
parserMembers() ::= <<
```

```
protected DebugTreeAdaptor adaptor;
```

```
public void setTreeAdaptor(TreeAdaptor adaptor) {
```

```
<if(grammar.grammarIsRoot)>
```

```
    this.adaptor = new DebugTreeAdaptor(dbg, adaptor);
```

```
<else>
```

```
    this.adaptor = (DebugTreeAdaptor) adaptor; // delegator sends dbg adaptor
```

```
<endif>
```

```
    <grammar.directDelegates: {g|<g:delegateName()>.setTreeAdaptor(this.adaptor);}>
```

```
}
```

```
public
```

```
TreeAdaptor getTreeAdaptor() {
```

```
    return adaptor;
```

```
}
```

```
>>
```

```
parserCtorBody() ::= <<
```

```
<super.parserCtorBody()>
```

```
>>
```

```
createListenerAndHandshake() ::= <<
```

```
DebugEventSocketProxy proxy =
```

```
new DebugEventSocketProxy(this, port, <if(TREE_PARSER)>input.getTreeAdaptor()<else>adaptor<endif>);
```

```
setDebugListener(proxy);
```

```
set<inputStreamType>(new Debug<inputStreamType>(input, proxy));
```

```

try {
    proxy.handshake();
}
catch (IOException ioe) {
    reportError(ioe);
}
>>

@ctorForRootGrammar.finally() ::= <<
TreeAdaptor adap = new CommonTreeAdaptor();
setTreeAdaptor(adap);
proxy.setTreeAdaptor(adap);
>>

@ctorForProfilingRootGrammar.finally() ::= <<
TreeAdaptor adap = new CommonTreeAdaptor();
setTreeAdaptor(adap);
>>

@ctorForPredefinedListener.superClassRef() ::= "super(input, dbg);"

@ctorForPredefinedListener.finally() ::= <<
<if(grammar.grammarIsRoot)> <! don't create new adaptor for delegates !>
TreeAdaptor adap = new CommonTreeAdaptor();
setTreeAdaptor(adap);
<endif>
>>

@rewriteElement.pregen()
::= "dbg.location(<e.line>,<e.pos>);"

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Java/ASTDbg.stg

```

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\*/

/\*\* Templates for building ASTs during normal parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* The situation is not too bad as rewrite (->) usage makes ^ and !

\* invalid. There is no huge explosion of combinations.

\*/

```
finishedBacktracking(block) ::= <<
```

```
<if(!ruleDescriptor.isSynPred)>
```

```
<if(backtracking)>
```

```
if <actions.(actionScope).synpredgate>:
```

```
  <block>
```

```
<else>
```

```
<block>
```

```
<endif>
```

```
<endif>
```

```
>>
```

```
@ruleBody.setErrorReturnValue() ::= <<
```

```
retval.tree = self._adaptor.errorNode(self.input, retval.start, self.input.LT(-1), re)
```

```
>>
```

```
// TOKEN AST STUFF
```

```
/** ID and output=AST */
```

```
tokenRef(token,label,elementIndex,terminalOptions={}) ::= <<
```



```

<super.tokenRef(...)>
<finishedBacktracking({
<label>_tree = <createNodeFromToken(...)>
self._adaptor.addChild(root_0, <label>_tree)
})>
>>

/** ID! and output=AST (same as plain tokenRef) */
tokenRefBang(token,label,elementIndex,terminalOptions={ }) ::= "<super.tokenRef(...)>"

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.tokenRef(...)>
<finishedBacktracking({
<label>_tree = <createNodeFromToken(...)>
root_0 = self._adaptor.becomeRoot(<label>_tree, root_0)
})>
>>

/** ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefBang(...)>
<listLabel(elem=label,...)>
>>

/**
label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending on the operator. I don't like making
// the template name have the operator as the number of templates gets
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label plus ... The combinations might require complicated

```

```

// rather than just added on code. Investigate
// that refactoring when
// I have more time.

matchSet(s,label,elementIndex,postmatchCode,terminalOptions={ }) ::= <%
<super.matchSet(postmatchCode={ <finishedBacktracking({self._adaptor.addChild(root_0,
<createNodeFromToken(...>)}>)}, ...)>
%>

matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={ }) ::= <<
<matchSet(...)>
>>

matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={ }) ::= "<super.matchSet(...)>"

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts: (A|B|...|C)

matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={ }) ::= <<
<if(label)>
<label> = self.input.LT(1)<\n>
<endif>
<super.matchSet(postmatchCode={ <finishedBacktracking({ root_0 =
self._adaptor.becomeRoot(<createNodeFromToken(...)>, root_0)}>)}, ...)>
>>

// RULE REF AST

/** rule when output=AST */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<finishedBacktracking({self._adaptor.addChild(root_0,
<label>.tree}))>
>>

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<finishedBacktracking({root_0 = self._adaptor.becomeRoot(<label>.tree, root_0)}>
>>

/** x+=rule when output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(label, {<label>.tree})>

```

```

>>

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefBang(...)>
<listLabel(label, {<label>.tree})>
>>

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabel(label, {<label>.tree})>
>>

// WILDCARD AST

wildcard(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.wildcard(...)>
<finishedBacktracking({
<label>_tree = self._adaptor.createWithPayload(<label>)
self._adaptor.addChild(root_0,
<label>_tree)
})>
>>

wildcardBang(label,elementIndex) ::= "<super.wildcard(...)>"

wildcardRuleRoot(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.wildcard(...)>
<finishedBacktracking({
<label>_tree = self._adaptor.createWithPayload(<label>)
root_0 = self._adaptor.becomeRoot(<label>_tree, root_0)
})>
>>

createNodeFromToken(label,terminalOptions={ }) ::= <%
<if(terminalOptions.node)>
<terminalOptions.node>(<label>) <! new MethodNode(IDLabel) !>
<else>
self._adaptor.createWithPayload(<label>)
<endif>
%>

ruleCleanUp() ::= <<
<super.ruleCleanUp()>
<finishedBacktracking({
retval.tree = self._adaptor.rulePostProcessing(root_0)
self._adaptor.setTokenBoundaries(retval.tree, retval.start, retval.stop)

```

})>

>>

Found in path(s):

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\*/

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\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

```

* The situation is not too bad as rewrite (->) usage makes ^ and !
* invalid. There is no huge explosion of
  combinations.
*/
group ASTParser;

@rule.setErrorReturnValue() ::= <<
RetVal.Tree := Adaptor.ErrorNode(Input, RetVal.Start as IToken,
  Input.LT(-1), RE) as I<ASTLabelType>;
>>

// TOKEN AST STUFF

/** ID and output=AST */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<super.tokenRef(...)>
<if(backtracking)>
if (State.Backtracking = 0) then
begin<\n>
<endif>
<label>_tree := <createNodeFromToken(...)>;
Adaptor.AddChild(Root[0], <label>_tree);
<if(backtracking)>
end;
<endif>
>>

/** ID! and output=AST (same as plain tokenRef) */
tokenRefBang(token,label,elementIndex) ::= "<super.tokenRef(...)>"

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
<super.tokenRef(...)>
<if(backtracking)>
if (State.Backtracking = 0) then
begin
<endif>
<label>_tree := <createNodeFromToken(...)>;
Root[0] := Adaptor.BecomeRoot(<label>_tree, Root[0]) as I<ASTLabelType>;
<if(backtracking)>
end;
<endif>
>>

/** ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions)
::= <<
<tokenRefBang(...)>

```

```

<listLabel(elem=label,...)>
>>

/** label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,terminalOptions,elementIndex) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending on the operator. I don't like making
// the template name have the operator as the number of templates gets
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label
// plus ... The combinations might require complicated
// rather than just added on code. Investigate that refactoring when
// I have more time.

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
<super.matchSet(..., postmatchCode={<if(backtracking)>if (State.Backtracking = 0) then
<endif>Adaptor.AddChild(Root[0], <createNodeFromToken(...)>);})>
>>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
<matchSet(...)>
>>

matchSetBang(s,label,elementIndex,postmatchCode) ::= "<super.matchSet(...)>"

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts: (A|B|...|C)

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
<if(label)>
<label> := Input.LT(1) as I<labelType>;<\n>
<endif>
<super.matchSet(..., postmatchCode={<if(backtracking)>if (State.Backtracking = 0) then <endif>Root[0] :=

```

```

Adaptor.BecomeRoot(<createNodeFromToken(...)>, Root[0]) as I<ASTLabelType>;})>
>>

// RULE REF
AST

/** rule when output=AST */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (State.Backtracking = 0) then <endif>Adaptor.AddChild(Root[0], <label>.Tree);
>>

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (State.Backtracking = 0) then <endif>Root[0] := Adaptor.BecomeRoot(<label>.Tree, Root[0])
as I<ASTLabelType>;
>>

/** x+=rule when output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(elem=label+".Tree",...)>
>>

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefBang(...)>
<listLabel(elem=label+".Tree",...)>
>>

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabel(elem=label+".Tree",...)>
>>

//
WILDCARD AST

wildcard(label,elementIndex) ::= <<
<super.wildcard(...)>
<if(backtracking)>
if (State.Backtracking = 0) then
begin

```

```

<endif>
<label>_tree := Adaptor.CreateNode(<label>) as I<ASTLabelType>;
Adaptor.AddChild(Root[0], <label>_tree);
<if(backtracking)>
end;
<endif>
>>

```

```
wildcardBang(label,elementIndex) ::= "<super.wildcard(...)>"
```

```

wildcardRuleRoot(label,elementIndex) ::= <<
<super.wildcard(...)>
<if(backtracking)>
if (State.Backtracking = 0) then
begin
<endif>
<label>_tree := Adaptor.CreateNode(<label>) as I<ASTLabelType>;
Root[0] := Adaptor.BecomeRoot(<label>_tree, Root[0]) as I<ASTLabelType>;
<if(backtracking)>
end;
<endif>
>>

```

```

createNodeFromToken(label,terminalOptions) ::= <<
<if(terminalOptions.node)>
T<terminalOptions.node>.Create(<label>) <! new MethodNode(IDLabel) !>
<else>
Adaptor.CreateNode(<label>) as I<ASTLabelType>
<endif>
>>

```

```

ruleCleanUp() ::= <<
<super.ruleCleanUp()>
<if(backtracking)>
if (State.Backtracking = 0)
then
begin<\n>
<endif>
RetVal.Tree := Adaptor.RulePostProcessing(Root[0]) as I<ASTLabelType>;
<if(!TREE_PARSER)>
Adaptor.SetTokenBoundaries(RetVal.Tree, RetVal.Start as IToken, RetVal.Stop as IToken);
<endif>
<if(backtracking)>
<\n>end;
<endif>
>>

```

Found in path(s):



```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-  
jar/org/antlr/codegen/templates/Delphi/ASTParser.stg
```

No license file was found, but licenses were detected in source scan.

```
/*
```

```
[The "BSD license"]
```

```
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```

```
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```

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```

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```
*/
```

```
group Perl5;
```

```
/** The overall file structure of a recognizer; stores methods for rules
```

```
* and cyclic DFAs plus support code.
```

```
*/
```

```
outputFile(LEXER,PARSER,TREE_PARSER, actionScope, actions,
```

```
    docComment, recognizer,
```

```
    name, tokens, tokenNames, rules, cyclicDFAs,
```

```
    bitsets, buildTemplate, buildAST, rewriteMode, profile,
```

```
    backtracking, synpreds, memoize, numRules,
```

```
    fileName, ANTLRVersion, generatedTimestamp, trace,
```

```
    scopes, superClass, literals) ::=
```

```
<<
```

```

# $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>
<actions.(actionScope).header>

<@imports>
<if(TREE_PARSER)>
<endif>
<if(backtracking)>
<endif>
<@end>

<docComment>
<recognizer>
>>

lexer(grammar, name, tokens, scopes, rules, numRules, labelType="Token",
    filterMode, superClass="ANTLR::Runtime::Lexer") ::= <<
package <name>;

use Carp;
use English qw( -no_match_vars );
use Readonly;
use Switch;

use ANTLR::Runtime::BaseRecognizer;
use ANTLR::Runtime::DFA;
use ANTLR::Runtime::NoViableAltException;

use Moose;

extends 'ANTLR::Runtime::Lexer';

Readonly my $HIDDEN => ANTLR::Runtime::BaseRecognizer->HIDDEN;
sub HIDDEN { $HIDDEN }

use constant {
    <tokens:{ <it.name> => <it.type>, }; separator="\n">
};
<scopes:{<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>
<actions.lexer.members>

sub BUILD {
    my ($self, $arg_ref) = @_ ;

    $self->init_dfas();
}

sub get_grammar_file_name {
    return "<fileName>";
}

```

```

}

<if(filterMode)>
<filteringNextToken()>
<endif>
<rules;
separator="\n\n">

<synpreds:{p | <lexerSynpred(p)>>

<cyclicDFAs:{dfa | has 'dfa<dfa.decisionNumber>';}; separator="\n">

sub init_dfas {
  my ($self) = @_ ;

  <cyclicDFAs:{dfa |
  $self->dfa<dfa.decisionNumber>(<name>::DFA<dfa.decisionNumber>->new({ recognizer => $self }));
  }; separator="\n">

  return;
}

<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

no Moose;
__PACKAGE__->meta->make_immutable();
1;

>>

perlTypeInitMap ::= [
  "$":"undef",
  "@":"()",
  "%":"()",
  default:"undef"
]

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
public Token nextToken() {
  while (true) {
    if ( input.LA(1)==CharStream.EOF

```

```

) {
    return Token.EOF_TOKEN;
}
token = null;
channel = Token.DEFAULT_CHANNEL;
tokenStartCharIndex = input.index();
tokenStartCharPositionInLine = input.getCharPositionInLine();
tokenStartLine = input.getLine();
text = null;
try {
    int m = input.mark();
    backtracking=1; <!-- means we won't throw slow exception !>
    failed=false;
    mTokens();
    backtracking=0;
    <!-- mTokens backtracks with synpred at backtracking==2
    and we set the synpredgate to allow actions at level 1. !>
    if ( failed ) {
        input.rewind(m);
        input.consume(); <!-- advance one char and try again !>
    }
    else {
        emit();
        return token;
    }
}
catch (RecognitionException re) {
    // shouldn't happen in backtracking mode, but...
    reportError(re);

    recover(re);
}
}
}

public void memoize(IntStream input,
    int ruleIndex,
    int ruleStartIndex)
{
    if ( backtracking>1 ) super.memoize(input, ruleIndex, ruleStartIndex);
}

public boolean alreadyParsedRule(IntStream input, int ruleIndex) {
    if ( backtracking>1 ) return super.alreadyParsedRule(input, ruleIndex);
    return false;
}
}
>>

```

```

actionGate() ::= "$self->state->backtracking==0"

filteringActionGate() ::= "backtracking==1"

/** How to generate a parser */
genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
              bitsets, inputStreamType, superClass, filterMode,
              ASTLabelType="Object", labelType, members) ::= <<
package <name>;

use English qw( -no_match_vars );
use Readonly;
use Switch;
use Carp;
use ANTLR::Runtime::BitSet;

use Moose;

extends '<@superClassName><superClass><@end>';

Readonly my $token_names => [
    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>", <tokenNames; separator=", ">
];

use constant {
    <tokens:{ <it.name>
    => <it.type>, }; separator="\n">
};

<bitsets:bitset(name={ FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>},
                words64=it.bits)>

<scopes:{<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>
<@members>
<! WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>

sub BUILD {
    my ($self, $arg_ref) = @_;

    <if(backtracking)>
        $self->state->rule_memo({});<\n>
    <endif>
}
<@end>

sub get_token_names {
    return $token_names;
}

```

```

sub get_grammar_file_name {
    return "<fileName>";
}

<members>

<rules; separator="\n\n">

<synpreds:{p | <synpred(p)>}>

<cyclicDFAs:{ dfa | dfa<dfa.decisionNumber> = __PACKAGE__::DFA<dfa.decisionNumber>->new($self);};
separator="\n">
<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

no Moose;
__PACKAGE__->meta->make_immutable();
1;
__END__
>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets, ASTLabelType,
superClass="ANTLR::Runtime::Parser", labelType="ANTLR::Runtime::Token",
members={<actions.parser.members>})
::= <<
<genericParser(inputStreamType="ANTLR::Runtime::TokenStream", ...)>
>>

/** How to generate a tree parser; same as parser except the input
* stream is a different type.
*/
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules, numRules, bitsets,
labelType={<ASTLabelType>}, ASTLabelType="Object", superClass="ANTLR::Runtime::TreeParser",
members={<actions.treeparser.members>}, filterMode) ::= <<
<genericParser(inputStreamType="TreeNodeStream", ...)>
>>

/** A simpler version of a rule template that is specific to the imaginary
* rules created for syntactic predicates. As they never have return values
* nor parameters etc..., just give simplest possible method. Don't do
* any of the normal memoization stuff in here either; it's a waste.
* As predicates cannot be inlined into the invoking rule, they need to
* be in a rule by themselves.
*/
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
# $ANTLR start

```

```

<ruleName>
sub <ruleName>_fragment {
# <ruleDescriptor.parameterScope:parameterScope(scope=it)>

<if(trace)>
  $self->traceIn("<ruleName>_fragment", <ruleDescriptor.index>);
  eval {
    <block>
  };
  $self->traceOut("<ruleName>_fragment", <ruleDescriptor.index>);
  if ($EVAL_ERROR) {
    croak $EVAL_ERROR;
  }
<else>
  <block>
<endif>
}
# $ANTLR end <ruleName>
>>

synpred(name) ::= <<
public final boolean <name>() {
  backtracking++;
  <@start()>
  int start = input.mark();
  try {
    <name>_fragment(); // can never throw exception
  } catch (RecognitionException re) {
    System.err.println("impossible: "+re);
  }
  boolean success = !failed;
  input.rewind(start);
  <@stop()>
  backtracking--;
  failed=false;
  return success;
}<\n>
>>

lexerSynpred(name) ::= <<
<synpred(name)>
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if ( backtracking>0 && alreadyParsedRule(input, <ruleDescriptor.index>)) { return <ruleReturnValue>;
}
<endif>

```

```

>>

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
<if(backtracking)>
if ($self->state->failed) {
    return <ruleReturnValue(>);
}
<endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>if (backtracking>0) {failed=true; return <ruleReturnValue(>);}<endif>
>>

/** How to generate code for a rule. This includes any return type
 * data aggregates required for multiple return values.
 */
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
<returnScope(scope=ruleDescriptor.returnScope)>

# $ANTLR start <ruleName>
# <fileName>:<description>
sub <ruleName>() {
    my ($self, <ruleDescriptor.parameterScope:parameterScope(scope=it)>) = @_ ;
    <if(trace)>$self->traceIn("<ruleName>", <ruleDescriptor.index>);<endif>
    <ruleScopeSetUp(>
    <ruleDeclarations(>
    <ruleLabelDefs(>
    <ruleDescriptor.actions.init>
    <@preamble(>
    eval {
        <ruleMemoization(name=ruleName)>
        <block>
        <ruleCleanUp(>
        <(ruleDescriptor.actions.after):execAction(>
    };
<if(exceptions)>
    <exceptions:{e|<catch(decl=e.decl,action=e.action)><n>}>
<else>
<if(!emptyRule)>
<if(actions.(actionScope).rulecatch)>
    <actions.(actionScope).rulecatch>
<else>
    my $exception = $EVAL_ERROR;
    if (ref $exception && $exception->isa('ANTLR::Runtime::RecognitionException')) {

```



```

        $self->report_error($exception);
        $self->recover($self->input, $exception);
        $exception = undef;
    }<\n>
<endif>
<endif>
<endif>
    <if(trace)>$self->traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
    <memoize()>
    <ruleScopeCleanUp()>
    <finally>
    if ($exception) {
        croak $exception;
        # $exception->rethrow();
    }
    <@postamble()>
    return <ruleReturnValue()>;
}
# $ANTLR end <ruleName>
>>

catch(decl,action) ::= <<
catch
    (<e.decl>) {
        <e.action>
    }
>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
my $retval = <returnType()>->new();
$retval->set_start($self->input->LT(1));<\n>
<else>
<ruleDescriptor.returnScope.attributes: { a |
my $<a.name> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
my $<ruleDescriptor.name>_start_index = $self->input->index();
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: {<it>_stack.push(new <it>_scope());}; separator="\n">
<ruleDescriptor.ruleScope: {<it.name>_stack.push(new <it.name>_scope());}; separator="\n">
>>

ruleScopeCleanUp() ::= <<

```

```

<ruleDescriptor.useScopes:{<it>_stack.pop();}; separator="\n">
<ruleDescriptor.ruleScope:{<it.name>_stack.pop();}; separator="\n">
>>

```

```

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels]
  :{my $<it.label.text> = undef;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels]
  :{List list_<it.label.text>=null;};
  separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(label=it); separator="\n">
<ruleDescriptor.ruleListLabels:{||RuleReturnScope <ll.label.text> = null;}; separator="\n">
>>

```

```

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
  ruleDescriptor.tokenListLabels,
  ruleDescriptor.ruleLabels]
  :{<labelType> <it.label.text>=null;}; separator="\n"
>
<ruleDescriptor.charLabels:{my $<it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
  ruleDescriptor.ruleListLabels,
  ruleDescriptor.ruleListLabels]
  :{List list_<it.label.text>=null;}; separator="\n"
>
>>

```

```

ruleReturnValue() ::= <<
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
$<ruleDescriptor.singleValueReturnName>
<else>
$retval
<endif>
<endif>
<endif>
>>

```

```

ruleCleanup() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
$retval->set_stop($self->input->LT(-1));<\n>
<endif>
<endif>

```

```

>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if
( backtracking>0 ) { memoize(input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
# $ANTLR start <ruleName>
sub m_<ruleName> {
# <ruleDescriptor.parameterScope:parameterScope(scope=it)>
my ($self) = @_;
<if(trace)>traceIn("<ruleName>", <ruleDescriptor.index>);<endif>
<ruleDeclarations()>
eval {
<if(nakedBlock)>
<ruleMemoization(name=ruleName)>
<lexerRuleLabelDefs()>
<ruleDescriptor.actions.init>
<block><\n>
<else>
my $_type = <ruleName>;
my $_channel = $self->DEFAULT_TOKEN_CHANNEL;
<ruleMemoization(name=ruleName)>
<lexerRuleLabelDefs()>
<ruleDescriptor.actions.init>
<block>
<ruleCleanUp()>
$self->state->type($_type);
$self->state->channel($_channel);
<(ruleDescriptor.actions.after):execAction()>
<endif>
};
<if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
<memoize()>

if ($EVAL_ERROR) {
croak $EVAL_ERROR;
}
}
# $ANTLR end <ruleName>

```

>>

```
/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
```

```
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
sub m_tokens {
  my ($self) = @_;
  <block><\n>
}
>>
```

// S U B R U L E S

```
/** A (...) subrule with multiple alternatives */
```

```
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
# <fileName>:<description>
my $alt<decisionNumber> = <maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>
<@prebranch()>
switch ($alt<decisionNumber>) {
  <alts:altSwitchCase()>
}
<@postbranch()>
>>
```

```
/** A rule block with multiple alternatives */
```

```
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
::= <<
# <fileName>:<description>
my $alt<decisionNumber> = <maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>
switch ($alt<decisionNumber>) {
  <alts:altSwitchCase()>
}
>>
```

```
ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
# <fileName>:<description>
<decls>
<@prealt()>
<alts>
```

```

<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
# <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
# <fileName>:<description>
my $cnt<decisionNumber> = 0;
<decls>
<@preloop()>
LOOP<decisionNumber>:
while (1) {
  my $alt<decisionNumber> = <maxAlt>;
  <@predecision()>
  <decision>
  <@postdecision()>

  switch ($alt<decisionNumber>) {
    <alts:altSwitchCase()>
    else {
      if ( $cnt<decisionNumber> >= 1 ) { last LOOP<decisionNumber> }
      <ruleBacktrackFailure()>
      my $see =
        ANTLR::Runtime::EarlyExitException->new(<decisionNumber>, $self->input);
      <@earlyExitException()>
      croak $see;
    }
  }
  ++$cnt<decisionNumber>;
}
<@postloop()>
>>

positiveClosureBlockSingleAlt ::= positiveClosureBlock

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
# <fileName>:<description>

```

```

<decls>
<@preloop()>
LOOP<decisionNumber>:
while (1) {
  my $alt<decisionNumber> = <maxAlt>;
  <@predecision()>
  <decision>
  <@postdecision()>
  switch ($alt<decisionNumber>) {
    <alts:altSwitchCase()>
    else { last LOOP<decisionNumber> }
  }
}
<@postloop()>
>>

```

```
closureBlockSingleAlt ::= closureBlock
```

```

/** Optional blocks (x)?
are translated to (x|) by before code generation
* so we can just use the normal block template
*/
optionalBlock ::= block

```

```
optionalBlockSingleAlt ::= block
```

```

/** A case in a switch that jumps to an alternative given the alternative
* number. A DFA predicts the alternative and then a simple switch
* does the jump to the code that actually matches that alternative.
*/
altSwitchCase() ::= <<
case <i> {
  <@prealt()>
  <it>
}<\n>
>>

```

```

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<
# <fileName>:<description>
{
  <@declarations()>
  <elements:element()>
  <rew>
  <@cleanup()>
}
>>

```

```

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element() ::= <<
<@prematch()>
<it.el><\n>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions)
 ::= <<
<if(label)>$<label> =<endif>$self->match($self->input, <token>,
$FOLLOW_<token>_in_<ruleName><elementIndex>);
<checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

listLabel(label,elem) ::= <<
if (list_<label>==null) list_<label>=new ArrayList();
list_<label>.add(<elem>);<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = $self->input->LA(1);<\n>
<endif>
$self->match(<char>); <checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = $self->input->LA(1);<\n>
<endif>
$self->match_range(<a>,<b>); <checkRuleBacktrackFailure()>
>>

```

```

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label>= $self->input->LA(1);<\n>
<else>
<label>=(<labelType>)input.LT(1);<\n>
<endif>
<endif>
if
( <s> ) {
    $self->input->consume();
    <postmatchCode>
<if(!LEXER)>
    $self->state->error_recovery(0);
<endif>
    <if(backtracking)>failed=false;<endif>
}
else {
    <ruleBacktrackFailure()>
    my $mse =
        ANTLR::Runtime::MismatchedSetException->new(undef, $self->input);
    <@mismatchedSetException()>
<if(LEXER)>
    $self->recover($mse);
    $mse->throw();
<else>
    $mse->throw();
    <! use following code to make it recover inline; remove throw mse;
    $self->recoverFromMismatchedSet($self->input, $mse, $FOLLOW_set_in_<ruleName><elementIndex>);
    !>
<endif>
}<\n>
>>

```

```

matchRuleBlockSet ::= matchSet

```

```

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match a string literal */
lexerStringRef(string,label,elementIndex) ::= <<
<if(label)>
int <label>Start = getCharIndex();
$self->match(<string>); <checkRuleBacktrackFailure()>
<labelType> <label> = new CommonToken(input, Token.INVALID_TOKEN_TYPE,

```



```

Token.DEFAULT_CHANNEL, <label>Start, getCharIndex()-1);
<else>
$self->match(<string>); <checkRuleBacktrackFailure()><\n>
<endif>
>>

wildcard(label,elementIndex) ::= <<
<if(label)>
<label>=(<labelType>)input.LT(1);<\n>
<endif>
matchAny(input); <checkRuleBacktrackFailure()>
>>

wildcardAndListLabel(label,elementIndex) ::= <<
<wildcard(...)>
<listLabel(elem=label,...)>
>>

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = $self->input->LA(1);<\n>
<endif>
matchAny(); <checkRuleBacktrackFailure()>
>>

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabel(elem=label,...)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
$self->push_follow($FOLLOW_<rule.name>_in_<ruleName><elementIndex>);
<if(label)>
$<label> = $self-><rule.name>(<args; separator=", ">);<\n>
<else>
$self-><rule.name>(<args; separator=", ">);<\n>
<endif>
$self->state->_fsp($self->state->_fsp
- 1);
<checkRuleBacktrackFailure()>
>>

/** ids+=1 */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<

```

```

<ruleRef(...)>
<listLabel(elem=label,...)>
>>

/** A lexer rule reference.
 *
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
<if(label)>
int <label>Start<elementIndex> = getCharIndex();
$self->m_<rule>(<args; separator=", ">); <checkRuleBacktrackFailure()>
<label> = new CommonToken(input, Token.INVALID_TOKEN_TYPE, Token.DEFAULT_CHANNEL,
<label>Start<elementIndex>, getCharIndex()-1);
<else>
$self->m_<rule.name>(<args; separator=", ">); <checkRuleBacktrackFailure()>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabel(elem=label,...)>
>>

/** EOF in the lexer
 */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
int <label>Start<elementIndex> = getCharIndex();
match(EOF); <checkRuleBacktrackFailure()>
<labelType> <label> = new CommonToken(input, EOF, Token.DEFAULT_CHANNEL,
<label>Start<elementIndex>, getCharIndex()-1);
<else>
match(EOF); <checkRuleBacktrackFailure()>
<endif>
>>

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( input.LA(1)==Token.DOWN ) {
match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>

```

```

    <children:element()>
    match(input, Token.UP, null); <checkRuleBacktrackFailure()>
  }
<else>
match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
match(input, Token.UP, null); <checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction
 * expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if ( !(<evalPredicate(...)> ) ) {
  <ruleBacktrackFailure()>
  throw new FailedPredicateException(input, "<ruleName>", "<description>");
}
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
my $LA<decisionNumber>_<stateNumber> = $self->input->LA(<k>);<\n>
<edges; separator="\nls">
else {
<if(eotPredictsAlt)>
  $alt<decisionNumber> = <eotPredictsAlt>;
<else>
  <ruleBacktrackFailure()>
  my $nvae =
    ANTLR::Runtime::NoViableAltException->new({
      grammar_decision_description => "<description>",
      decision_number => <decisionNumber>,
      state_number => <stateNumber>,
      input => $self->input,
    });<\n>
  <@noViableAltException()>
  croak $nvae;<\n>
<endif>
}
>>

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but
 * this
 * is faster, smaller, and more what people expect. For (X)? people

```

```

* expect "if ( LA(1)==X ) match(X);" and that's it.
*/
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
my $LA<decisionNumber>_<stateNumber> = $self->input->LA(<k>);<\n>
<edges; separator="\nls">
>>

/** A DFA state that is actually the loopback decision of a closure
* loop. If end-of-token (EOT) predicts any of the targets then it
* should act like a default clause (i.e., no error can be generated).
* This is used only in the lexer so that for ('a')* on the end of a rule
* anything other than 'a' predicts exiting.
*/
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
my $LA<decisionNumber>_<stateNumber> = $self->input->LA(<k>);<\n>
<edges; separator="\nls"><\n>
<if(eotPredictsAlt)>
<if(!edges)>
$alt<decisionNumber> = <eotPredictsAlt>; <! if no edges, don't gen ELSE !>
<else>
else {
    $alt<decisionNumber> = <eotPredictsAlt>;
}<\n>
<endif>
<endif>
>>

/**
    An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "$alt<decisionNumber> = <alt>;"

/** A simple edge with an expression. If the expression is satisfied,
* enter to the target state. To handle gated productions, we may
* have to evaluate some predicates for this edge.
*/
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ( (<labelExpr>) <if(predicates)>&& (<predicates>)<endif> ) {
    <targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
* decides if this is possible: CodeGenerator.canGenerateSwitch().
*/
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( $self->input->LA(<k>)) {

```

```

<edges; separator="\n">
else {
<if(eotPredictsAlt)>
    $alt<decisionNumber> = <eotPredictsAlt>;
<else>
    <ruleBacktrackFailure()>
    my $nvae =
        ANTLR::Runtime::NoViableAltException->new({
            grammar_decision_description => "<description>",
            decision_number => <decisionNumber>,
            state_number => <stateNumber>,
            input => $self->input,
        });<\n>
    <@noViableAltException()>
    croak $nvae;<\n>
<endif>
}
}<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( $self->input->LA(<k>) ) {
    <edges; separator="\n">
}<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( $self->input->LA(<k>) ) {
<edges; separator="\n"><\n>
<if(eotPredictsAlt)>
else { $alt<decisionNumber> = <eotPredictsAlt> }<\n>
<endif>
}<\n>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
case [<labels:{ <it> }; separator=", ">] { <targetState> }
>>

// C y c l i c D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA
 * case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
$alt<decisionNumber> = $self->dfa<decisionNumber>->predict($self->input);

```

>>

```
/* Dump DFA tables as run-length-encoded Strings of octal values.
* Can't use hex as compiler translates them before compilation.
* These strings are split into multiple, concatenated strings.
* Java puts them back together at compile time thankfully.
* Java cannot handle large static arrays, so we're stuck with this
* encode/decode approach. See analysis and runtime DFA for
* the encoding methods.
*/
cyclicDFA(dfa) ::= <<
Readonly my $DFA<dfa.decisionNumber>_eot => ANTLR::Runtime::DFA->unpack_rle([
<dfa.javaCompressedEOT; separator=", "> ]);
Readonly my $DFA<dfa.decisionNumber>_eof => ANTLR::Runtime::DFA->unpack_rle([
<dfa.javaCompressedEOF; separator=", "> ]);
Readonly my $DFA<dfa.decisionNumber>_min => ANTLR::Runtime::DFA->unpack_rle([
<dfa.javaCompressedMin; separator=", "> ]);
Readonly
my $DFA<dfa.decisionNumber>_max => ANTLR::Runtime::DFA->unpack_rle([ <dfa.javaCompressedMax;
separator=", "> ]);
Readonly my $DFA<dfa.decisionNumber>_accept => ANTLR::Runtime::DFA->unpack_rle([
<dfa.javaCompressedAccept; separator=", "> ]);
Readonly my $DFA<dfa.decisionNumber>_special => ANTLR::Runtime::DFA->unpack_rle([
<dfa.javaCompressedSpecial; separator=", "> ]);
Readonly my $DFA<dfa.decisionNumber>_transition => [
<dfa.javaCompressedTransition:{s|ANTLR::Runtime::DFA->unpack_rle([ <s; separator=", "> ])}; separator=", "> ];

{
package <name>::DFA<dfa.decisionNumber>;
use ANTLR::Runtime::Class;

use strict;
use warnings;

extends 'ANTLR::Runtime::DFA';

sub BUILD {
my $self = shift;
my $param_ref = __PACKAGE__->unpack_params(@_, {
spec => [
{
name => 'recognizer',
isa => 'ANTLR::Runtime::BaseRecognizer'
},
]
});

$self->recognizer($param_ref->{recognizer});
```

```

$self->decision_number(<dfa.decisionNumber>);
$self->eot($DFA<dfa.decisionNumber>_eot);
$self->eof($DFA<dfa.decisionNumber>_eof);
$self->min($DFA<dfa.decisionNumber>_min);
$self->max($DFA<dfa.decisionNumber>_max);
$self->accept($DFA<dfa.decisionNumber>_accept);
$self->special($DFA<dfa.decisionNumber>_special);
$self->transition($DFA<dfa.decisionNumber>_transition);
}

sub get_description {
    return "<dfa.description>";
}

<@errorMethod()>

<if(dfa.specialStateSTs)>
sub special_state_transition {
    my ($self, $param_ref) = unpack_params(@_, {
        spec => [
            {
                name => 's',
                type => SCALAR,
            },
            {
                name => 'input',
                isa => 'ANTLR::Runtime::IntStream',
            }
        ]
    });
    my $s = $param_ref->{s};
    my $input = $param_ref->{input};

    switch ($s) {
        <dfa.specialStateSTs:{state |
            case <i0> \{ <! compressed special state numbers 0..n-1 !>
                <state>};
        separator="\n">
    }
}

<if(backtracking)>
    if ($self->state->backtracking > 0) {
        $self->state->failed = 1;
        return -1;
    }<\n>
<endif>

```

```

my $nvae =
    ANTLR::Runtime::NoViableAltException->new({
        grammar_decision_description => $self->get_description(),
        decision_number => <dfa.decisionNumber>,
        state_number => $s,
        input => $input,
    });<\n>
$self->error($nvae);
$nvae->throw();
}<\n>
<endif>
}<\n>
>>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
 * state.
 */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
my $input = $self->input;
my $LA<decisionNumber>_<stateNumber> = $input->LA(1);<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
my $index<decisionNumber>_<stateNumber> = $input->index();
$input->rewind();<\n>
<endif>
s = -1;
<edges; separator="\nls">
<if(semPredState)> <!
    return input cursor to state before we rewound !>
input.seek(index<decisionNumber>_<stateNumber>);<\n>
<endif>
if ( s>=0 ) return s;
break;
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> ) { s = <targetStateNumber>;}<\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n>
>>

```



## // D F A E X P R E S S I O N S

andPredicates(left,right) ::= "<left> && <right>"

orPredicates(operands) ::= "<operands; separator=\\|\\>"

notPredicate(pred) ::= "!(<evalPredicate(...>)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "\$LA<decisionNumber>\_<stateNumber> eq <atom>"

/\*\*

Sometimes a lookahead test cannot assume that LA(k) is in a temp variable

\* somewhere. Must ask for the lookahead directly.

\*/

isolatedLookaheadTest(atom,k,atomAsInt) ::= "\$self->input->LA(<k>) eq <atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <<

(\$LA<decisionNumber>\_<stateNumber> ge <lower> && \$LA<decisionNumber>\_<stateNumber> le <upper>)

>>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "(\$self->input->LA(<k>) ge <lower> && \$self->input->LA(<k>) le <upper>)"

setTest(ranges) ::= "<ranges; separator=\\|\\>"

## // A T T R I B U T E S

globalAttributeScope(scope) ::= <<

<if(scope.attributes)>

protected static class <scope.name>\_scope {

<scope.attributes:{<it.decl>;}; separator=\\n">

}

protected Stack <scope.name>\_stack = new Stack();<n>

<endif>

>>

ruleAttributeScope(scope) ::= <<

<if(scope.attributes)>

protected static class <scope.name>\_scope {

<scope.attributes:{<it.decl>;}; separator=\\n">

}

protected

```
Stack <scope.name>_stack = new Stack();<\n>
<endif>
>>
```

```
returnType() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.name>_return
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
<endif>
>>
```

```
/** Generate the Java type associated with a single or multiple return
* values.
*/
```

```
ruleLabelType(referencedRule) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
<referencedRule.name>_return
<else>
<if(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
<endif>
>>
```

```
/** Using a type to init value map, try to init a type; if not in table
* must be an object, default value is "undef".
*/
```

```
initValue(typeName) ::= <<
<if(typeName)>
<perlTypeInitMap.(typeName)>
<else>
undef
<endif>
>>
```

```
/** Define a rule label including default value */
```

```
ruleLabelDef(label) ::= <<
my $<label.label.text> = <initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))>;<\n>
>>
```

```
/**
```

```

Define a return struct for a rule if the code needs to access its
* start/stop tokens, tree stuff, attributes, ... Leave a hole for
* subgroups to stick in members.
*/
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
{
package <returnType()>;
use ANTLR::Runtime::Class;

extends 'ANTLR::Runtime::<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope';

<scope.attributes:{public <it.decl>;}; separator="\n">
<@ruleReturnMembers()>
}
<endif>
>>

parameterScope(scope) ::= <<
<scope.attributes:{<it.name>; separator=", ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> =<expr>";

scopeAttributeRef(scope,attr,index,negIndex) ::= <<
<if(negIndex)>
((<scope>_scope)<scope>_stack.elementAt(<scope>_stack.size()-<negIndex>-1)).<attr.name>
<else>
<if(index)>
((<scope>_scope)<scope>_stack.elementAt(<index>)).<attr.name>
<else>
((<scope>_scope)<scope>_stack.peek()).<attr.name>
<endif>
<endif>
>>

scopeSetAttributeRef(scope,attr,expr,index,negIndex)
::= <<
<if(negIndex)>
((<scope>_scope)<scope>_stack.elementAt(<scope>_stack.size()-<negIndex>-1)).<attr.name> =<expr>;
<else>
<if(index)>
((<scope>_scope)<scope>_stack.elementAt(<index>)).<attr.name> =<expr>;
<else>
((<scope>_scope)<scope>_stack.peek()).<attr.name> =<expr>;
<endif>
<endif>

```

```

>>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.size()>0 && $function::name.equals("foo")}?
 */
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
$<scope>.<attr.name>
<else>
$<scope>
<endif>
>>

returnAttributeRef(ruleDescriptor,attr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
$<attr.name>
<endif>
>>

returnSetAttributeRef(ruleDescriptor,attr,expr)
::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> =<expr>;
<else>
$<attr.name> =<expr>;
<endif>
>>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "$<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "$<scope>->get_text()"
tokenLabelPropertyRef_type(scope,attr) ::= "<scope>.getType()"
tokenLabelPropertyRef_line(scope,attr) ::= "<scope>.getLine()"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>.getCharPositionInLine()"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>.getChannel()"

```

```

tokenLabelPropertyRef_index(scope,attr) ::= "<scope>.getTokenIndex()"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"

ruleLabelPropertyRef_start(scope,attr) ::= "((<labelType>)<scope>.start)"
ruleLabelPropertyRef_stop(scope,attr) ::= "((<labelType>)<scope>.stop)"
ruleLabelPropertyRef_tree(scope,attr) ::= "((<ASTLabelType>)<scope>.tree)"
ruleLabelPropertyRef_text(scope,attr)
 ::= <<
<if(TREE_PARSER)>
input.getTokenStream().toString(
input.getTreeAdaptor().getTokenStartIndex(<scope>.start),
input.getTreeAdaptor().getTokenStopIndex(<scope>.start))
<else>
substr($self->input, $<scope>->start, $<scope>->stop)
<endif>
>>

ruleLabelPropertyRef_st(scope,attr) ::= "<scope>.st"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "$<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "<scope>.getType()"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "<scope>.getLine()"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "<scope>.getCharPositionInLine()"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "<scope>.getChannel()"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "<scope>.getTokenIndex()"
lexerRuleLabelPropertyRef_text(scope,attr) ::= "<scope>.getText()"

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "((<labelType>)retval.start)"
rulePropertyRef_stop(scope,attr)
 ::= "((<labelType>)retval.stop)"
rulePropertyRef_tree(scope,attr) ::= "((<ASTLabelType>)retval.tree)"
rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
input.getTokenStream().toString(
input.getTreeAdaptor().getTokenStartIndex(retval.start),
input.getTreeAdaptor().getTokenStopIndex(retval.start))
<else>
input.toString(retval.start,input.LT(-1))
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "getText()"
lexerRulePropertyRef_type(scope,attr) ::= "$_type"
lexerRulePropertyRef_line(scope,attr) ::= "tokenStartLine"

```

```

lexerRulePropertyRef_pos(scope,attr) ::= "tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "$_channel"
lexerRulePropertyRef_start(scope,attr) ::= "tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(getCharIndex()-1)"
lexerRulePropertyRef_self(scope,attr)
::= "$self"

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree =<expr>";
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>";

/** How to execute an action */
execAction(action) ::= <<
<if(backtracking)>
<if(actions.(actionScope).synpredgate)>
if ( <actions.(actionScope).synpredgate> ) {
<action>
}
<else>
if ( backtracking==0 ) {
<action>
}
<endif>
<else>
<action>
<endif>
>>

// M I S C (properties, etc...)

bitset(name, words64) ::= <<
Readonly my $<name> => ANTLR::Runtime::BitSet->new({ words64 => [ <words64:{'<it>'};separator=", "> ]
});<\n>
>>

codeFileExtension() ::= ".pm"

true() ::= "1"
false() ::= "0"

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Perl5/Perl5.stg
No license file was found, but licenses were detected in source scan.

/*

```

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\*/

```
asTypeInitMap ::= [  
  "int":"0",  
  "uint":"0",  
  "Number":"0.0",  
  "Boolean":"false",  
  default:"null" // anything other than an atomic type  
]  
  
/** The overall file structure of a recognizer; stores methods for rules  
 * and cyclic DFAs plus support code.  
 */  
outputFile(LEXER,PARSER,TREE_PARSER, actionScope, actions,  
  docComment, recognizer,  
  name, tokens, tokenNames, rules, cyclicDFAs,  
  bitsets, buildTemplate, buildAST, rewriteMode, profile,  
  backtracking, synpreds,  
  memoize, numRules,  
  fileName, ANTLRVersion, generatedTimestamp, trace,  
  scopes, superClass, literals) ::=  
<<  
// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>
```

```

package<if(actions.(actionScope).package)> <actions.(actionScope).package><endif> {
    <actions.(actionScope).header>
    <@imports>
import org.antlr.runtime.*;
<if(TREE_PARSER)>
    import org.antlr.runtime.tree.*;
<endif>
    <@end>

    <docComment>
    <recognizer>
}
>>

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode, labelType="Token",
    superClass="Lexer") ::= <<
public class <grammar.recognizerName> extends
<if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else><@superClassName><superClass
><@end><endif> {
    <tokens:{ it |public static const <it.name>:int=<it.type>;}; separator="\n">
    <scopes:{ it |<if(it.isDynamicGlobalScope)><globalAttributeScope(it)><endif>}>
    <actions.lexer.members>

    // delegates
    <grammar.delegates:
        { g|public var <g.delegateName()>:<g.recognizerName>;};
separator="\n">
    // delegators
    <grammar.delegators:
        { g|public var <g.delegateName()>:<g.recognizerName>;}; separator="\n">
    <last(grammar.delegators):{ g|public var gParent:<g.recognizerName>;}>

    public function <grammar.recognizerName>(<grammar.delegators:{ g|<g.delegateName()>:<g.recognizerName>,
}>input:CharStream = null, state:RecognizerSharedState = null) {
        super(input, state);
        <cyclicDFAs:cyclicDFACTor(>
<if(memoize)>
<if(grammar.grammarIsRoot)>
            this.state.ruleMemo = new Array(<numRules>+1);<\n> <! index from 1..n !>
<endif>
<endif>
        <grammar.directDelegates:
            { g|<g.delegateName()> = new <g.recognizerName>(<trunc(g.delegators):{ p|<p.delegateName()>, }>this,
input, this.state);}; separator="\n">
        <grammar.delegators:
            { g|this.<g.delegateName()> = <g.delegateName()>;}; separator="\n">
        <last(grammar.delegators):{ g|gParent = <g.delegateName()>;}>
    }
}

```



```

public override
function get grammarFileName():String { return "<fileName>"; }

<if(filterMode)>
  <filteringNextToken()>
<endif>
  <rules; separator="\n\n">

  <synpreds:{p | <lexerSynpred(p)>}>

  <cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

}
>>

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
public override function nextToken():Token {
  while (true) {
    if ( input.LA(1)==CharStreamConstants.EOF ) {
      return TokenConstants.EOF_TOKEN;
    }
    this.state.token = null;
    this.state.channel = TokenConstants.DEFAULT_CHANNEL;
    this.state.tokenStartCharIndex = input.index;
    this.state.tokenStartCharPositionInLine = input.charPositionInLine;
    this.state.tokenStartLine = input.line;
    this.state.text = null;
    try {
      var m:int = input.mark();
      this.state.backtracking=1; <! means we won't throw slow exception !>
      this.state.failed=false;
      mTokens();
      this.state.backtracking=0;
      <! mTokens backtracks with synpred at backtracking==2
      and we set the synpredgate to allow actions at level 1. !>
      if ( this.state.failed ) {
        input.rewindTo(m);
        input.consume(); <! advance one char and try again !>
      }
    }
    else {
      emit();
      return this.state.token;
    }
  }
}

```

```

    }
  }
  catch (re:RecognitionException) {
    // shouldn't happen in backtracking mode, but...
    reportError(re);
    recover(re);
  }
}
// Not reached - For ActionScript compiler
throw new Error();
}

public override function memoize(input:IntStream,
  ruleIndex:int,
  ruleStartIndex:int):void
{
  if
  ( this.state.backtracking>1 ) super.memoize(input, ruleIndex, ruleStartIndex);
}

public override function alreadyParsedRule(input:IntStream, ruleIndex:int):Boolean {
  if ( this.state.backtracking>1 ) return super.alreadyParsedRule(input, ruleIndex);
  return false;
}
>>

actionGate() ::= "this.state.backtracking==0"

filteringActionGate() ::= "this.state.backtracking==1"

/** How to generate a parser */
genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
  bitsets, inputStreamType, superClass,
  labelType, members, rewriteElementType,
  filterMode, ASTLabelType="Object") ::= <<
public class <grammar.recognizerName> extends
<if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else><@superClassName><superClass>
<&@end><endif> {
<if(grammar.grammarIsRoot)>
  public static const tokenNames:Array = [
    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>",
    <tokenNames; separator=", ">
  ];<\n>
<endif>
  <tokens:{it |public static const <it.name>:int=<it.type>;}; separator="\n">

  // delegates
  <grammar.delegates: {g|public var <g:delegateName>:<g.recognizerName>;}; separator="\n">

```

```

// delegators
<grammar.delegators:
  {g|public var <g.delegateName():<g.recognizerName>; separator="\n">
  <last(grammar.delegators):{g|public var gParent:<g.recognizerName>;}>

  <scopes:{it |<if(it.isDynamicGlobalScope)><globalAttributeScope(it)><endif>>
  <@members>
  <! WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>
  public function <grammar.recognizerName>(<grammar.delegators:{g|<g.delegateName():<g.recognizerName>,
  }>input:<inputStreamType>, state:RecognizerSharedState = null) {
    super(input, state);
    <cyclicDFAs:cyclicDFACTOR()>
    <parserCtorBody()>
    <grammar.directDelegates:
      {g|<g.delegateName()> = new <g.recognizerName>(<trunc(g.delegators):{p|<p.delegateName()>,
  }>this, input, this.state);}; separator="\n">
    <grammar.indirectDelegates:{g | <g.delegateName()> = <g.delegator.delegateName()>.<g.delegateName()>;};
  separator="\n">
    <last(grammar.delegators):{g|gParent = <g.delegateName()>;}>
  }
  <@end>

  public override function get tokenNames():Array { return
  <grammar.composite.rootGrammar.recognizerName>.tokenNames; }
  public override function get grammarFileName():String { return "<fileName>"; }

  <members>

  <rules; separator="\n\n">

  <! generate rule/method definitions for imported rules so they
  appear to be defined in this recognizer. !>
  // Delegated rules
  <grammar.delegatedRules:{ruleDescriptor|
    public function <ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope():<returnType()> {
  <if(ruleDescriptor.hasReturn Value)>return
  <endif><ruleDescriptor.grammar:delegateName()>.<ruleDescriptor.name>(<ruleDescriptor.parameterScope.attribute:
  {a|<a.name>; separator=", ">;
  \}); separator="\n">

  <synpreds:{p | <synpred(p)>>

  <cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

  <bitsets:{it | <bitset(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>},
  words64=it.bits)>>
  }
  >>

```

```

parserCtorBody() ::= <<
<if(memoize)>
<if(grammar.grammarIsRoot)>
this.state.ruleMemo = new Array(<length(grammar.allImportedRules)>+1);<\n> <! index from 1..n !>
<endif>
<endif>
<grammar.delegators:
{g[this.<g.delegateName()> = <g.delegateName()>]; separator="\n">
>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets, ASTLabelType="Object",
superClass="Parser", labelType="Token", members={<actions.parser.members>}) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TokenStream", superClass,
    labelType, members, "Token",
    false, ASTLabelType)>
>>

/** How to generate a tree parser; same as parser except the input
 * stream is a different
 * type.
 */
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={<ASTLabelType>}, ASTLabelType="Object",
    superClass="TreeParser", members={<actions.treeparser.members>}) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TreeNodeStream", superClass,
    labelType, members, "Node",
    filterMode, ASTLabelType)>
>>

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
// $ANTLR start <ruleName>
public
final function <ruleName>_fragment(<ruleDescriptor.parameterScope:parameterScope()>):void {
    <ruleLabelDefs()>
<if(trace)>
    traceIn("<ruleName>_fragment", <ruleDescriptor.index>);
    try {

```

```

    <block>
  }
  finally {
    traceOut("<ruleName>_fragment", <ruleDescriptor.index>);
  }
<else>
  <block>
<endif>
}
// $ANTLR end <ruleName>
>>

```

```

synpred(name) ::= <<
public final function <name>():Boolean {
  this.state.backtracking++;
  <@start()>
  var start:int = input.mark();
  try {
    <name>_fragment(); // can never throw exception
  } catch (re:RecognitionException) {
    trace("impossible: "+re);
  }
  var success:Boolean = !this.state.failed;
  input.rewindTo(start);
  <@stop()>
  this.state.backtracking--;
  this.state.failed=false;
  return success;
}<\n>
>>

```

```

lexerSynpred(name) ::= <<
<synpred(name)>
>>

```

```

ruleMemoization(name) ::= <<
<if(memoize)>
if ( this.state.backtracking>0 && alreadyParsedRule(input, <ruleDescriptor.index> )
  { return <ruleReturnValue()>; }
<endif>
>>

```

```

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
<if(backtracking)>if (this.state.failed) return <ruleReturnValue()>;<endif>
>>

```

```

/** This rule has failed, exit indicating failure during backtrack */

```

```

ruleBacktrackFailure() ::= <<
<if(backtracking)>if (this.state.backtracking>0) { this.state.failed=true; return <ruleReturnValue(>);}<endif>
>>

```

```

/** How to generate code for a rule. This includes any return type

```

```

* data aggregates required for multiple return values.

```

```

*/

```

```

rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
// $ANTLR start <ruleName>
// <fileName>:<description>
public final function <ruleName>(<ruleDescriptor.parameterScope:parameterScope(>):<returnType(>) {
  <if(trace)>traceIn("<ruleName>", <ruleDescriptor.index>);<endif>
  <ruleScopeSetUp(>
  <ruleDeclarations(>
  <ruleLabelDefs(>
  <ruleDescriptor.actions.init>
  <@preamble(>
  try {
    <ruleMemoization(name=ruleName)>
    <block>
    <ruleCleanUp(>
    <(ruleDescriptor.actions.after):execAction(>
  }
  <if(exceptions)>
    <exceptions:{e|<catch(decl=e.decl,action=e.action)><\n>}>
  <else>
  <if(!emptyRule)>
  <if(actions.(actionScope).rulecatch)>
    <actions.(actionScope).rulecatch>
  <else>
    catch (re:RecognitionException) {
      reportError(re);
      recoverStream(input,re);
      <@setErrorReturnValue(>
    }<\n>
  <endif>
  <endif>
  <endif>
  finally {
    <if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
    <memoize(>
    <ruleScopeCleanUp(>
    <finally>
  }
  <@postamble(>
  return <ruleReturnValue(>;
}

```

```

// $ANTLR end <ruleName>
>>

catch(decl,action) ::= <<
catch (<e.decl>) {
    <e.action>
}
>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
var retval:<returnType()> = new <returnType()>();
retval.start = input.LT(1);<\n>
<else>
<ruleDescriptor.returnScope.attributes: {
    a |
var <a.name>:<a.type> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
var <ruleDescriptor.name>_startIndex:int = input.index;
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: {it |<it>_stack.push(new Object());}; separator="\n">
<ruleDescriptor.ruleScope: {it |<it.name>_stack.push(new Object());}; separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: {it |<it>_stack.pop();}; separator="\n">
<ruleDescriptor.ruleScope: {it |<it.name>_stack.pop();}; separator="\n">
>>

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it |var <it.label.text>:<labelType>=null;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]
: {it |var list_<it.label.text>:Array=null;}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef();
separator="\n">
<ruleDescriptor.ruleListLabels: {||var <ll.label.text>:RuleReturnScope = null;}; separator="\n">
>>

lexerRuleLabelDefs() ::= <<

```

```

<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it | var <it.label.text>: <labelType>=null; }; separator="\n"
>
<ruleDescriptor.charLabels: {it | var <it.label.text>:int; }; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
: {it | var list_<it.label.text>:Array=null; }; separator="\n"
>
>>

ruleReturnValue() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
%>

ruleCleanUp() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
retval.stop = input.LT(-1);<\n>
<endif>
<endif>
>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if ( this.state.backtracking>0 ) { memoize(input,
<ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
// $ANTLR start <ruleName>
public final function m<ruleName>(<ruleDescriptor.parameterScope:parameterScope()>):void {
<if(trace)>traceIn("<ruleName>", <ruleDescriptor.index>);<endif>

```



```

<ruleScopeSetUp()>
<ruleDeclarations()>
try {
<if(nakedBlock)>
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block><\n>
<else>
    var _type:int = <ruleName>;
    var _channel:int = DEFAULT_TOKEN_CHANNEL;
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block>
    <ruleCleanUp()>
    this.state.type = _type;
    this.state.channel = _channel;
    <(ruleDescriptor.actions.after):execAction()>
<endif>
    }
    finally {
        <if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
        <ruleScopeCleanUp()>
        <memoize()>
    }
}
// $ANTLR end <ruleName>
>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
public override function mTokens():void {
    <block><\n>
}
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
var alt<decisionNumber>:int=<maxAlt>;
<decls>
<@predecision()>
<decision>

```

```

<@postdecision(>
<@prebranch(>
switch (alt<decisionNumber>) {
  <alts:{ a | <altSwitchCase(i, a)>}>
}
<@postbranch(>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
var
  alt<decisionNumber>:int=<maxAlt>;
<decls>
<@predecision(>
<decision>
<@postdecision(>
switch (alt<decisionNumber>) {
  <alts:{ a | <altSwitchCase(i, a)>}>
}
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt(>
<alts>
<@postalt(>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt(>
<alts>
<@postalt(>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
var cnt<decisionNumber>:int=0;
<decls>
<@preloop(>
loop<decisionNumber>:
do {

```

```

var alt<decisionNumber>:int=<maxAlt>;
<@predecision()>
<decision>
<@postdecision()>
switch (alt<decisionNumber>)
{
<alts:{a | <altSwitchCase(i, a)>}>
default :
    if ( cnt<decisionNumber> >= 1 ) break loop<decisionNumber>;
    <ruleBacktrackFailure()>
    throw new EarlyExitException(<decisionNumber>, input);
    <! Need to add support for earlyExitException debug hook !>
}
cnt<decisionNumber>++;
} while (true);
<@postloop()>
>>

```

positiveClosureBlockSingleAlt ::= positiveClosureBlock

/\*\* A (..)\* block with 1 or more alternatives \*/

closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=

<<

// <fileName>:<description>

<decls>

<@preloop()>

loop<decisionNumber>:

do {

var alt<decisionNumber>:int=<maxAlt>;

<@predecision()>

<decision>

<@postdecision()>

switch (alt<decisionNumber>) {

<alts:{a | <altSwitchCase(i, a)>}>

default :

break loop<decisionNumber>;

}

} while (true);

<@postloop()>

>>

closureBlockSingleAlt ::= closureBlock

/\*\* Optional blocks (x)? are translated to (x)

by before code generation

\* so we can just use the normal block template

\*/

optionalBlock ::= block

```
optionalBlockSingleAlt ::= block
```

```
/** A case in a switch that jumps to an alternative given the alternative  
 * number. A DFA predicts the alternative and then a simple switch  
 * does the jump to the code that actually matches that alternative.  
 */
```

```
altSwitchCase(altNum, alt) ::= <<  
case <altNum> :  
  <@prealt()>  
  <alt>  
  break;<\n>  
>>
```

```
/** An alternative is just a list of elements; at outermost level */  
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<  
// <fileName>:<description>  
{  
<@declarations()>  
<elements:element()>  
<rew>  
<@cleanup()>  
}  
>>
```

```
/** What to emit when there is no rewrite. For auto build  
 * mode, does nothing.  
 */  
noRewrite(rewriteBlockLevel, treeLevel) ::= ""
```

```
// E L E M E N T S
```

```
/** Dump the elements one per line */  
element(e) ::= <<  
<@prematch()>  
<e.el><\n>  
>>
```

```
/** match a token optionally with a label in front */  
tokenRef(token,label,elementIndex,terminalOptions)  
 ::= <<  
<if(label)><label>=<labelType><(<endif>matchStream(input,<token>,FOLLOW_<token>_in_<ruleName><element  
Index>)<if(label)><endif>; <checkRuleBacktrackFailure()>  
>>
```

```
/** ids+=ID */  
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<  
<tokenRef(token,label,elementIndex,terminalOptions)>
```

```

<listLabel(label, label)>
>>

listLabel(label,elem) ::= <<
if (list_<label>==null) list_<label>=new Array();
list_<label>.push(<elem>);<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
match(<char>); <checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
matchRange(<a>,<b>); <checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,terminalOptions,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label>= input.LA(1);<\n>
<else>
<label>=<labelType>(input.LT(1));<\n>
<endif>
<endif>
if
( <s> ) {
    input.consume();
    <postmatchCode>
<if(!LEXER)>
    this.state.errorRecovery=false;
<endif>
    <if(backtracking)>this.state.failed=false;<endif>
}
else {
    <ruleBacktrackFailure()>
    <@mismatchedSetException()>
<if(LEXER)>
    throw recover(new MismatchedSetException(null,input));<\n>
<else>

```

```

    throw new MismatchedSetException(null,input);
    <! use following code to make it recover inline; remove throw mse;
    recoverFromMismatchedSet(input,mse,FOLLOW_set_in_<ruleName><elementIndex>);
    !>
<endif>
}<\n>
>>

```

```

matchRuleBlockSet ::= matchSet

```

```

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(label, label)>
>>

```

```

/** Match a string literal */
lexerStringRef(string,label,elementIndex="0") ::= <<
<if(label)>
var <label>Start:int = charIndex;
matchString(<string>); <checkRuleBacktrackFailure()>
var <label>StartLine<elementIndex>:int = line;
var <label>StartCharPos<elementIndex>:int =
charPositionInLine;
<label> = CommonToken.createFromStream(input, TokenConstants.INVALID_TOKEN_TYPE,
TokenConstants.DEFAULT_CHANNEL, <label>Start, charIndex-1);
<label>.line = <label>StartLine<elementIndex>;
<label>.charPositionInLine = <label>StartCharPos<elementIndex>;
<else>
matchString(<string>); <checkRuleBacktrackFailure()><\n>
<endif>
>>

```

```

wildcard(token,label,elementIndex,terminalOptions) ::= <<
<if(label)>
<label>=<labelType>(input.LT(1));<\n>
<endif>
matchAny(input); <checkRuleBacktrackFailure()>
>>

```

```

wildcardAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<wildcard(...)>
<listLabel(label, label)>
>>

```

```

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = input.LA(1);<\n>

```

```

<endif>
matchAny(); <checkRuleBacktrackFailure()>
>>

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(label, elementIndex)>
<listLabel(label, label)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value
 * or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 *
 *
 * GMS: Note: do not use post-decrement operator! ASC produces bad code for exceptions in this case.
 * See: https://bugs.adobe.com/jira/browse/ASC-3625
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
pushFollow(FOLLOW_<rule.name>_in_<ruleName><elementIndex>);
<if(label)><label>=<endif><if(scope)><scope.delegateName()>.<endif><rule.name>(<args; separator=", ">);<\n>
state._fsp = state._fsp - 1;
<checkRuleBacktrackFailure()>
>>

/** ids+=r */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(rule,label,elementIndex,args,scope)>
<listLabel(label, label)>
>>

/** A lexer rule reference.
 *
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope)
::= <<
<if(label)>
var <label>Start<elementIndex>:int = charIndex;
var <label>StartLine<elementIndex>:int = line;
var <label>StartCharPos<elementIndex>:int = charPositionInLine;
<if(scope)><scope.delegateName()>.<endif>m<rule.name>(<args; separator=", ">);
<checkRuleBacktrackFailure()>
<label> = CommonToken.createFromStream(input, TokenConstants.INVALID_TOKEN_TYPE,

```

```

TokenConstants.DEFAULT_CHANNEL, <label>Start<elementIndex>, charIndex-1);
<label>.line = <label>StartLine<elementIndex>;
<label>.charPositionInLine = <label>StartCharPos<elementIndex>;
<else>
<if(scope)><scope:delegateName().<endif>m<rule.name><(args; separator=", ">;
<checkRuleBacktrackFailure()>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(rule,label,args,elementIndex,scope)>
<listLabel(label, label)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
var <label>Start<elementIndex>:int
= charIndex;
var <label>StartLine<elementIndex>:int = line;
var <label>StartCharPos<elementIndex>:int = charPositionInLine;
match(EOF); <checkRuleBacktrackFailure()>
var <label>:<labelType> = CommonToken.createFromStream(input, EOF,
TokenConstants.DEFAULT_CHANNEL, <label>Start<elementIndex>, charIndex-1);
<label>.line = <label>StartLine<elementIndex>;
<label>.charPositionInLine = <label>StartCharPos<elementIndex>;
<else>
match(EOF); <checkRuleBacktrackFailure()>
<endif>
>>

// used for left-recursive rules
recRuleDefArg()          ::= "var <recRuleArg()>:int"
recRuleArg()             ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> \<= <opPrec>"
recRuleSetResultAction() ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name) ::= "$<name>=$<src>.<name>;"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::=
<<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( input.LA(1)==TokenConstants.DOWN ) {
matchStream(input, TokenConstants.DOWN, null); <checkRuleBacktrackFailure()>

```



```

    <children:element()>
    matchStream(input, TokenConstants.UP, null); <checkRuleBacktrackFailure()>
    }
<else>
matchStream(input, TokenConstants.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
matchStream(input, TokenConstants.UP, null); <checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if ( !(<evalPredicate(pred,description)> ) ) {
    <ruleBacktrackFailure()>
    throw new FailedPredicateException(input, "<ruleName>", "<description>");
}
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
var LA<decisionNumber>_<stateNumber>:int = input.LA(<k>);<\n>
<edges;
separator="\nelse ">
else {
<if(eotPredictsAlt)>
    alt<decisionNumber>=<eotPredictsAlt>;
<else>
    <ruleBacktrackFailure()>
    throw new NoViableAltException("<description>", <decisionNumber>, <stateNumber>, input);<\n>
    <! Need to add hook for noViableAltException() !>
<endif>
}
>>

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
var LA<decisionNumber>_<stateNumber>:int = input.LA(<k>);<\n>
<edges; separator="\nelse ">
>>

/** A DFA state that is actually the loopback decision of a closure

```

```

* loop. If end-of-token (EOT) predicts any of the targets then it
* should act like a default clause (i.e., no error can be generated).
* This is used only in the lexer so
  that for ('a')* on the end of a rule
* anything other than 'a' predicts exiting.
*/
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
var LA<decisionNumber>_<stateNumber>:int = input.LA(<k>);<\n>
<edges; separator="\nelse "><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber>=<eotPredictsAlt>; <! if no edges, don't gen ELSE !>
<else>
else {
  alt<decisionNumber>=<eotPredictsAlt>;
}<\n>
<endif>
<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber>=<alt>;"

/** A simple edge with an expression. If the expression is satisfied,
* enter to the target state. To handle gated productions, we may
* have to evaluate some predicates for this edge.
*/
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> ) {
  <targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated.
  The code generator
* decides if this is possible: CodeGenerator.canGenerateSwitch().
*/
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( input.LA(<k> ) ) {
<edges; separator="\n">
default:
<if(eotPredictsAlt)>
  alt<decisionNumber>=<eotPredictsAlt>;
<else>
  <ruleBacktrackFailure()>
  throw new NoViableAltException("<description>", <decisionNumber>, <stateNumber>, input);<\n>

```

```

    <! Need to add hook for noViableAltException !>
<endif>
}<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( input.LA(<k>) ) {
    <edges; separator="\n">
}<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( input.LA(<k>) ) {
<edges; separator="\n"><\n>
<if(eotPredictsAlt)>
default:
    alt<decisionNumber>=<eotPredictsAlt>;
    break;<\n>
<endif>
}<\n>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
<labels: {it |case <it>:}; separator="\n">
{
    <targetState>
}
break;
>>

// C y c l i c D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = dfa<decisionNumber>.predict(input);
>>

cyclicDFActor(dfa) ::= <<

dfa<dfa.decisionNumber> = new DFA(this, <dfa.decisionNumber>,
    "<dfa.description>",
    DFA<dfa.decisionNumber>_eot, DFA<dfa.decisionNumber>_eof, DFA<dfa.decisionNumber>_min,
    DFA<dfa.decisionNumber>_max, DFA<dfa.decisionNumber>_accept, DFA<dfa.decisionNumber>_special,
    DFA<dfa.decisionNumber>_transition<if(dfa.specialStateSTs)>,
    DFA<dfa.decisionNumber>_specialStateTransition<endif>);

```

```

>>
/* Dump DFA tables as run-length-encoded Strings of octal values.
* Can't use hex as compiler translates them before compilation.
* These strings are split into multiple,
  concatenated strings.
* Java puts them back together at compile time thankfully.
* Java cannot handle large static arrays, so we're stuck with this
* encode/decode approach. See analysis and runtime DFA for
* the encoding methods.
*/
cyclicDFA(dfa) ::= <<

private const DFA<dfa.decisionNumber>_eot:Array =
  DFA.unpackEncodedString("<dfa.javaCompressedEOT; wrap=\""+\n  \>");
private const DFA<dfa.decisionNumber>_eof:Array =
  DFA.unpackEncodedString("<dfa.javaCompressedEOF; wrap=\""+\n  \>");
private const DFA<dfa.decisionNumber>_min:Array =
  DFA.unpackEncodedString("<dfa.javaCompressedMin; wrap=\""+\n  \>", true);
private const DFA<dfa.decisionNumber>_max:Array =
  DFA.unpackEncodedString("<dfa.javaCompressedMax; wrap=\""+\n  \>", true);
private const DFA<dfa.decisionNumber>_accept:Array =
  DFA.unpackEncodedString("<dfa.javaCompressedAccept; wrap=\""+\n  \>");
private const DFA<dfa.decisionNumber>_special:Array =
  DFA.unpackEncodedString("<dfa.javaCompressedSpecial;
wrap=\""+\n  \>");
private const DFA<dfa.decisionNumber>_transition:Array = [
  <dfa.javaCompressedTransition: {s|DFA.unpackEncodedString("<s; wrap=\""+\n\>")}; separator=",\n">
];
<if(dfa.specialStateSTs)>
  private function DFA<dfa.decisionNumber>_specialStateTransition(dfa:DFA, s:int, _input:InputStream):int {
    <if(LEXER)>
      var input:InputStream = _input;
    <endif>
    <if(PARSER)>
      var input:TokenStream = TokenStream(_input);
    <endif>
    <if(TREE_PARSER)>
      var input:TreeNodeStream = TreeNodeStream(_input);
    <endif>
    var _s:int = s;
    switch ( s ) {
      <dfa.specialStateSTs: {state |
        case <i0> : <! compressed special state numbers 0..n-1 !>
          <state>}; separator="\n">
    }
  }
<if(backtracking)>
  if (this.state.backtracking>0) {this.state.failed=true; return -1;}<\n>

```

```

<endif>
    throw dfa.error(new NoViableAltException(dfa.description, <dfa.decisionNumber>,
    _s, input));
    }<\n>
<endif>

protected var dfa<dfa.decisionNumber>:DFA; // initialized in constructor

>>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
 * state.
 */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
var LA<decisionNumber>_<stateNumber>:int = input.LA(1);<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
var index<decisionNumber>_<stateNumber>:int = input.index;
input.rewind();<\n>
<endif>
s = -1;
<edges; separator="\nelse ">
<if(semPredState)> <! return input cursor to state before we rewound !>
input.seek(index<decisionNumber>_<stateNumber>);<\n>
<endif>
if ( s>=0 ) return s;
break;
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> ) { s = <targetStateNumber>;}<\n>
>>

/**
    An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n>
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "(<left>&&<right>)"

```

```

orPredicates(operands) ::= "<operands; separator='||'>"

notPredicate(pred) ::= "!(<evalPredicate(pred, { })>)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber>===<atomAsInt>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "input.LA(<k>)==<atomAsInt>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
(LA<decisionNumber>_<stateNumber> >= <lowerAsInt> && LA<decisionNumber>_<stateNumber> \<=
<upperAsInt>)
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt)
::= "(input.LA(<k>) >= <lowerAsInt> && input.LA(<k>) \<= <upperAsInt>)"

setTest(ranges) ::= <<
<ranges; separator='||'>
>>

// A T T R I B U T E S

globalAttributeScope(scope) ::= <<
<if(scope.attributes)>
protected var <scope.name>_stack:Array = new Array();<\n>
<endif>
>>

ruleAttributeScope(scope) ::= <<
<if(scope.attributes)>
protected var <scope.name>_stack:Array = new Array();<\n>
<endif>
>>

returnStructName() ::= "<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope"

returnType() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<returnStructName()>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>

```

```

<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
<endif>
>>

/** Generate the Java type associated with a single or multiple return
 * values.
 */
ruleLabelType(referencedRule) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
<returnStructName()>
<else>
<if(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
<endif>
>>

delegateName(d)
::= <<
<if(d.label)><d.label><else>g<d.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
 * must be an object, default value is "null".
 */
initValue(typeName) ::= <<
<asTypeInitMap.(typeName)>
>>

/** Define a rule label including default value */
ruleLabelDef(label) ::= <<
var <label.label.text>:<ruleLabelType(referencedRule=label.referencedRule)> =
<initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))>;<\n>
>>

/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
public static class <returnType()> extends <if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope {
    <scope.attributes:{it |public <it.decl>;}; separator="\n">

```

```

    <@ruleReturnMembers()>
};
<endif>
>>

parameterScope(scope)
::= <<
<scope.attributes:{it |<it.name>:<it.type>}; separator=", ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> =<expr>";

scopeAttributeRef(scope,attr,index,negIndex) ::= <<
<if(negIndex)>
<scope>_stack[<scope>_stack.length-<negIndex>-1].<attr.name>
<else>
<if(index)>
<scope>_stack[<index>].<attr.name>
<else>
<scope>_stack[<scope>_stack.length-1].<attr.name>
<endif>
<endif>
>>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <<
<if(negIndex)>
<scope>_stack[<scope>_stack.length-<negIndex>-1].<attr.name> =<expr>;
<else>
<if(index)>
<scope>_stack[<index>].<attr.name> =<expr>;
<else>
<scope>_stack[<scope>_stack.length-1].<attr.name> =<expr>;
<endif>
<endif>
>>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.size()>0 && $function::name.equals("foo")}?
 */
isolatedDynamicScopeRef(scope)
::= "<scope>_stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
(<scope>!=null?<scope>.values.<attr.name>:<initValue(attr.type)>)

```



```

<else>
<scope>
<endif>
>>

returnAttributeRef(ruleDescriptor,attr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.values.<attr.name>
<else>
<attr.name>
<endif>
>>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.values.<attr.name> =<expr>;
<else>
<attr.name> =<expr>;
<endif>
>>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "<scope>!=null?<scope>.text:null)"
tokenLabelPropertyRef_type(scope,attr) ::= "<scope>!=null?<scope>.type:0)"
tokenLabelPropertyRef_line(scope,attr)
::= "<scope>!=null?<scope>.line:0)"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>!=null?<scope>.charPositionInLine:0)"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>!=null?<scope>.channel:0)"
tokenLabelPropertyRef_index(scope,attr) ::= "<scope>!=null?<scope>.tokenIndex:0)"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "<scope>!=null?int(<scope>.text):0)"

ruleLabelPropertyRef_start(scope,attr) ::= "<scope>!=null?<labelType>(<scope>.start):null)"
ruleLabelPropertyRef_stop(scope,attr) ::= "<scope>!=null?<labelType>(<scope>.stop):null)"
ruleLabelPropertyRef_tree(scope,attr) ::= "<scope>!=null?<ASTLabelType>(<scope>.tree):null)"
ruleLabelPropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
(<scope>!=null?(input.tokenStream.toStringWithRange(
input.treeAdaptor.getTokenStartIndex(<scope>.start),
input.treeAdaptor.getTokenStopIndex(<scope>.start))):null)

```

```

<else>
(<scope>!=null?input.toStringWithTokenRange(<scope>.start,<scope>.stop):null)
<endif>
>>

```

```

ruleLabelPropertyRef_st(scope,attr)
::= "<scope>!=null?<scope>.st:null)"

```

```

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

```

```

lexerRuleLabelPropertyRef_type(scope,attr) ::=
  "<scope>!=null?<scope>.type:0)"
lexerRuleLabelPropertyRef_line(scope,attr) ::=
  "<scope>!=null?<scope>.lien:0)"
lexerRuleLabelPropertyRef_pos(scope,attr) ::=
  "<scope>!=null?<scope>.charPositionInLine:0)"
lexerRuleLabelPropertyRef_channel(scope,attr) ::=
  "<scope>!=null?<scope>.channel:0)"
lexerRuleLabelPropertyRef_index(scope,attr) ::=
  "<scope>!=null?<scope>.tokenIndex:0)"
lexerRuleLabelPropertyRef_text(scope,attr) ::=
  "<scope>!=null?<scope>.text:null)"
lexerRuleLabelPropertyRef_int(scope,attr) ::=
  "<scope>!=null?int(<scope>.text):0)"

```

```

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "<labelType>(retval.start)"
rulePropertyRef_stop(scope,attr) ::= "<labelType>(retval.stop)"
rulePropertyRef_tree(scope,attr)
::= "<ASTLabelType>(retval.tree)"
rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
input.tokenStream.toStringWithRange(
  input.treeAdaptor.getTokenStartIndex(retval.start),
  input.treeAdaptor.getTokenStopIndex(retval.start))
<else>
input.toStringWithTokenRange(retval.start,input.LT(-1))
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "retval.st"

```

```

lexerRulePropertyRef_text(scope,attr) ::= "text"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"

```

```
lexerRulePropertyRef_start(scope,attr) ::= "state.tokenStartCharIndex"
```

```
lexerRulePropertyRef_stop(scope,attr) ::= "(charIndex-1)"
```

```
lexerRulePropertyRef_int(scope,attr) ::= "int(<scope>.text)"
```

```
// setting $st
```

```
and $tree is allowed in local rule. everything else
```

```
// is flagged as error
```

```
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree =<expr>";
```

```
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>";
```

```
/** How to execute an action (only when not backtracking) */
```

```
execAction(action) ::= <<
```

```
<if(backtracking)>
```

```
if ( <actions.(actionScope).synpredgate> ) {
```

```
<action>
```

```
}
```

```
<else>
```

```
<action>
```

```
<endif>
```

```
>>
```

```
/** How to always execute an action even when backtracking */
```

```
execForcedAction(action) ::= "<action>"
```

```
// M I S C (properties, etc...)
```

```
bitset(name, words64) ::= <<
```

```
public static const <name>:BitSet = new BitSet([<words64: {it |<it>};separator=", ">]);<n>
```

```
>>
```

```
codeFileExtension() ::= ".as"
```

```
true_value() ::= "true"
```

```
false_value() ::= "false"
```

```
Found in path(s):
```

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
```

```
jar/org/antlr/codegen/templates/ActionScript/ActionScript.stg
```

```
No license file was found, but licenses were detected in source scan.
```

```
/*
```

```
[The "BSD license"]
```

```
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```

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http://linkedin.com/in/matthewl
```

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```

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\*/

```
scalaTypeInitMap ::= [  
  "Int": "0",  
  "Long": "0",  
  "Float": "0.0f",  
  "Double": "0.0",  
  "Boolean": "false",  
  "Byte": "0",  
  "Short": "0",  
  "Char": "0",  
  default: "null" // anything other than an atomic type  
]
```

```
/** The overall file structure of a recognizer; stores methods for rules  
 * and cyclic DFAs plus support code.
```

```
*/
```

```
outputFile(LEXER,PARSER,TREE_PARSER, actionScope, actions,  
  docComment, recognizer,  
  name, tokens, tokenNames, rules, cyclicDFAs,
```

```
  bitsets, buildTemplate, buildAST, rewriteMode, profile,  
  backtracking, synpreds, memoize, numRules,  
  fileName, ANTLRVersion, generatedTimestamp, trace,  
  scopes, superClass, literals) ::=
```

```
<<
```

```
// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>
```

```
<actions.(actionScope).header>
```

```

<@imports>
import org.antlr.runtime._
<if(TREE_PARSER)>
import org.antlr.runtime.tree._
<endif>
<@end>

<docComment>
<recognizer>
>>

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode, labelType="CommonToken",
  superClass="Lexer") ::= <<
  object <grammar.recognizerName> {
    <tokens:{it | val <it.name> = <it.type>}; separator="\n">

    <cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>
  }

class <grammar.recognizerName>(input: CharStream, state<grammar.delegators:{g|, <g.recognizerName>
<g:delegateName()>>: RecognizerSharedState) extends <@superClassName><superClass><@end>(input,
state<grammar.delegators:{g|, <g.recognizerName> <g:delegateName()>>}) {
  import <grammar.recognizerName>._
  <actions.lexer.members>

  // delegates
  <grammar.delegates:
    {g|<g.recognizerName> <g:delegateName()>}; separator="\n">
  // delegators
  <grammar.delegators:
    {g|<g.recognizerName> <g:delegateName()>}; separator="\n">
  <last(grammar.delegators):{g|public <g.recognizerName> gParent;}>

  <scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScope()><endif>}>

  def this(input<grammar.delegators:{g|, <g.recognizerName> <g:delegateName()>>: CharStream) =
    this(input, new RecognizerSharedState()<grammar.delegators:{g|, <g:delegateName()>>})

  <if(memoize)>
  <if(grammar.grammarIsRoot)>
    state.ruleMemo = new Array[java.util.Map[_,_]](<numRules>+1)<\n> <! index from 1..n !>
  <endif>
  <endif>

  <grammar.directDelegates:
    {g|<g:delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators):{p|,
  <p:delegateName()>>}, this); separator="\n">
  <grammar.delegators:

```

```

    {g|this.<g:delegateName()>
= <g:delegateName()>; separator="\n">
    <last(grammar.delegators):{g|gParent = <g:delegateName()>}>

override def getGrammarFileName = "<fileName>"

<if(filterMode)>
    <filteringNextToken()>
<endif>
    <rules; separator="\n\n">

    <synpreds:{p | <lexerSynpred(p)>}>
    <cyclicDFAs:{dfa | private val dfa<dfa.decisionNumber> = new
<grammar.recognizerName>.DFA<dfa.decisionNumber>(this)}; separator="\n">
    }
>>

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
override def nextToken(): Token = {
    while (true) {
        if ( input.LA(1)==CharStream.EOF ) {
            var eof: Token = new CommonToken((CharStream)input,Token.EOF,

                Token.DEFAULT_CHANNEL,
                    input.index(),input.index())
            eof.setLine(getLine())
            eof.setCharPositionInLine(getCharPositionInLine())
            return eof
        }
        state.token = null
state.channel = Token.DEFAULT_CHANNEL
state.tokenStartCharIndex = input.index()
state.tokenStartCharPositionInLine = input.getCharPositionInLine()
state.tokenStartLine = input.getLine()
state.text = null
        try {
            val m = input.mark()
            state.backtracking=1 <! means we won't throw slow exception !>
            state.failed=false
            mTokens()
            state.backtracking=0
            <! mTokens backtracks with synpred at backtracking==2

```

```

        and we set the synpredgate to allow actions at level 1. !>
    if ( state.failed ) {
        input.rewind(m)
        input.consume() <! advance one char and try again !>
    }
    else
{
    emit()
    return state.token
}
}
}
catch {
    case re: RecognitionException =>
        // shouldn't happen in backtracking mode, but...
        reportError(re)
        recover(re)
}
}
}
}

```

```

override def memoize(input: IntStream,
    ruleIndex: Int,
    ruleStartIndex: Int) = {
    if ( state.backtracking>1 ) super.memoize(input, ruleIndex, ruleStartIndex)
}

```

```

override def alreadyParsedRule(input: IntStream, ruleIndex: Int):Boolean {
    if ( state.backtracking>1 ) return super.alreadyParsedRule(input, ruleIndex)
    return false
}
}
>>

```

```

actionGate() ::= "state.backtracking==0"

```

```

filteringActionGate() ::= "state.backtracking==1"

```

```

/** How to generate a parser */

```

```

genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, inputStreamType, superClass,
    labelType, members, rewriteElementType,
    filterMode, ASTLabelType="Object") ::= <<
object <grammar.recognizerName>
{
<if(grammar.grammarIsRoot)>
    val tokenNames = Array(
        "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>", <tokenNames; separator=", ">
    )<n>
<endif>

```

```

<tokens:{it | val <it.name> = <it.type>}; separator="\n">

<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

<bitsets:{it | <bitset(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>},
        words64=it.bits)>>}>
}

class <grammar.recognizerName>(input: <inputStreamType>, state<grammar.delegators:{g|, <g.recognizerName>
<g.delegateName()>}>: RecognizerSharedState) extends <@superClassName><superClass><@end>(input, state) {
    import <grammar.recognizerName>._
    // delegates
    <grammar.delegates:
        {g|public <g.recognizerName> <g.delegateName()>}; separator="\n">
    // delegators
    <grammar.delegators:
        {g|public <g.recognizerName> <g.delegateName()>}; separator="\n">
    <last(grammar.delegators):{g|public <g.recognizerName> gParent;}>

    <scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScope()><endif>}>

    <@members>
    <! WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>
    def this(input<grammar.delegators:{g|, <g.recognizerName> <g.delegateName()>}>: <inputStreamType>) =
        this(input, new RecognizerSharedState()<grammar.delegators:{g|, <g.delegateName()>}>)

        <parserCtorBody()>
        <grammar.directDelegates:
            {g|<g.delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators):{p|,
<p.delegateName()>}>, this)}; separator="\n">
            <grammar.indirectDelegates:{g | <g.delegateName()> = <g.delegator.delegateName()>.<g.delegateName()>};
separator="\n">
            <last(grammar.delegators):{g|gParent = <g.delegateName()>}>
        <@end>

    override def getTokenNames: Array[String] = tokenNames
    override def getGrammarFileName = "<fileName>"

    <members>

    <rules; separator="\n\n">

    <! generate rule/method definitions for imported rules so they
    appear to be defined in this recognizer. !>
    // Delegated rules
    <grammar.delegatedRules:{ruleDescriptor|
        @throws(classOf[RecognitionException])

```



```

    def <ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope()>): <returnType()> = {\
<if(ruleDescriptor.hasReturnValue)>return
<endif><ruleDescriptor.grammar:delegateName()>.<ruleDescriptor.name>(<ruleDescriptor.parameterScope.attribut
es:{a|<a.name>}; separator=", ">) \}}; separator="\n">

```

```

<synpreds:{p | <synpred(p)>}>

```

```

<cyclicDFAs:{dfa | private val dfa<dfa.decisionNumber> = new
<grammar.recognizerName>.DFA<dfa.decisionNumber>(this)}; separator="\n">
}
>>

```

```

parserCtorBody() ::= <<
<if(memoize)>
<if(grammar.grammarIsRoot)>
this.state.ruleMemo = new Array[java.util.Map[_,_]](<length(grammar.allImportedRules)>+1)<\n <! index from
1..n !>
<endif>
<endif>
<grammar.delegators:
{g|this.<g:delegateName()> = <g:delegateName()>}; separator="\n">
>>

```

```

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets,
    ASTLabelType="Object", superClass="Parser",
    labelType="Token",
    members={<actions.parser.members>}) ::= <<
<genericParser(inputStreamType="TokenStream", rewriteElementType="Token", ...)>
>>

```

```

/** How to generate a tree parser; same as parser except the input
 * stream is a different type.
 */

```

```

treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={<ASTLabelType>}, ASTLabelType="Object",
    superClass={<if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif>},
    members={<actions.treeparser.members>}
) ::= <<
<genericParser(inputStreamType="TreeNodeStream", rewriteElementType="Node", ...)>
>>

```

```

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */

```

```

synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
// $ANTLR start <ruleName>
@throws(classOf[RecognitionException])
def <ruleName>_fragment(<ruleDescriptor.parameterScope:parameterScope()>): Unit = {
    <ruleLabelDefs()>
<if(trace)>
    traceIn("<ruleName>_fragment", <ruleDescriptor.index>)
    try {
        <block>
    }
    finally {
        traceOut("<ruleName>_fragment", <ruleDescriptor.index>);
    }
<else>
    <block>
<endif>
}
// $ANTLR end <ruleName>
>>

synpred(name) ::= <<
final def <name>(): Boolean = {
    state.backtracking+=1
    <@start()>
    val start = input.mark()
    try {
        <name>_fragment() // can never throw exception
    } catch {
        case re: RecognitionException =>
            System.err.println("impossible: "+re)
    }
    val success = !state.failed
    input.rewind(start)
    <@stop()>
    state.backtracking-=1
    state.failed=false
    success
}<\n>
>>

lexerSynpred(name) ::= <<
<synpred(name)>
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if ( state.backtracking>0 && alreadyParsedRule(input, <ruleDescriptor.index>) ) { return <ruleReturnValue()> }

```



```

<@setErrorReturnValue()>
  }<\n>
<endif>
<endif>
<endif>
  finally {
    <if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
    <memoize()>
    <ruleScopeCleanUp()>
    <finally>
  }
  <@postamble()>

  return <ruleReturnValue()>
}
// $ANTLR end "<ruleName>"
>>

catch(decl,action) ::= <<
catch (<e.decl>) {
  <e.action>
}
>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
val retval = new <returnType()>()
retval.start = input.LT(1)<\n>
<else>
<ruleDescriptor.returnScope.attributes: { a |
var <a.name>: <a.type> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>
}>
<endif>
<if(memoize)>
val <ruleDescriptor.name>_startIndex = input.index()
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: {it | <it>_stack.push(new <it>_scope()); separator="\n">
<ruleDescriptor.ruleScope: {it | <it.name>_stack.push(new <it.name>_scope()); separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: {it | <it>_stack.pop(); separator="\n">
<ruleDescriptor.ruleScope: {it | <it.name>_stack.pop(); separator="\n">
>>

```

```

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it | var <it.label.text>: <labelType> = null}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]
: {it | var list_<it.label.text>: java.util.List=null}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
<ruleDescriptor.ruleListLabels:{ll|var <ll.label.text>: RuleReturnScope = null}; separator="\n">
>>

```

```

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it | var <it.label.text>: <labelType>=null}; separator="\n"
>
<ruleDescriptor.charLabels:{it | int <it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
: {it | var list_<it.label.text>: java.util.List=null}; separator="\n"
>
>>

```

```

ruleReturnValue() ::= <<
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
>>

```

```

ruleCleanUp()
::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
retval.stop = input.LT(-1)<\n>
<endif>
<endif>
>>

```

```

memoize() ::= <<

```

```

<if(memoize)>
<if(backtracking)>
if ( state.backtracking>0 ) { memoize(input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex) }
<endif>
<endif>
>>

```

```

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
// $ANTLR start "<ruleName>"
@throws(classOf[RecognitionException])
final def m<ruleName>(<ruleDescriptor.parameterScope:parameterScope()): Unit = {
  <if(trace)>traceIn("<ruleName>", <ruleDescriptor.index>)<endif>
  <ruleScopeSetUp()>
  <ruleDeclarations()>
  try {
<if(nakedBlock)>
  <ruleMemoization(name=ruleName)>
  <lexerRuleLabelDefs()>
  <ruleDescriptor.actions.init>
  try <block><\n>
<else>
  var _type = <ruleName>

  var _channel = BaseRecognizer.DEFAULT_TOKEN_CHANNEL
  <ruleMemoization(name=ruleName)>
  <lexerRuleLabelDefs()>
  <ruleDescriptor.actions.init>
  try <block>
  <ruleCleanUp()>
  state.`type` = _type
  state.channel = _channel
  <(ruleDescriptor.actions.after):execAction()>
<endif>
  }
  finally {
  <if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>)<endif>
  <ruleScopeCleanUp()>
  <memoize()>
  }
  }
// $ANTLR end "<ruleName>"
>>

```

```

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.

```

```

*/
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
@throws(classOf[RecognitionException])
def mTokens(): Unit = {
  <block><\n>
}
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
var alt<decisionNumber>
  = <maxAlt>
<decls>
<@predecision()>
<decision>
<@postdecision()>
<@prebranch()>
alt<decisionNumber> match {
  <alts:{ a | <altSwitchCase(i,a)> }>
  case _ =>
}
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
var alt<decisionNumber> = <maxAlt>
<decls>
<@predecision()>
<decision>
<@postdecision()>
alt<decisionNumber> match {
  <alts:{ a | <altSwitchCase(i,a)> }>
  case _ =>
}
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

```

```

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives
*/
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
var cnt<decisionNumber>: Int = 0
<decls>
<@preloop()>
var loop<decisionNumber>_quitflag = false
while (!loop<decisionNumber>_quitflag) {
  var alt<decisionNumber>:Int = <maxAlt>
  <@predecision()>
  <decision>
  <@postdecision()>
  alt<decisionNumber> match {
    <alts:{a | <altSwitchCase(i,a)>}>
  }
  case _ =>
    if ( cnt<decisionNumber> >= 1 ) loop<decisionNumber>_quitflag = true
    else {
      <ruleBacktrackFailure()>
      val eee = new EarlyExitException(<decisionNumber>, input)
      <@earlyExitException()>
      throw eee
    }
  }
  cnt<decisionNumber>+=1
}
<@postloop()>
>>

positiveClosureBlockSingleAlt ::= positiveClosureBlock

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
//
<fileName>:<description>
<decls>

```



```

<@preloop()>
var loop<decisionNumber>_quitflag = false
while (!loop<decisionNumber>_quitflag) {
  var alt<decisionNumber>:Int = <maxAlt>
  <@predecision()>
  <decision>
  <@postdecision()>
  alt<decisionNumber> match {
    <alts:{ a | <altSwitchCase(i,a)>}>
  }
  case _ => loop<decisionNumber>_quitflag = true
}
}
<@postloop()>
>>

closureBlockSingleAlt ::= closureBlock

/** Optional blocks (x)? are translated to (x|) by before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase(altNum, alt) ::= <<
case <altNum> =>
  <@prealt()>
  <alt>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew)
::= <<
// <fileName>:<description>
{
  <@declarations()>
  <elements:element()>
  <rew>
  <@cleanup()>
}
>>

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.

```

```

*/
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element(e) ::= <<
<@prematch(>
<e.el><\n>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(label)><label>=<endif>`match`(input,<token>,FOLLOW_<token>_in_<ruleName><elementIndex>)<if(label)>
.asInstanceOf[<labelType>]<endif>
<checkRuleBacktrackFailure(>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

listLabel(label,elem) ::= <<
if (list_<label>==null) list_<label>=new java.util.ArrayList()
list_<label>.add(<elem>)<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = input.LA(1)<\n>
<endif>
`match`(<char>)
<checkRuleBacktrackFailure(>
>>

/**
match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = input.LA(1)<\n>
<endif>
matchRange(<a>,<b>); <checkRuleBacktrackFailure(>
>>

/** For now, sets are interval tests and must be tested inline */

```

```

matchSet(s,label,elementIndex,terminalOptions,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label>= input.LA(1)<\n>
<else>
<label>=input.LT(1).asInstanceOf[<labelType>]<\n>
<endif>
<endif>
if ( <s> ) {
    input.consume()
    <postmatchCode>
<if(!LEXER)>
    state.errorRecovery=false<\n>
<endif>
    <if(backtracking)>state.failed=false<endif>
}
else {
    <ruleBacktrackFailure()>
    val mse = new MismatchedSetException(null,input)
    <@mismatchedSetException()>
<if(LEXER)>
    recover(mse)
    throw mse
<else>
    throw mse
    <! use following code to make it recover inline; remove throw mse;
    recoverFromMismatchedSet(input,mse,FOLLOW_set_in_<ruleName><elementIndex>)
    !>
<endif>
}<\n>
>>

```

```

matchRuleBlockSet
::= matchSet

```

```

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match a string literal */
lexerStringRef(string,label,elementIndex="0") ::= <<
<if(label)>
val <label>Start = getCharIndex()
`match`(<string>)
<checkRuleBacktrackFailure()>
val <label>StartLine<elementIndex> = getLine()
val <label>StartCharPos<elementIndex> = getCharPositionInLine()

```

```

<label> = new <labelType>(input, Token.INVALID_TOKEN_TYPE, Token.DEFAULT_CHANNEL, <label>Start,
getCharIndex()-1)
<label>.setLine(<label>StartLine<elementIndex>)
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>)
<else>
`match`(<string>)
<checkRuleBacktrackFailure()><\n>
<endif>
>>

```

```

wildcard(token,label,elementIndex,terminalOptions) ::= <<
<if(label)>
<label>=input.LT(1).asInstanceOf[<labelType>]<\n>
<endif>
matchAny(input)
<checkRuleBacktrackFailure()>
>>

```

```

wildcardAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<wildcard(...)>
<listLabel(elem=label,...)>
>>

```

```

/**
Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = input.LA(1)<\n>
<endif>
matchAny()
<checkRuleBacktrackFailure()>
>>

```

```

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match a rule reference by invoking it possibly with arguments
* and a return value or values. The 'rule' argument was the
* target rule name, but now is type Rule, whose toString is
* same: the rule name. Now though you can access full rule
* descriptor stuff.
*/
ruleRef(rule,label,elementIndex,args,scope) ::= <<
pushFollow(FOLLOW_<rule.name>_in_<ruleName><elementIndex>)
<if(label)><label>=<endif><if(scope)><scope.delegateName()>.<endif><rule.name>(<args; separator=", ">)<\n>
state._fsp-=1

```

```

<checkRuleBacktrackFailure()>
>>

/** ids+=r */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(elem=label,...)>
>>

/** A lexer rule reference.
*
*
The 'rule' argument was the target rule name, but now
* is type Rule, whose toString is same: the rule name.
* Now though you can access full rule descriptor stuff.
*/
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
<if(label)>
val <label>Start<elementIndex> = getCharIndex()
val <label>StartLine<elementIndex> = getLine()
val <label>StartCharPos<elementIndex> = getCharPositionInLine()
<if(scope)><scope:delegateName()>.<endif>m<rule.name>(<args; separator="," ">)
<checkRuleBacktrackFailure()>
<label> = new <labelType>(input, Token.INVALID_TOKEN_TYPE, Token.DEFAULT_CHANNEL,
<label>Start<elementIndex>, getCharIndex()-1)
<label>.setLine(<label>StartLine<elementIndex>)
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>)
<else>
<if(scope)><scope:delegateName()>.<endif>m<rule.name>(<args; separator="," ">)
<checkRuleBacktrackFailure()>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabel(elem=label,...)>
>>

/**
EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
val <label>Start<elementIndex> = getCharIndex()
val <label>StartLine<elementIndex> = getLine()
val <label>StartCharPos<elementIndex> = getCharPositionInLine()
`match`(EOF)
<checkRuleBacktrackFailure()>

```

```

val <label> = new <labelType>(input, EOF, Token.DEFAULT_CHANNEL, <label>Start<elementIndex>,
getCharIndex()-1)
<label>.setLine(<label>StartLine<elementIndex>)
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>)
<else>
`match`(EOF)
<checkRuleBacktrackFailure()>
<endif>
>>

```

```

// used for left-recursive rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()            ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> \<= <opPrec>"
recRuleSetResultAction() ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name)    ::= "$<name>=$<src>.<name>;"

```

```

/** match ^(root children) in tree parser */
tree(root,
actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( input.LA(1)==Token.DOWN ) {
`match`(input, Token.DOWN, null)
<checkRuleBacktrackFailure()>
<children:element()>
`match`(input, Token.UP, null)
<checkRuleBacktrackFailure()>
}
<else>
`match`(input, Token.DOWN, null)
<checkRuleBacktrackFailure()>
<children:element()>
`match`(input, Token.UP, null)
<checkRuleBacktrackFailure()>
<endif>
>>

```

```

/** Every predicate is used as a validating predicate (even when it is
* also hoisted into a prediction expression).
*/
validateSemanticPredicate(pred,description) ::= <<
if ( !(<evalPredicate(...)> ) ) {
<ruleBacktrackFailure()>
throw new FailedPredicateException(input, "<ruleName>", "<description>")
}

```

```
>>
```

```
// F i x e d D F A (if-then-else)
```

```
dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
val LA<decisionNumber>_<stateNumber> = input.LA(<k>)<\n>
<edges;
separator="\nelse ">
else {
<if(eotPredictsAlt)>
alt<decisionNumber>=<eotPredictsAlt>
<else>
<ruleBacktrackFailure()>
val nvae = new NoViableAltException("<description>", <decisionNumber>, <stateNumber>, input)<\n>
<@noViableAltException()>
throw nvae<\n>
<endif>
}
>>
```

```
/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
```

```
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
val LA<decisionNumber>_<stateNumber> = input.LA(<k>)<\n>
<edges; separator="\nelse ">
>>
```

```
/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer
 * so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */
```

```
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
val LA<decisionNumber>_<stateNumber> = input.LA(<k>)<\n>
<edges; separator="\nelse "><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber>=<eotPredictsAlt> <! if no edges, don't gen ELSE !>
<else>
else {
alt<decisionNumber>=<eotPredictsAlt>
}<\n>
<endif>
```

```

<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber>=<alt>"

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.
 */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif>) {
    <targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The
code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
input.LA(<k>) match {
<edges; separator="\n">
case _ =>
<if(eotPredictsAlt)>
    alt<decisionNumber>=<eotPredictsAlt>
<else>
    <ruleBacktrackFailure()>
    val nvae = new NoViableAltException("<description>", <decisionNumber>, <stateNumber>, input)<\n>
    <@noViableAltException()>
    throw nvae<\n>
<endif>
}<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
input.LA(<k>) match {
    <edges; separator="\n">
    case _ =>
}<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
input.LA(<k>) match {
<edges; separator="\n"><\n>
case _ =>

```



```

<if(eotPredictsAlt)>
  alt<decisionNumber>=<eotPredictsAlt>;
<endif>
}<\n>
>>

```

```

dfaEdgeSwitch(labels, targetState) ::= <<
case <labels:{it | <it>}; separator=" | "> =>
  {
    <targetState>
  }
>>

```

```
// C y c l i c D F A
```

```

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */

```

```

dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = dfa<decisionNumber>.predict(input)
>>

```

```

/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */

```

```

cyclicDFA(dfa) ::= <<
val DFA<dfa.decisionNumber>_eotS =
  "<dfa.javaCompressedEOT; wrap="+\n \>"
val DFA<dfa.decisionNumber>_eofS =
  "<dfa.javaCompressedEOF; wrap="+\n \>"
val DFA<dfa.decisionNumber>_minS =
  "<dfa.javaCompressedMin;
  wrap="+\n \>"
val DFA<dfa.decisionNumber>_maxS =
  "<dfa.javaCompressedMax; wrap="+\n \>"
val DFA<dfa.decisionNumber>_acceptS =
  "<dfa.javaCompressedAccept; wrap="+\n \>"
val DFA<dfa.decisionNumber>_specialS =
  "<dfa.javaCompressedSpecial; wrap="+\n \>}"
val DFA<dfa.decisionNumber>_transitionS: Array[String] = Array(
  <dfa.javaCompressedTransition:{s|<s; wrap="+\n\>"}; separator=",\n">
)

```

```

val DFA<dfa.decisionNumber>_eot: Array[Short] = DFA.unpackEncodedString(DFA<dfa.decisionNumber>_eotS)
val DFA<dfa.decisionNumber>_eof: Array[Short] = DFA.unpackEncodedString(DFA<dfa.decisionNumber>_eofS)
val DFA<dfa.decisionNumber>_min: Array[Char] =
DFA.unpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_minS)
val DFA<dfa.decisionNumber>_max: Array[Char] =
DFA.unpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_maxS)
val DFA<dfa.decisionNumber>_accept: Array[Short] =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_acceptS)
val
  DFA<dfa.decisionNumber>_special: Array[Short] =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_specialS)
val DFA<dfa.decisionNumber>_transition = new
Array[Array[Short]](DFA<dfa.decisionNumber>_transitionS.length)

for (i \<- DFA<dfa.decisionNumber>_transition.indices) {
  DFA<dfa.decisionNumber>_transition(i) =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_transitionS(i))
}

class DFA<dfa.decisionNumber> extends DFA {

  def this(recognizer: BaseRecognizer) = {
    this()
    this.recognizer = recognizer
    this.decisionNumber = <dfa.decisionNumber>
    this.eot = DFA<dfa.decisionNumber>_eot
    this.eof = DFA<dfa.decisionNumber>_eof
    this.min = DFA<dfa.decisionNumber>_min
    this.max = DFA<dfa.decisionNumber>_max
    this.accept = DFA<dfa.decisionNumber>_accept
    this.special = DFA<dfa.decisionNumber>_special
    this.transition = DFA<dfa.decisionNumber>_transition
  }
  override def getDescription = "<dfa.description>"
  <@errorMethod()>
<if(dfa.specialStateSTs)>
  @throws(classOf[NoViableAltException])
  override def specialStateTransition(s: Int, _input: IntStream):Int = {
    <if(LEXER)>
    val input = _input
    <endif>
    <if(PARSER)>
    val input = _input.asInstanceOf[TokenStream]
    <endif>
    <if(TREE_PARSER)>
    val input = _input.asInstanceOf[TreeNodeStream]
    <endif>
  }
}

```

```

    val _s = s
    s match {
    <dfa.specialStateSTs:{state |
    case <i0> => <! compressed special state numbers 0..n-1 !>
        <state>}; separator="\n">
    case _ =>
        }
    <if(backtracking)>
        if (state.backtracking>0) {state.failed=true; return -1}<\n>
    <endif>
        val nvae = new NoViableAltException(getDescription(), <dfa.decisionNumber>, _s, input)
        error(nvae)
        throw nvae
    }<\n>
    <endif>
    }<\n>
    >>

```

```

/** A state in a cyclic DFA; it's a special state and part of a big switch on
 * state.
 */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState)
 ::= <<
val LA<decisionNumber>_<stateNumber>: Int = input.LA(1)<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
val index<decisionNumber>_<stateNumber>: Int = input.index()
input.rewind()<\n>
<endif>
s = -1
<edges; separator="\nelse ">
<if(semPredState)> <! return input cursor to state before we rewound !>
input.seek(index<decisionNumber>_<stateNumber>)<\n>
<endif>
if ( s>=0 ) return s
>>

```

```

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> ) { s = <targetStateNumber>}<\n>
>>

```

```

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber><\n>

```

```

>>

// D F A E X P R E S S I O N S

andPredicates(left,right)
::= "<left>&&<right>"

orPredicates(operands) ::= "<operands; separator=\\|\\>"

notPredicate(pred) ::= "!(<evalPredicate(pred,\\\">)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber>===<atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "input.LA(<k>)==<atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <<
(LA<decisionNumber>_<stateNumber> >= <lower> && LA<decisionNumber>_<stateNumber> \<= <upper>)
>>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "(input.LA(<k>) >=<lower>
&& input.LA(<k>) \<= <upper>)"

setTest(ranges) ::= "<ranges; separator=\\|\\>"

// A T T R I B U T E S

globalAttributeScope(scope) ::= <<
<if(scope.attributes)>
class <scope.name>_scope
{
  <scope.attributes:{it | var <it.name>: <it.type> = _}; separator="\\n">
}
val <scope.name>_stack = new collection.mutable.Stack[<scope.name>_scope]<\\n>
<endif>
>>

ruleAttributeScope(scope) ::= <<
<if(scope.attributes)>
class <scope.name>_scope {
  <scope.attributes:{it | var <it.name>: <it.type> = _}; separator="\\n">

```

```

}
val <scope.name>_stack = new collection.mutable.Stack[<scope.name>_scope]<\n>
<endif>
>>

returnStructName(r) ::= "<r.name>_return"

returnType() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor:returnStructName()>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
Unit
<endif>
<endif>
>>

/** Generate the Java type associated with a single or multiple return
 * values.
 */
ruleLabelType(referencedRule) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
<referencedRule.name>_return
<else>
<if(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
Unit
<endif>
<endif>
>>

delegateName(d)
 ::= <<
<if(d.label)><d.label><else>g<d.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
 * must be an object, default value is "null".
 */
initValue(typeName) ::= <<
<scalaTypeInitMap.(typeName)>
>>

/** Define a rule label including default value */
ruleLabelDef(label) ::= <<

```

```
var <label.label.text>: <ruleLabelType(referencedRule=label.referencedRule)> =
<initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))><\n>
>>
```

```
/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 * TODO(matthewlloyd): make this static
 */
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
final class <ruleDescriptor:returnStructName()> extends
<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope {
  <scope.attributes:{it | var <it.name>: <it.type> = _}; separator="\n">
  <@ruleReturnMembers()>
}
<endif>
>>
```

```
parameterScope(scope)
::= <<
<scope.attributes:{it | <it.name>: <it.type>}; separator=", ">
>>
```

```
parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> =<expr>"
```

```
scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack(<scope>_stack.size-<negIndex>-1).<attr.name>
<else>
<if(index)>
<scope>_stack(<index>).<attr.name>
<else>
<scope>_stack.top.<attr.name>
<endif>
<endif>
%>
```

```
scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack(<scope>_stack.size-<negIndex>-1).<attr.name> = <expr>
<else>
<if(index)>
<scope>_stack(<index>).<attr.name> = <expr>
<else>
<scope>_stack.top.<attr.name> = <expr>
<endif>
<endif>
```

```

<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.size(>0 && $function::name.equals("foo"))}?
 */
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/**
 reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
(if (<scope>!=null) <scope>.<attr.name> else <initValue(attr.type)>)
<else>
<scope>
<endif>
%>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
<attr.name>
<endif>
%>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> =<expr>
<else>
<attr.name> =<expr>
<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "(if (<scope>!=null) <scope>.getText() else null)"
tokenLabelPropertyRef_type(scope,attr) ::= "(if (<scope>!=null) <scope>.getType() else 0)"
tokenLabelPropertyRef_line(scope,attr) ::= "(if (<scope>!=null)

```

```

<scope>.getLine() else 0)"
tokenLabelPropertyRef_pos(scope,attr) ::= "(if (<scope>!=null) <scope>.getCharPositionInLine() else 0)"
tokenLabelPropertyRef_channel(scope,attr) ::= "(if (<scope>!=null) <scope>.getChannel() else 0)"
tokenLabelPropertyRef_index(scope,attr) ::= "(if (<scope>!=null) <scope>.getTokenIndex() else 0)"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "(if (<scope>!=null) Integer.valueOf(<scope>.getText()) else 0)"

ruleLabelPropertyRef_start(scope,attr) ::= "(if (<scope>!=null) <scope>.start.asInstanceOf[<labelType>] else null)"
ruleLabelPropertyRef_stop(scope,attr) ::= "(if (<scope>!=null) <scope>.stop.asInstanceOf[<labelType>] else null)"
ruleLabelPropertyRef_tree(scope,attr) ::= "(if (<scope>!=null) <scope>.tree.asInstanceOf[<ASTLabelType>] else
null)"
ruleLabelPropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
(if (<scope>!=null) (input.getTokenStream().toString(
input.getTreeAdaptor().getTokenStartIndex(<scope>.start),
input.getTreeAdaptor().getTokenStopIndex(<scope>.start))) else null)
<else>
(if (<scope>!=null) input.toString(<scope>.start,<scope>.stop) else null)
<endif>
>>

ruleLabelPropertyRef_st(scope,attr) ::= "(if (<scope>!=null) <scope>.st else null)"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::=
"(if (<scope>!=null) <scope>.getType() else 0)"
lexerRuleLabelPropertyRef_line(scope,attr) ::=
"(if (<scope>!=null) <scope>.getLine() else 0)"
lexerRuleLabelPropertyRef_pos(scope,attr) ::=
"(if (<scope>!=null) <scope>.getCharPositionInLine() else -1)"
lexerRuleLabelPropertyRef_channel(scope,attr) ::=
"(if (<scope>!=null) <scope>.getChannel() else 0)"
lexerRuleLabelPropertyRef_index(scope,attr) ::=
"(if (<scope>!=null) <scope>.getTokenIndex() else 0)"
lexerRuleLabelPropertyRef_text(scope,attr) ::=
"(if (<scope>!=null) <scope>.getText() else null)"
lexerRuleLabelPropertyRef_int(scope,attr)
::=
"(if (<scope>!=null) Integer.valueOf(<scope>.getText()) else 0)"

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "(retval.start.asInstanceOf[<labelType>])"
rulePropertyRef_stop(scope,attr) ::= "(retval.stop.asInstanceOf[<labelType>])"
rulePropertyRef_tree(scope,attr) ::= "(retval.tree.asInstanceOf[<ASTLabelType>])"
rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>

```



```

input.getTokenStream().toString(
  input.getTreeAdaptor().getTokenStartIndex(retval.start),
  input.getTreeAdaptor().getTokenStopIndex(retval.start))
<else>
input.toString(retval.start,input.LT(-1))
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "getText()"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr)
  ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"
lexerRulePropertyRef_start(scope,attr) ::= "state.tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(getCharIndex()-1)"
lexerRulePropertyRef_int(scope,attr) ::= "Integer.valueOf(<scope>.getText())"

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree =<expr>"
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>"

/** How to execute an action (only when not backtracking) */
execAction(action) ::= <<
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) {
  <action>
}
<else>
<action>
<endif>
>>

/** How to always execute an action even when backtracking */
execForcedAction(action) ::= "<action>"

// M I S C (properties, etc...)

bitset(name, words64) ::= <<
val <name> = new BitSet(Array[Long](<words64:{it | <it>L};separator=","))<\n>
>>

codeFileExtension()
  ::= ".scala"

```

```
true_value() ::= "true"
false_value() ::= "false"
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Scala/Scala.stg
```

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```
/*
```

```
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```

```
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```
*/
```

```
/** Templates for building ASTs during tree parsing.
```

```
*
```

```
* Deal with many combinations. Dimensions are:
```

```
* Auto build or rewrite
```

```
* no label, label, list label (label/no-label handled together)
```

```
* child, root
```

```
* token, set, rule, wildcard
```

```
*
```

```
* Each combination has its own template except that label/no label
```

```
* is combined into tokenRef, ruleRef, ...
```

```
*/
```

```

finishedBacktracking(block) ::= <<
<if(backtracking)>
if <actions.(actionScope).synpredgate>:
  <block>
<else>
<block>
<endif>
>>

/**
  Add a variable to track last element matched */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
_first_0 = None
_last = None<\n>
>>

/** What to emit when there is no rewrite rule. For auto build
  * mode, does nothing.
  */
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
<finishedBacktracking({
<if(rewriteMode)>
retval.tree = _first_0
if self._adaptor.getParent(retval.tree) is not None and self._adaptor.isNil(self._adaptor.getParent(retval.tree)):
  retval.tree = self._adaptor.getParent(retval.tree)
<endif>
})>
>>

/** match ^(root children) in tree parser; override here to
  * add tree construction actions.
  */
tree(root, actionsAfterRoot, children, nullableChildList,
  enclosingTreeLevel, treeLevel) ::= <<
_last = self.input.LT(1)
_save_last_<treeLevel> = _last
_first_<treeLevel> = None
<if(!rewriteMode)>
root_<treeLevel> = self._adaptor.nil()<\n>
<endif>
<root:element()>
<if(rewriteMode)>
<finishedBacktracking({
<if(root.el.rule)>
if _first_<enclosingTreeLevel>
is None:
  _first_<enclosingTreeLevel> = <root.el.label>.tree<\n>

```

```

<else>
if _first_<enclosingTreeLevel> is None:
  _first_<enclosingTreeLevel> = <root.el.label><\n>
<endif>
})>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if self.input.LA(1) == DOWN:
  self.match(self.input, DOWN, None)
  <children:element()>
  self.match(self.input, UP, None)

<else>
self.match(self.input, DOWN, None)
<children:element()>
self.match(self.input, UP, None)<\n>
<endif>
<if(!rewriteMode)>
self._adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>)<\n>
<endif>
_last = _save_last_<treeLevel>

>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex,terminalOptions={ }) ::= <<
_last = self.input.LT(1)
<super.tokenRef(...)>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions={ }) ::= <<
_last = self.input.LT(1)
<super.tokenRef(...)>
<if(!rewriteMode)>
<finishedBacktracking({
<if(terminalOptions.node)>
<label>_tree
= <terminalOptions.node><(<label>)
<else>
<label>_tree = self._adaptor.dupNode(<label>)
<endif><\n>
self._adaptor.addChild(root_<treeLevel>, <label>_tree)

```

```

})>
<else> <! rewrite mode !>
<finishedBacktracking({
if _first_<treeLevel> is None:
    _first_<treeLevel> = <label><\n>
})>
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions={ }) ::= <<
    _last = self.input.LT(1)
    <super.tokenRef(...)>
    <if(!rewriteMode)>
    <finishedBacktracking({
    <if(terminalOptions.node)>
    <label>_tree = <terminalOptions.node><(<label>)
    <else>
    <label>_tree = self._adaptor.dupNode(<label>)
    <endif><\n>
    root_<treeLevel> = self._adaptor.becomeRoot(<label>_tree, root_<treeLevel>)
    })>
    <endif>
>>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={ })
::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions={ }) ::= <<
    _last = self.input.LT(1)
    <super.wildcard(...)>
    <if(!rewriteMode)>
    <finishedBacktracking({
    <label>_tree = self._adaptor.dupTree(<label>)
    self._adaptor.addChild(root_<treeLevel>, <label>_tree)
    })>
    <else> <! rewrite mode !>

```

```

<finishedBacktracking({
if _first_<treeLevel> is None:
  _first_<treeLevel> = <label>
})>
<endif>
>>

// SET AST
matchSet(s,label,elementIndex,postmatchCode,terminalOptions={ }) ::= <<
  _last = self.input.LT(1)
  <super.matchSet(postmatchCode={
  <if(!rewriteMode)>
  <finishedBacktracking({
  <if(terminalOptions.node)>
  <label>_tree = <terminalOptions.node>(<label>)
  <else>
  <label>_tree = self._adaptor.dupNode(<label>)
  <endif><\n>
  self._adaptor.addChild(root_<treeLevel>, <label>_tree)
  })>
  <endif>
  }, ...)>
  >>

matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={ })
  ::= <<
  <matchSet(...)>
  <noRewrite(...)> <! set return tree !>
  >>

matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={ }) ::= <<
  _last = self.input.LT(1)
  <super.matchSet(...)>
  >>

matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={ }) ::= <<
  <super.matchSet(postmatchCode={
  <if(!rewriteMode)>
  <finishedBacktracking({
  <if(terminalOptions.node)>
  <label>_tree = <terminalOptions.node>(<label>)
  <else>
  <label>_tree = self._adaptor.dupNode(<label>)
  <endif><\n>
  root_<treeLevel> = self._adaptor.becomeRoot(<label>_tree, root_<treeLevel>)
  })>
  <endif>
  }, ...)>

```

```

>>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
  _last = self.input.LT(1)
  <super.ruleRef(...)>
  <finishedBacktracking({
  <if(!rewriteMode)>
  self._adaptor.addChild(root_<treeLevel>, <label>.tree)
  <else> <! rewrite mode !>
  if _first_<treeLevel> is None:
    _first_<treeLevel> = <label>.tree<\n>
  <endif>
  })>
>>

/** x+=rule auto construct
*/
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRef(...)>
  <listLabel(label, {<label>.tree})>
>>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
  _last = self.input.LT(1)
  <super.ruleRef(...)>
  <if(!rewriteMode)>
  <finishedBacktracking({
  root_<treeLevel> = self._adaptor.becomeRoot(<label>.tree, root_<treeLevel>)
  })>
  <endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRefRuleRoot(...)>
  <listLabel(label, {<label>.tree})>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
  _last = self.input.LT(1)
  <super.ruleRefTrack(...)>
>>

```

```

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _last = self.input.LT(1)
  <super.ruleRefTrackAndListLabel(...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope)
  ::= <<
  _last = self.input.LT(1)
  <super.ruleRefRuleRootTrack(...)>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _last = self.input.LT(1)
  <super.ruleRefRuleRootTrackAndListLabel(...)>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,scope,terminalOptions={ }) ::= <<
  <if(terminalOptions.node)>
  <terminalOptions.node>(stream_<token>.nextNode())
  <else>
  stream_<token>.nextNode()
  <endif>
>>

ruleCleanUp() ::= <<
  <super.ruleCleanUp()>
  <if(!rewriteMode)>
  <finishedBacktracking({
  retval.tree = self._adaptor.rulePostProcessing(root_0)
  })>
  <endif>
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Python3/ASTTreeParser.stg

```

No license file was found, but licenses were detected in source scan.

```

/*

```

```

[The "BSD license"]

```

```

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```



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\*/

/\*

\* This code generating template and the associated Cpp runtime was produced by:

\* Gokulakannan Somasundaram ( heavy lifting from C Run-time by Jim Idle )

\*/

```
cTypeInitMap ::= [  
  "int"   : "0",      // Integers  start out being 0  
  "long"  : "0",      // Longs    start out being 0  
  "float" : "0.0",    // Floats  start out being 0  
  "double": "0.0",    // Doubles start out being 0  
  "bool"  : "false",  
  // Booleans start out being Antlr C for false  
  "byte"  : "0",      // Bytes   start out being 0  
  "short" : "0",      // Shorts  start out being 0  
  "char"  : "0"       // Chars   start out being 0  
]
```

```
leadIn(type) ::=
```

```
<<
```

```
/** \file
```

```
* This <type> file was generated by $ANTLR version <ANTLRVersion>
```

```
*
```

```
* - From the grammar source file : <fileName>
```

```

* -          On : <generatedTimestamp>
<if(LEXER)>
* -          for the lexer : <name>Lexer
<endif>
<if(PARSER)>
* -          for the parser : <name>Parser
<endif>
<if(TREE_PARSER)>
* -          for the tree parser : <name>TreeParser
<endif>
*
* Editing it, at least manually, is not wise.
*
* C++ language generator and runtime by Gokulakannan Somasundaram ( heavy lifting from C Run-time by Jim
Idle )
*
*
>>

```

```

/** The overall file structure of a recognizer; stores methods for rules
* and cyclic DFAs plus support code.
*/

```

```

outputFile( LEXER,
            PARSER,
            TREE_PARSER,
            actionScope,
            actions,
            docComment,
            recognizer,
            name,
            tokens,
            tokenNames,
            rules,
            cyclicDFAs,
            bitsets,
            buildTemplate,
            buildAST,
            rewriteMode,
            profile,
            backtracking,
            synpreds,
            memoize,
            numRules,
            fileName,
            ANTLRVersion,
            generatedTimestamp,
            trace,
            scopes,

```

```

        superClass,
        literals
    ) ::=
<<
<leadIn("C++ source")>
*/
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//
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// THEORY OF LIABILITY,
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// (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
// THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

<if(actions.(actionScope).header)>

/* =====
* This is what the grammar programmer asked us to put at the top of every file.
*/
<actions.(actionScope).header>
/* End of Header action.
* =====
*/

<endif>

/* -----
* Include the ANTLR3 generated header file.

```

```

*/
#include "<name>.hpp"
<if(trace)>
#include <iostream>
<endif>
<if(recognizer.grammar.delegators)>
// Include delegator definition header files
//
<recognizer.grammar.delegators: {g|#include "<g.recognizerName>.hpp" }; separator="\n">
<endif>

<actions.(actionScope).postinclude>
/* ----- */

<docComment>

<if(literals)>

<beginNamespace(actions)>

/**
String literals used by <name> that we must do things like MATCHS() with.
* C will normally just lay down 8 bit characters, and you can use L"xxx" to
* get wchar_t, but wchar_t is 16 bits on Windows, which is not UTF32 and so
* we perform this little trick of defining the literals as arrays of UINT32
* and passing in the address of these.
*/
<literals:{it | static ANTLR_UCHAR lit_<i>[] = <it>;}; separator="\n">

<endNamespace(actions)>

<endif>

/* ===== */

/* =====
* Start of recognizer
*/

<recognizer>

/* End of code
* =====
*/

>>
headerFileExtension() ::= ".hpp"

```

```
beginNamespace(actions) ::= <%  
<if(actions.(actionScope).namespace)>  
namespace <actions.(actionScope).namespace> {  
<endif>  
%>
```

```
endNamespace(actions) ::=  
<%  
<if(actions.(actionScope).namespace)>  
}  
<endif>  
%>
```

```
headerFile( LEXER,  
            PARSER,  
            TREE_PARSER,  
            actionScope,  
            actions,  
            docComment,  
            recognizer,  
            name,  
            tokens,  
            tokenNames,  
            rules,  
            cyclicDFAs,  
            bitsets,  
            buildTemplate,  
            buildAST,  
            rewriteMode,  
            profile,  
            backtracking,  
            synpreds,  
            memoize,  
            numRules,  
            fileName,  
            ANTLRVersion,  
            generatedTimestamp,  
            trace,  
            scopes,  
            superClass,  
            literals  
            ) ::=  
<<  
<leadIn("C++ header")>  
<if(PARSER)>  
* The parser <mainName()> has the callable functions (rules) shown below,  
<endif>
```

```

<if(LEXER)>
* The lexer <mainName()> has the callable functions (rules) shown below,
<endif>
<if(TREE_PARSER)>
* The tree parser <mainName()> has the callable functions
  (rules) shown below,
<endif>
* which will invoke the code for the associated rule in the source grammar
* assuming that the input stream is pointing to a token/text stream that could begin
* this rule.
*
* For instance if you call the first (topmost) rule in a parser grammar, you will
* get the results of a full parse, but calling a rule half way through the grammar will
* allow you to pass part of a full token stream to the parser, such as for syntax checking
* in editors and so on.
*
*/
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// SUCH DAMAGE.

#ifndef _<name>_H
#define _<name>_H

```

```

<actions.(actionScope).preincludes>
/* =====
* Standard antlr3 C++ runtime definitions
*/
#include \<antlr3.hpp>

/* End of standard antlr 3 runtime definitions
* =====
*/

<actions.(actionScope).includes>

<if(recognizer.grammar.delegates)>
// Include delegate definition header files
//
<recognizer.grammar.delegates: {g|#include "<g.recognizerName>.hpp"}; separator="\n">

<endif>

<actions.(actionScope).header>

#ifdef WIN32
// Disable: Unreferenced parameter, - Rules with parameters that are not used
// constant conditional, - ANTLR realizes that a prediction is always true (synpred usually)
// initialized but unused variable - tree rewrite variables declared but not needed
// Unreferenced local variable - lexer rule declares but does not always
use _type
// potentially uninitialized variable used - retval always returned from a rule
// unreferenced local function has been removed - susually getTokenNames or freeScope, they can go without
warnigns
//
// These are only really displayed at warning level /W4 but that is the code ideal I am aiming at
// and the codegen must generate some of these warnings by necessity, apart from 4100, which is
// usually generated when a parser rule is given a parameter that it does not use. Mostly though
// this is a matter of orthogonality hence I disable that one.
//
#pragma warning( disable : 4100 )
#pragma warning( disable : 4101 )
#pragma warning( disable : 4127 )
#pragma warning( disable : 4189 )
#pragma warning( disable : 4505 )
#pragma warning( disable : 4701 )
#endif
<if(backtracking)>

/* =====
* BACKTRACKING IS ENABLED

```

```

* =====
*/
<endif>

<beginNamespace(actions)>

<if(recognizer.grammar.delegators)>
// Include delegator definition
classes
//
<recognizer.grammar.delegators: {g|class <g.recognizerName>; }; separator="\n">
<endif>

<actions.(actionScope).traits>
typedef <name>Traits <name>ImplTraits;

<rules:{r | <if(r.ruleDescriptor.isSynPred)> struct <r.ruleDescriptor.name> {\}; <endif>; separator="\n">

class <name>Tokens
{
public:
/** Symbolic definitions of all the tokens that the <grammarType()> will work with.
*
* Antlr will define EOF, but we can't use that as it is too common in
* in C header files and that would be confusing. There is no way to filter this out at the moment
* so we just undef it here for now. That isn't the value we get back from C recognizers
* anyway. We are looking for ANTLR_TOKEN_EOF.
*/
enum Tokens
{
EOF_TOKEN = <name>ImplTraits::CommonTokenType::TOKEN_EOF
<tokens:{it | , <it.name> = <it.type> }; separator="\n">
};

};

/** Context tracking structure for <mainName()>
*/
class <name> : public <componentBaseType()>, public <name>Tokens
{
public:
typedef
<name>ImplTraits ImplTraits;
typedef <name> ComponentType;
typedef ComponentType::StreamType StreamType;
typedef <componentBaseType()> BaseType;
typedef ImplTraits::RecognizerSharedStateType\<StreamType> RecognizerSharedStateType;
typedef StreamType InputType;

```



```

<if(recognizer.filterMode)>
    static const bool IsFiltered = true;
<else>
    static const bool IsFiltered = false;
<endif>

<scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeDecl(it)><endif>}>
<rules:{r | <if(r.ruleDescriptor.ruleScope)><ruleAttributeScopeDecl(scope=r.ruleDescriptor.ruleScope)><endif>}>

private:
<if(recognizer.grammar.delegates)>
    <recognizer.grammar.delegates:
        {g|<g.recognizerName>* m_<g.delegateName()>;}; separator="\n">
    <endif>
<if(recognizer.grammar.delegators)>
    <recognizer.grammar.delegators:
        {g|<g.recognizerName>* m_<g.delegateName()>;}; separator="\n">
    <endif>
<scopes:{it | <if(it.isDynamicGlobalScope)>
    <globalAttributeScopeDef(it)>
<endif>} ; separator="\n\n">
<rules:
    {r |<if(r.ruleDescriptor.ruleScope)>
    <ruleAttributeScopeDef(scope=r.ruleDescriptor.ruleScope)>
<endif>}>
    <@members>
    <@end>

public:
    <name>(InputType* instream<recognizer.grammar.delegators:{g|, <g.recognizerName>*
<g.delegateName()>}>);
    <name>(InputType* instream, RecognizerSharedStateType* state<recognizer.grammar.delegators:{g|,
<g.recognizerName>* <g.delegateName()>}>);

    void init(InputType* instream <recognizer.grammar.delegators:{g|, <g.recognizerName>* <g.delegateName()>}>
);

    <actions.(actionScope).context>

<if(LEXER)>
<if(recognizer.filterMode)>
    void memoize(ANTLR_MARKER ruleIndex, ANTLR_MARKER ruleParseStart);
    bool alreadyParsedRule(ANTLR_MARKER ruleIndex);
    <filteringNextToken()>
<endif>
    <rules:{r | <if(!r.ruleDescriptor.isSynPred)><headerReturnType(ruleDescriptor=r.ruleDescriptor)>
m<r.ruleDescriptor.name>( <r.ruleDescriptor.parameterScope:parameterScope()>;<endif>} ; separator="\n">
    <rules:{r | <if(r.ruleDescriptor.isSynPred)>

```

```

    <headerReturnType(ruleDescriptor=r.ruleDescriptor)> msynpred( antlr3::ClassForwarder\<
<r.ruleDescriptor.name> > <r.ruleDescriptor.parameterScope:parameterScope(>>);
    void m<r.ruleDescriptor.name>_fragment (<r.ruleDescriptor.parameterScope:parameterScope(>>);<endif>};
separator="\n">
<endif>
<if(!LEXER)>
    <rules:{r | <headerReturnScope(ruleDescriptor=r.ruleDescriptor)>}>
    <rules:{r | <if(!r.ruleDescriptor.isSynPred)> <headerReturnType(ruleDescriptor=r.ruleDescriptor)>
<r.ruleDescriptor.name> (<r.ruleDescriptor.parameterScope:parameterScope(>>); <endif>}; separator="\n">
    <rules:{r | <if(r.ruleDescriptor.isSynPred)> <headerReturnType(ruleDescriptor=r.ruleDescriptor)> msynpred(
antlr3::ClassForwarder\< <r.ruleDescriptor.name> > <r.ruleDescriptor.parameterScope:parameterScope(>>);
    void m<r.ruleDescriptor.name>_fragment (<r.ruleDescriptor.parameterScope:parameterScope(>>);<endif>};
separator="\n">
<! generate rule/method definitions for imported rules
so they
appear to be defined in this recognizer. !>
// Delegated rules
<recognizer.grammar.delegatedRules:{ruleDescriptor|
    <headerReturnType(ruleDescriptor)>
<ruleDescriptor.name>(<r.ruleDescriptor.parameterScope:parameterScope(>>);}; separator="\n">
<endif>

const char * getGrammarFileName();
void reset();
~<name>();

};

// Function prototypes for the constructor functions that external translation units
// such as delegators and delegates may wish to call.
//
<if(!recognizer.grammar.grammarIsRoot)>
extern ANTLR_UINT8* <recognizer.grammar.composite.rootGrammar.recognizerName>TokenNames[];
<endif>

/* End of token definitions for <name>
* =====
*/

<endNamespace(actions)>

#endif

/* END - Note:Keep extra line feed to satisfy UNIX systems */

>>

```

```
grammarType() ::= <%  
<if(PARSER)>  
parser  
<endif>  
<if(LEXER)>  
lexer  
<endif>  
<if(TREE_PARSER)>  
tree parser  
<endif>  
>%>
```

```
componentType()  
::= <<  
<if(PARSER)>  
<name>ImplTraits::ParserType  
<endif>  
<if(LEXER)>  
<name>ImplTraits::LexerType  
<endif>  
<if(TREE_PARSER)>  
<name>ImplTraits::TreeParserType  
<endif>  
>>
```

```
componentBaseType() ::= <%  
<if(PARSER)>  
<name>ImplTraits::BaseParserType  
<endif>  
<if(LEXER)>  
<name>ImplTraits::BaseLexerType  
<endif>  
<if(TREE_PARSER)>  
<name>ImplTraits::BaseTreeParserType  
<endif>  
>%>
```

```
streamType() ::= <<  
<if(PARSER)>  
<name>ImplTraits::ParserType::StreamType  
<endif>  
<if(LEXER)>  
<name>ImplTraits::LexerType::StreamType  
<endif>  
<if(TREE_PARSER)>  
<name>ImplTraits::TreeParserType::StreamType  
<endif>  
>>
```

```

mainName() ::= <%
<if(PARSER)>
<name>
<endif>
<if(LEXER)>
<name>
<endif>
<if(TREE_PARSER)>
<name>
<endif>
%>

headerReturnScope(ruleDescriptor) ::= "<returnScope(scope=ruleDescriptor.returnScope)>"

headerReturnType(ruleDescriptor) ::= <%
<if(LEXER)>
<if(!ruleDescriptor.isSynPred)>
void
<else>
<returnType()>
<endif>
<else>
<returnType()>
<endif>
%>

// Produce the lexer output
//
lexer( grammar,
name,
tokens,
scopes,
rules,
numRules,
filterMode,
superClass,
labelType="ImplTraits::CommonTokenType") ::= <<

using namespace antlr3;

<beginNamespace(actions)>

<if(filterMode)>

/* Override the normal MEMOIZE and HAVEALREADYPARSED macros as this is a filtering
* lexer. In filter mode, the memoizing and backtracking are gated at BACKTRACKING > 1 rather

```

```

* than just BACKTRACKING. In some cases this might generate code akin to:
* if (BACKTRACKING) if (BACKTRACKING > 1) memoize.
*/
void <name>::memoize(ANTLR_MARKER ruleIndex, ANTLR_MARKER ruleParseStart)
{
    BaseType* base = this;
    if ( this->get_backtracking()>1 )
        base->memoize( ruleIndex, ruleParseStart );
}

bool <name>::alreadyParsedRule(ANTLR_MARKER ruleIndex)
{
    BaseType* base = this;
    if ( this->get_backtracking() > 1 )
        return base->haveParsedRule(ruleIndex);
    return false;
}

<endif>

/* =====
* Lexer
* matching rules end.
* =====
*/

<scopes:{it |<if(it.isDynamicGlobalScope)><globalAttributeScope(it)><endif> }>

<actions.lexer.members>

<name>::~~<name>()
{
    <if(memoize)>
        RuleMemoType* rulememo = this->getRuleMemo();
        if(rulememo != NULL)
        {
            delete rulememo;
            this->setRuleMemo(NULL);
        }
    <endif>
    <if(grammar.directDelegates)>
        // Free the lexers that we delegated to
        // functions to. NULL the state so we only free it once.
        //
        <grammar.directDelegates:
            { g| m_<g:delegateName()->set_lexstate(NULL);
              delete m_<g:delegateName(); }; separator="\n">

```

```

<endif>
}

void
<name>::reset()
{
    this->get_rec()->reset();
}

/** \brief Name of the grammar file that generated this code
*/
static const char fileName[] = "<fileName>";

/** \brief Return the name of the grammar file that generated this code.
*/
const char* <name>::getGrammarFileName()
{
    return fileName;
}

/** \brief Create a new lexer called
<name>
*
* \param[in] instream Pointer to an initialized input stream
* \return
* - Success p<name> initialized for the lex start
* - Fail NULL
*/
<name>::<name>(StreamType* instream<grammar.delegators:{g|, <g.recognizerName>* <g.delegateName()>>>)
:<name>ImplTraits::BaseLexerType(ANTLR_SIZE_HINT, instream, NULL)
{
    // See if we can create a new lexer with the standard constructor
    //
    this->init(instream <grammar.delegators:{g|, <g.delegateName()>>>);
}

/** \brief Create a new lexer called <name>
*
* \param[in] instream Pointer to an initialized input stream
* \param[state] state Previously created shared recognizer stat
* \return
* - Success p<name> initialized for the lex start
* - Fail NULL
*/
<name>::<name>(StreamType* instream, RecognizerSharedStateType* state<grammar.delegators:{g|,
<g.recognizerName>* <g.delegateName()>>>)
:<name>ImplTraits::BaseLexerType(ANTLR_SIZE_HINT, instream, state)
{

```

```

this->init(instream <grammar.delegators:{g|, <g:delegateName(> }
>);
}

void <name>::init(StreamType* instream<grammar.delegators:{g|, <g.recognizerName>* <g:delegateName(> } >)
{
/* -----
* Memory for basic structure is allocated, now to fill in
* in base ANTLR3 structures. We initialize the function pointers
* for the standard ANTLR3 lexer function set, but upon return
* from here, the programmer may set the pointers to provide custom
* implementations of each function.
*
* We don't use the macros defined in <name>.h here so you can get a sense
* of what goes where.
*/

<if(memoize)>
<if(grammar.grammarIsRoot)>
// Create a LIST for recording rule memos.
//
this->setRuleMemo( new IntTrie(15) ); /* 16 bit depth is enough for 32768 rules! */
<endif>
<endif>

<if(grammar.directDelegates)>
// Initialize the lexers that we are going to delegate some
// functions to.
//
<grammar.directDelegates:
    {g|m_<g:delegateName(>
= new <g.recognizerName>(instream, this->get_lexstate(), this<grammar.delegators:{g|, <g:delegateName(> }>));
separator="\n">
<endif>
<if(grammar.delegators)>
// Install the pointers back to lexers that will delegate us to perform certain functions
// for them.
//
<grammar.delegators:
    {g| m_<g:delegateName(> = <g:delegateName(>}; separator="\n">
<endif>
}

<if(cyclicDFAs)>

/* =====
* DFA tables for the lexer
*/

```

```

<cyclicDFAs:cyclicDFA(> <! dump tables for all DFA !>
/* =====
* End of DFA tables for the lexer
*/
<endif>

/* =====
* Functions to match the lexer grammar defined tokens from the input stream
*/

<rules; separator="\n\n">

/* =====
* Lexer matching rules end.
* =====
*/
<if(synpreds)>

/* =====
* Lexer syntactic predicates
*/
<synpreds: {p | <lexerSynpred(predname=p)>}>
/* =====
* Lexer syntactic predicates end.
* =====
*/
<endif>

/* End of Lexer code
* =====
* =====
*/

<endNamespace(actions)>

>>

filteringNextToken() ::= <<
<name>ImplTraits::CommonTokenType*
<name>ImplTraits::TokenSourceType::nextToken()
{
  LexerType* lexer;
  typename LexerType::RecognizerSharedStateType* state;

  lexer = this->get_super();
  state = lexer->get_lexstate();

```



```

/* Get rid of any previous token (token factory takes care of
 * any deallocation when this token is finally used up.

*/
state->set_token_present( false );
state->set_error( false ); /* Start out without an exception */
state->set_failedflag(false);

/* Record the start of the token in our input stream.
 */
state->set_tokenStartCharIndex( lexer->index());
state->set_tokenStartCharPositionInLine( lexer->getCharPositionInLine() );
state->set_tokenStartLine( lexer->getLine() );
state->set_text("");

/* Now call the matching rules and see if we can generate a new token
 */
for (;;)
{
if (lexer->LA(1) == ANTLR_CHARSTREAM_EOF)
{
/* Reached the end of the stream, nothing more to do.
 */
CommonTokenType& teof = m_eofToken;

teof.set_startIndex(lexer->getCharIndex());
teof.set_stopIndex(lexer->getCharIndex());
teof.setLine(lexer->getLine());
return &teof;
}

state->set_token_present(false);
state->set_error(false); /* Start out without an exception */

{
ANTLR_MARKER m;

m = this->get_istream()->mark();
state->set_backtracking(1); /*
No exceptions */
state->set_failedflag(false);

/* Call the generated lexer, see if it can get a new token together.
 */
lexer->mTokens();
state->set_backtracking(0);

<! mTokens backtracks with synpred at BACKTRACKING==2

```

and we set the synpredgate to allow actions at level 1. !>

```
if(state->get_failed())
{
lexer->rewind(m);
lexer->consume(); <! advance one char and try again !>
}
else
{
lexer->emit(); /* Assemble the token and emit it to the stream */
TokenType& tok = state->get_token();
return &tok;
}
}
}
}
>>
```

```
actionGate() ::= "this->get_backtracking()==0"
```

```
filteringActionGate() ::= "this->get_backtracking()==1"
```

```
/** How to generate a parser */
```

```
genericParser( grammar, name, scopes, tokens, tokenNames, rules, numRules,
              bitsets, inputStreamType, superClass,
              labelType, members, rewriteElementType,
              filterMode, ASTLabelType="ImplTraits::TreeType*")
::= <<
```

```
using namespace antlr3;
```

```
<if(grammar.grammarIsRoot)>
```

```
/** \brief Table of all token names in symbolic order, mainly used for
 * error reporting.
 */
```

```
ANTLR_UINT8* <name>TokenNames[<length(tokenNames)>+4]
= {
  (ANTLR_UINT8*) "\<invalid>", /* String to print to indicate an invalid token */
  (ANTLR_UINT8*) "\<EOR>",
  (ANTLR_UINT8*) "\<DOWN>",
  (ANTLR_UINT8*) "\<UP>",
  <tokenNames:{it |(ANTLR_UINT8*) <it>; separator=",\n">
  };
<endif>
```

```
<@members>
```

```
<@end>
```

```

/** \brief Name of the grammar file that generated this code
*/
static const char fileName[] = "<fileName>";

/** \brief Return the name of the grammar file that generated this code.
*/
const char* <name>::getGrammarFileName()
{
    return fileName;
}

/** \brief Create a new <name> parser and return a context for it.
*
* \param[in] instream Pointer to an input stream interface.
*
* \return Pointer to new parser context upon success.
*/
<name>::<name>(
    StreamType* instream<grammar.delegators:{g|, <g.recognizerName>* <g.delegateName()>>>
    <constructorInitializerType("NULL")>
{
    // See if we can create a new parser with the standard constructor
    //
    this->init(instream<grammar.delegators:{g|, <g.delegateName()>>>);
}

/** \brief Create a new <name> parser and return a context for it.
*
* \param[in] instream Pointer to an input stream interface.
*
* \return Pointer to new parser context upon success.
*/
<name>::<name>( StreamType* instream, RecognizerSharedStateType* state<grammar.delegators:{g|,
<g.recognizerName>* <g.delegateName()>>>
    <constructorInitializerType("state")>
{
    this->init(instream <grammar.delegators:{g|, <g.delegateName()>>>);
}

void <name>::init(StreamType* instream<grammar.delegators:{g|, <g.recognizerName>* <g.delegateName()>>>)
{
    <actions.parser.apifuncs>
    <if(memoize)>
    <if(grammar.grammarIsRoot)>
        /* Create a LIST for recording rule memos.
        */
        typedef RecognizerSharedStateType::RuleMemoType
        RuleMemoType;
        this->setRuleMemo( new RuleMemoType(15) ); /* 16 bit depth is enough for 32768 rules! */</n>

```

```

<endif>
<endif>
<if(grammar.directDelegates)>
// Initialize the lexers that we are going to delegate some
// functions to.
//
<grammar.directDelegates:
    {g|m_<g:delegateName()> = new <g.recognizerName>(instream, this->get_psrstate(),
this<grammar.delegates:{g|, <g:delegateName()>>}); separator="\n">
<endif>
    <if(grammar.delegates)>
// Install the pointers back to lexers that will delegate us to perform certain functions
// for them.
//
    <grammar.delegates: {g| m_<g:delegateName()> = <g:delegateName()>; separator="\n">
<endif>
/* Install the token table
*/
this->get_psrstate()->set_tokenNames( <grammar.composite.rootGrammar.recognizerName>TokenNames );

<@debugStuff()>

}

void
<name>::reset()
{
    this->get_rec()->reset();
}

/** Free the parser resources
*/
<name>::~~<name>()
{
    <@cleanup>
    <@end>
<if(grammar.directDelegates)>
//
Free the parsers that we delegated to
// functions to.NULL the state so we only free it once.
//
<grammar.directDelegates:
    {g| m_<g:delegateName()>->set_psrstate( NULL );
    delete m_<g:delegateName()>; separator="\n">
<endif>
<if(memoize)>
<if(grammar.grammarIsRoot)>
if(this->getRuleMemo() != NULL)

```

```

    {
        delete this->getRuleMemo();
        this->setRuleMemo(NULL);
    }
<endif>
<endif>
}

/** Return token names used by this <grammarType()>
 *
 * The returned pointer is used as an index into the token names table (using the token
 * number as the index).
 *
 * \return Pointer to first char * in the table.
 */
static ANTLR_UINT8** getTokenNames()
{
    return <grammar.composite.rootGrammar.recognizerName>TokenNames;
}

<members>

/* Declare the bitsets
 */
<bitsets:{it | <bitsetDeclare(bitsetName={ FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>},
    words64=it.bits, traits={<name>ImplTraits } )>>

<if(cyclicDFAs)>

/* =====
 * DFA tables for the parser
 */
<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>
/* =====
 * End of DFA tables for the parser
 */
<endif>

/* =====
 * Parsing rules
 */
<rules; separator="\n\n">
<if(grammar.delegatedRules)>
// Delegated methods that appear to be a part of this
// parser
//
<grammar.delegatedRules:{ruleDescriptor|

```

```

    <returnType()> <name>::<ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope()>)
    {
        <if(ruleDescriptor.hasReturnValue)>return <endif>m_<ruleDescriptor.grammar:delegateName()>-
    <ruleDescriptor.name>(<if(ruleDescriptor.parameterScope)><ruleDescriptor.parameterScope.attributes:{ a|<a.name
    e}>; separator=", "><endif>);
        \}); separator="\n">

<endif>
/* End of parsing rules
* =====
*/

/* =====
* Syntactic predicates
*/
<synpreds:{ p | <synpred(predname=p)>}>
/* End of syntactic predicates
* =====
*/

>>

constructorInitializerType(rec_state) ::= <<
<if(PARSER)>
    :ImplTraits::BaseParserType(ANTLR_SIZE_HINT, instream, <rec_state>)
<endif>
<if(TREE_PARSER)>
    :ImplTraits::BaseTreeParserType(ANTLR_SIZE_HINT, instream, <rec_state>)
<endif>
>>

parser( grammar,
    name,
    scopes,
    tokens,
    tokenNames,
    rules,
    numRules,
    bitsets,
    ASTLabelType,
    superClass="Parser",
    labelType="const ImplTraits::CommonTokenType*",
    members={ <actions.parser.members> }
) ::= <<
<beginNamespace(actions)>
<genericParser(inputStreamType="CommonTokenStreamType*", rewriteElementType="Token", filterMode=false,
...)>
<endNamespace(actions)>

```

```

>>

/** How to generate a tree parser; same as parser except the input
 * stream is a different type.
 */
treeParser( grammar,
    name,
    scopes,
    tokens,
    tokenNames,
    globalAction,
    rules,
    numRules,
    bitsets,
    filterMode,
    labelType={ <ASTLabelType> },
    ASTLabelType="ImplTraits::TreeType*",
    superClass="TreeParser",
    members={ <actions.treeparser.members> }
)
::= <<
<beginNamespace(actions)>
<genericParser(inputStreamType="CommonTreeNodeStream*", rewriteElementType="Node", ...)>
<endNamespace(actions)>
>>

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
// $ANTLR start <ruleName>
void <name>::m<ruleName>_fragment( <ruleDescriptor.parameterScope:parameterScope(> )
{
    <ruleLabelDefs(>
    <ruleLabelInitializations(>
    <if(trace)>
        ANTLR_PRINTF("enter <ruleName> %d failed = %d, backtracking = %d\n", this->LT(1),failed,this-
>get_backtracking() );
        <block>
        ANTLR_PRINTF("exit <ruleName> %d, failed = %d, backtracking = %d\n", this->LT(1),failed,this-
>get_backtracking());
    <else>

```

```
<block>
<endif>

goto rule<ruleDescriptor.name>Ex; /* Prevent compiler warnings */
rule<ruleDescriptor.name>Ex; ;
}
// $ANTLR end <ruleName>
>>

synpred(predname) ::= <<

bool <name>::msynpred( antlr3::ClassForwarder\(< <predname> > )
{
  ANTLR_MARKER start;
  bool success;

  this->inc_backtracking();
  <@start()>
  start = this->mark();
  this->m<predname>_fragment(); // can never throw exception
  success = !( this->get_failedflag() );
  this->rewind(start);
  <@stop()>
  this->dec_backtracking();
  this->set_failedflag(false);
  return success;
}<\n>
>>

lexerSynpred(predname) ::= <<
<synpred(predname)>
>>

ruleMemoization(rname) ::= <<
<if(memoize)>
if ( (this->get_backtracking())>0)
  && (this->haveParsedRule(<ruleDescriptor.index>)) )
{
  <if(ruleDescriptor.hasMultipleReturnValues)>
  <if(!ruleDescriptor.isSynPred)>
  retval.start = 0;<\n>
  <endif>
  <endif>
  <(ruleDescriptor.actions.after):execAfter()>
  <finalCode(finalBlock=finally)>
  <if(!ruleDescriptor.isSynPred)>
  <scopeClean()><\n>
  <endif>
}
>>
```



```

    return <ruleReturnValue(>;
}
<endif>
>>

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
if (this->hasException())
{
    goto rule<ruleDescriptor.name>Ex;
}
<if(backtracking)>
if (this->hasFailed())
{
    <scopeClean(>
    <@debugClean(>
    return <ruleReturnValue(>;
}
<endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>
if (this->get_backtracking(>0)
{
    this->set_failedflag( true );
    <scopeClean(>
    return <ruleReturnValue(>;
}
<endif>
>>

/** How to generate code for a rule. This includes any return type
 * data aggregates required
 * for multiple return values.
 */
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
/**
 * $ANTLR start <ruleName>
 * <fileName>:<description>
 */
<returnType(>
<name::<ruleName>(<ruleDescriptor.parameterScope:parameterScope(>)
{
    <if(trace)>ANTLR_PRINTF("enter <ruleName> %s failed=%d, backtracking=%d\n", this->LT(1), this-
>get_backtracking() );<endif>
    <ruleDeclarations(>

```

```

<ruleDescriptor.actions.declarations>
<ruleLabelDefs()>
<ruleInitializations()>
<ruleDescriptor.actions.init>
<ruleMemoization(rname=ruleName)>
<ruleLabelInitializations()>

<if(actions.(actionScope).rulecatch)>
  try {
<else>
<if(exceptions)>
  try {
<endif>
<endif>
<@preamble()>
{
  <block>
}
<ruleCleanUp()>

<if(exceptions)>
  <(ruleDescriptor.actions.after):execAfter()>
  <exceptions:{e|<catch(decl=e.decl,action=e.action)><\n}>>
<else>
<if(!emptyRule)>
  if (this->hasException())
  {
    this->preporterror();
    this->precover();
    <@setErrorReturnValue()>
  }
  <if(ruleDescriptor.actions.after)>
  else
  {
    <(ruleDescriptor.actions.after):execAfter()>
  }<\n>
  <endif>
</if(actions.(actionScope).rulecatch)>
} <actions.(actionScope).rulecatch>
<endif>
<endif>
<endif>

<if(trace)>ANTLR_PRINTF("exit <ruleName> %d failed=%s backtracking=%s\n", this->LT(1), failed, this-
>get_backtracking() );<endif>
<memoize()>
<if(finally)>
  <finalCode(finalBlock=finally)>

```

```

<endif>
  <scopeClean()>
  <@postamble()>
  return <ruleReturnValue()>;
}
/* $ANTLR end <ruleName> */
>>

finalCode(finalBlock) ::= <<
{
  <finalBlock>
}

>>

catch(decl,action) ::= <<
/* catch(decl,action)
*/
}catch (<e.decl>) {
  <e.action>
}

>>

ruleDeclarations() ::= <<

<if(ruleDescriptor.hasMultipleReturnValues)>
<returnType()> retval(this);<\n>
<else>
<if(PARSER)>
  <name>ImplTraits::RuleReturnValueType
  _antlr_rule_exit(this);
<endif>
<if(ruleDescriptor.returnScope)>
<ruleDescriptor.returnScope.attributes: { a |
<a.type> <a.name>;
}>
<endif>
<endif>
<if(memoize)>
ANTLR_MARKER <ruleDescriptor.name>_startIndex;
<endif>

>>

ruleInitializations() ::= <<
/* Initialize rule variables
*/
<if(ruleDescriptor.returnScope)>
<if(ruleDescriptor.hasMultipleReturnValues)>

```

```

<ruleDescriptor.returnScope.attributes: { a | <if(a.initValue)>retval.<a.name> = <a.initValue>;<endif> }>
<else>
<ruleDescriptor.returnScope.attributes: { a | <if(a.initValue)><a.name> = <a.initValue>;<endif> }>
<endif>
<endif>
<if(memoize)>
<ruleDescriptor.name>_startIndex = this->index();<\n>
<endif>
<ruleDescriptor.useScopes: { it | m_<it>_stack.push(<it>Scope()); }; separator="\n">
<ruleDescriptor.ruleScope: { it | m_<it.name>_stack.push(<it.name>Scope()); }; separator="\n">
>>

```

```

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it |<labelType> <it.label.text> = NULL;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]
: {it |ImplTraits::TokenPtrsListType list_<it.label.text>;}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
>>

```

```

ruleLabelInitializations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!ruleDescriptor.isSynPred)>
retval.call_start_placeholder();
<endif>
<endif>
>>

```

```

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it |<labelType> <it.label.text> = NULL;}; separator="\n"
>
<ruleDescriptor.charLabels: {it |ANTLR_UINT32 <it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
: {it | ImplTraits::IntTrieType<CommonTokenType>* list_<it.label.text>;}; separator="\n"
>
>>

```

```

lexerRuleLabelInit() ::= <<
<[ruleDescriptor.tokenListLabels,

```

```

    ruleDescriptor.ruleListLabels,
    ruleDescriptor.ruleListLabels]
    :{it |list_<it.label.text> = new ImplTraits::IntTrieType<CommonTokenType>(31);}; separator="\n"
>
>>

```

```

lexerRuleLabelFree() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
    :{it |<it.label.text> = NULL;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
    :{it | delete list_<it.label.text>;}; separator="\n"
>
>>

```

```

ruleReturnValue() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
%>

```

```

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if ( this->get_backtracking() > 0 ) { this->memoize(<ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>

```

```

ruleCleanUp() ::= <<

// This is where rules clean up and exit
//
goto
rule<ruleDescriptor.name>Ex; /* Prevent compiler warnings */
rule<ruleDescriptor.name>Ex; ;
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>

```

```

<if(!ruleDescriptor.isSynPred)>
retval.call_stop_placeholder();<\n>
<endif>
<endif>
<endif>
>>

scopeClean() ::= <<
<ruleDescriptor.useScopes:{it | m_<it>_stack.pop(); }; separator="\n">
<ruleDescriptor.ruleScope:{it | m_<it.name>_stack.pop(); }; separator="\n">

>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules, which do not produce tokens.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
// Comes from: <block.description>
/** \brief Lexer rule generated by ANTLR3
 *
 * $ANTLR start <ruleName>
 *
 * Looks to match the characters the constitute the token <ruleName>
 * from the attached input stream.
 *
 *
 * \remark
 * - lexer->error == true if an exception was thrown.
 */
void <name>::m<ruleName>(<ruleDescriptor.parameterScope:parameterScope(>>)
{
  ANTLR_UINT32 _type;
  <ruleDeclarations(>>
  <ruleDescriptor.actions.declarations>
  <lexerRuleLabelDefs(>>
  <if(trace)>
  std::cout <<< "enter <ruleName> " <<< (char)this->LA(1)
    <<< " line=" <<< this->getLine() <<< ":" <<< this->getCharPositionInLine()
    <<< " failed=" <<< this->get_failedflag() <<< " backtracking=" <<< this->get_backtracking() <<<
  std::endl;
  <endif>

  <if(nakedBlock)>
  <ruleMemoization(rname=ruleName)>
  <lexerRuleLabelInit(>>
  <ruleDescriptor.actions.init>

  <block><\n>
  <else>

```

```

<ruleMemoization(rname=ruleName)>
<lexerRuleLabelInit(>
_type = <ruleName>;

<ruleDescriptor.actions.init>

<block>
this->get_lexstate()->set_type(_type);
<endif>
<if(trace)>
std::cout << "exit <ruleName> " << (char)this->LA(1)
    << " line=" << this->getLine() << ":" << this->getCharPositionInLine()
    << " failed=" << this->get_failedflag() << " backtracking="
<< this->get_backtracking() << std::endl;
<endif>
<ruleCleanup(>
<lexerRuleLabelFree(>
<(ruleDescriptor.actions.after):execAfter(>
<memoize>
}
// $ANTLR end <ruleName>
>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
/** This is the entry point in to the lexer from an object that
 * wants to generate the next token, such as a pCOMMON_TOKEN_STREAM
 */
void
<name>::mTokens()
{
    <block><\n>

    goto ruleTokensEx; /* Prevent compiler warnings */
ruleTokensEx: ;
}
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<

// <fileName>:<description>
{
    int alt<decisionNumber>=<maxAlt>;

```

```

<decls>
<@predecision()>
<decision>
<@postdecision()>
<@prebranch()>
switch (alt<decisionNumber>)

{
<alts:{ a | <altSwitchCase(i,a)> }>
}
<@postbranch()>
}
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
{
// <fileName>:<description>

ANTLR_UINT32 alt<decisionNumber>;

alt<decisionNumber>=<maxAlt>;

<decls>
<@predecision()>
<decision>
<@postdecision()>
switch (alt<decisionNumber>)
{
<alts:{ a | <altSwitchCase(i,a)> }>
}
}
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>

```



```

<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,descriptio
n)
 ::= <<
// <fileName>:<description>
{
  int cnt<decisionNumber>=0;
  <decls>
  <@preloop()>

  for (;;)
  {
    int alt<decisionNumber>=<maxAlt>;
    <@predecision()>
    <decision>
    <@postdecision()>
    switch (alt<decisionNumber>)
    {
      <alts:{a | <altSwitchCase(i,a)>}>
      default:

        if ( cnt<decisionNumber> >= 1 )
        {
          goto loop<decisionNumber>;
        }
        <ruleBacktrackFailure()>
        <earlyExitEx()>
        <@earlyExitException()>
        goto rule<ruleDescriptor.name>Ex;
      }
      cnt<decisionNumber>++;
    }
    loop<decisionNumber>; /* Jump to here if this rule does not match */
    <@postloop()>
  }
>>

earlyExitEx() ::= <<
/* mismatchedSetEx()
*/
new ANTLR_Exception<< <name>ImplTraits, EARLY_EXIT_EXCEPTION, StreamType>( this->get_rec(), "" );
<\n>
>>
positiveClosureBlockSingleAlt ::= positiveClosureBlock

```

```

/** A (.)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
 ::= <<

// <fileName>:<description>
<decls>

<@preloop()>
for (;;)
{
  int alt<decisionNumber>=<maxAlt>;
  <@predecision()>
  <decision>
  <@postdecision()>
  switch (alt<decisionNumber>)
  {
<alts:{ a | <altSwitchCase(i,a)>}>
  default:
    goto loop<decisionNumber>; /* break out of the loop */
    break;
  }
}
loop<decisionNumber>; /* Jump out to here if this rule does not match */
<@postloop()>
>>

closureBlockSingleAlt ::= closureBlock

/** Optional blocks (x)? are translated to (x|) by antlr before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase(altNum,alt) ::= <<
case <altNum>:
  <@prealt()>
  <alt>
  break;<\n>
>>

/**

```

```

An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<
// <fileName>:<description>
{
  <@declarations()>
  <@initializations()>
  <elements:element()>
  <rew>
  <@cleanup()>
}
>>

// E L E M E N T S
/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

/** Dump the elements one per line */
element(e) ::= <<
<@prematch()>
<e.el><\n>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(label)><label> = <endif> this->matchToken(<token>, &FOLLOW_<token>_in_<ruleName><elementIndex>);
<checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

listLabel(label,elem) ::= <<
list_<label>.push_back(<elem>);
>>

/** match a character */
charRef(char,label)
::= <<
<if(label)>
<label> = this->LA(1);<\n>
<endif>
this->matchc(<char>);

```

```

<checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = this->LA(1);<\n>
<endif>
this->matchRange(<a>, <b>);
<checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,terminalOptions,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label>= this->LA(1);<\n>
<else>
<label>=(<labelType>) this->LT(1);<\n>
<endif>
<endif>
if ( <s> )
{
    this->consume();
    <postmatchCode>
<if(!LEXER)>
    this->set_perror_recovery(false);
<endif>
    <if(backtracking)> this->set_failedflag(false); <\n><endif>
}
else
{
    <ruleBacktrackFailure()>
    <mismatchedSetEx()>
    <@mismatchedSetException()>
<if(LEXER)>
    this->recover();
<else>
<! use following code to make it recover inline;
    this->recoverFromMismatchedSet(&FOLLOW_set_in_<ruleName><elementIndex>);
!>
<endif>
    goto rule<ruleDescriptor.name>Ex;
}<\n>
>>

mismatchedSetEx()

```

```

 ::= <<
new ANTLR_Exception\< <name>ImplTraits, MISMATCHED_SET_EXCEPTION, StreamType>( this->get_rec(),
"" );
<if(PARSER)>
this->get_exception()->set_expectinSet(NULL);
<! use following code to make it recover inline;
this->get_exception()->set_expectinSet( &FOLLOW_set_in_<ruleName><elementIndex> );
!>
<endif>
>>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(elem=label,...)>
>>

/** Match a string literal */
lexerStringRef(string,label,elementIndex) ::= <<
<if(label)>
ANTLR_MARKER <label>Start = this->getCharIndex();
ANTLR_UINT32 <label>StartLine<elementIndex> = this->getLine();
ANTLR_UINT32 <label>StartCharPos<elementIndex> = this->getCharPositionInLine();
this->matchs(<string>);
<checkRuleBacktrackFailure()>
<label> = new CommonTokenType;
<label>->set_type( CommonTokenType::TOKEN_INVALID );
<label>->set_startIndex( <label>Start);
<label>->set_stopIndex(
this->getCharIndex()-1);
<label>->set_input( this->get_input() );
<label>->set_line( <label>StartLine<elementIndex> );
<label>->set_charPositionInLine( <label>StartCharPos<elementIndex> );
<else>
this->matchs(<string>);
<checkRuleBacktrackFailure()><\n>
<endif>
>>

wildcard(token,label,elementIndex,terminalOptions) ::= <<
<if(label)>
<label>=(<labelType>)this->LT(1);<\n>
<endif>
this->matchAnyToken();
<checkRuleBacktrackFailure()>
>>

```

```
wildcardAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<wildcard(...)>
<listLabel(elem=label,...)>
>>
```

```
/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = this->LA(1);<\n>
<endif>
this->matchAny();
<checkRuleBacktrackFailure()>
>>
```

```
wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabel(elem=label,...)>
>>
```

```
/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type
 * Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
this->followPush(FOLLOW_<rule.name>_in_<ruleName><elementIndex>);
<if(label)><label>=<endif><if(scope)>m_<scope:delegateName()-><endif><rule.name><(if(args)><args;
separator=", "><endif>);<\n>
this->followPop();
<checkRuleBacktrackFailure()>
>>
```

```
/** ids+=1 */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(elem=label,...)>
>>
```

```
/** A lexer rule reference
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
/* <description> */
<if(label)>
```

```

{
  ANTLR_UINT32 <label>Start<elementIndex> = this->getCharIndex();
  ANTLR_UINT32 <label>StartLine<elementIndex> = this->getLine();
  ANTLR_UINT32 <label>StartCharPos<elementIndex>
= this->getCharPositionInLine();
  <if(scope)>m_<scope:delegateName()-><endif>m<rule.name><(if(scope)>m_<scope:delegateName()-><endif>
<if(args)>, <endif><args; separator=", ">;
  <checkRuleBacktrackFailure()->
  <label> = new CommonTokenType();
  <label>->set_type( CommonTokenType::TOKEN_INVALID);
  <label>->set_startIndex( <label>Start<elementIndex> );
  <label>->set_stopIndex( this->getCharIndex()-1 );
  <label>->set_input( this->get_input() );
  <label>->set_line( <label>StartLine<elementIndex> );
  <label>->set_charPositionInLine( <label>StartCharPos<elementIndex> );
}
<else>
<if(scope)>m_<scope:delegateName()-><endif>m<rule.name><(args; separator=", ">;
<checkRuleBacktrackFailure()->
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabel(elem=label,...)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
{
  ANTLR_UINT32 <label>Start<elementIndex>;
  ANTLR_UINT32 <label>StartLine<elementIndex> = this->getLine();
  ANTLR_UINT32 <label>StartCharPos<elementIndex> = this->getCharPositionInLine();
  <labelType> <label>;
  <label>Start<elementIndex> = this->getCharIndex();
  this->matchc(ANTLR_CHARSTREAM_EOF);
  <checkRuleBacktrackFailure()->
  <label> = new CommonTokenType();
  <label>->set_type( CommonTokenType::TOKEN_EOF );
  <label>->set_startIndex(<label>Start<elementIndex>);
  <label>->set_stopIndex(this->getCharIndex()-1);
  <label>->set_input( this->get_input() );
  <label>->set_line( <label>StartLine<elementIndex> );
  <label>->set_charPositionInLine( <label>StartCharPos<elementIndex> );
}
<else>

```

```

    this->matchc(ANTLR_CHARSTREAM_EOF);
    <checkRuleBacktrackFailure()>
    <endif>
>>

// used for left-recursive rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()             ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> |<= <opPrec>"
recRuleSetResultAction()
    ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name) ::= "$<name>=$<src>.<name>;"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList, enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( this->LA(1)== CommonTokenType::TOKEN_DOWN ) {
    this->matchToken(CommonTokenType::TOKEN_DOWN, NULL);
    <checkRuleBacktrackFailure()>
    <children:element()>
    this->matchToken(CommonTokenType::TOKEN_UP, NULL);
    <checkRuleBacktrackFailure()>
}
<else>
this->matchToken(CommonTokenType::TOKEN_DOWN, NULL);
<checkRuleBacktrackFailure()>
<children:element()>
this->matchToken(CommonTokenType::TOKEN_UP, NULL);
<checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if
( !(<evalPredicate(...)>) )
{
    <ruleBacktrackFailure()>
    <newFPE(...)>
}
>>

newFPE() ::= <<
ExceptionBaseType* ex = new ANTLR_Exception<< <name>ImplTraits, FAILED_PREDICATE_EXCEPTION,

```



```

StreamType>( this->get_rec(), "<description>" );
    ex->set_ruleName( "<ruleName>" );
    <\n>
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<

{
    int LA<decisionNumber>_<stateNumber> = this->LA(<k>);
    <edges; separator="\nelse ">
    else
    {
<if(eotPredictsAlt)>
        alt<decisionNumber>=<eotPredictsAlt>;
<else>
        <ruleBacktrackFailure()>

        <newNVException()>
        goto rule<ruleDescriptor.name>Ex;

<endif>
    }
}
>>

newNVException() ::= <<
ExceptionBaseType* ex = new ANTLR_Exception<< <name>ImplTraits, NO_VIABLE_ALT_EXCEPTION,
StreamType>( this->get_rec(), "<description>" );
ex->set_decisionNum( <decisionNumber> );
ex->set_state( <stateNumber> );
<@noViableAltException()>
<\n>
>>

/** Same as a normal
    DFA state except that we don't examine lookahead
    * for the bypass alternative. It delays error detection but this
    * is faster, smaller, and more what people expect. For (X)? people
    * expect "if ( LA(1)==X ) match(X);" and that's it.
    */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
{
    int LA<decisionNumber>_<stateNumber> = this->LA(<k>);
    <edges; separator="\nelse ">
}
>>

```

```

/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */

dfaLoopbackStateDecls() ::= <<
ANTLR_UINT32 LA<decisionNumber>_<stateNumber>;
>>

dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
{
  /* dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState)
  */
  int LA<decisionNumber>_<stateNumber> = this->LA(<k>);
  <edges; separator="\nelse "><\n>
  <if(eotPredictsAlt)>
  <if(!edges)>
  alt<decisionNumber>=<eotPredictsAlt>; <! if no edges, don't gen ELSE !>
  <else>
  else
  {
  alt<decisionNumber>=<eotPredictsAlt>;
  }<\n>
  <endif>
  <endif>
  }
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber>=<alt>";

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.
 */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ( (<labelExpr><if(predicates)> && (<predicates><endif>))
{
  <targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().

```

```

*/
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState)
 ::= <<
switch ( this->LA(<k> )
 {
<edges; separator="\n">

default:
<if(eotPredictsAlt)>
  alt<decisionNumber>=<eotPredictsAlt>;
<else>
  <ruleBacktrackFailure()>
  <newNVException()>
  goto rule<ruleDescriptor.name>Ex;<\n>
<endif>
}<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( this->LA(<k> )
 {
  <edges; separator="\n">
}<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( this->LA(<k> )
 {
<edges; separator="\n"><\n>
<if(eotPredictsAlt)>
default:
  alt<decisionNumber>=<eotPredictsAlt>;
  break;<\n>
<endif>
}<\n>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
<labels:{it |case <it>:}; separator="\n">
 {
  <targetState>
 }
  break;
>>

// C y c l i c D F A

/** The code to initiate execution of a cyclic DFA; this is used

```

```

* in the rule to predict an alt just like the fixed DFA case.
* The
<name> attribute is inherited via the parser, lexer, ...
*/
dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = cdfa<decisionNumber>.predict(this, this->get_rec(), this->get_istream(),
cdfa<decisionNumber> );
<checkRuleBacktrackFailure()>
>>

/* Dump DFA tables as static initialized arrays of shorts(16 bits)/characters(8 bits)
* which are then used to statically initialize the dfa structure, which means that there
* is no runtime initialization whatsoever, other than anything the C compiler might
* need to generate. In general the C compiler will lay out memory such that there is no
* runtime code required.
*/
cyclicDFA(dfa) ::= <<
/** Static dfa state tables for Cyclic dfa:
* <dfa.description>
*/
static const ANTLR_INT32 dfa<dfa.decisionNumber>_eot[<dfa.numberOfStates>] =
{
<dfa.eot; wrap="\n", separator=", ", null="-1">
};
static const ANTLR_INT32 dfa<dfa.decisionNumber>_eof[<dfa.numberOfStates>] =
{
<dfa.eof; wrap="\n", separator=", ", null="-1">
};
static const ANTLR_INT32 dfa<dfa.decisionNumber>_min[<dfa.numberOfStates>] =
{
<dfa.min; wrap="\n", separator=", ", null="-1">
};
static const ANTLR_INT32 dfa<dfa.decisionNumber>_max[<dfa.numberOfStates>] =
{
<dfa.max; wrap="\n", separator=", ", null="-1">
};
static const ANTLR_INT32 dfa<dfa.decisionNumber>_accept[<dfa.numberOfStates>] =
{
<dfa.accept; wrap="\n", separator=", ", null="-1">
};
static const ANTLR_INT32 dfa<dfa.decisionNumber>_special[<dfa.numberOfStates>] =
{
<dfa.special; wrap="\n", separator=", ", null="-1">
};

/** Used when there is no transition table entry for a particular state */
static const ANTLR_INT32* dfa<dfa.decisionNumber>_T_empty = NULL;

```

```

<dfa.edgeTransitionClassMap.keys:{ table |
static const ANTLR_INT32 dfa<dfa.decisionNumber>_T<i0>[] =
{
<table; separator=" ", wrap="\n", null="-1">
\};<\n>}; null = "">

/* Transition tables are a table of sub tables, with some tables
* reused for efficiency.
*/
static const ANTLR_INT32 * const dfa<dfa.decisionNumber>_transitions[] =
{
<dfa.transitionEdgeTables:{ xref|dfa<dfa.decisionNumber>_T<xref>}; separator=" ", wrap="\n", null="NULL">
};

<@errorMethod()>

/* Declare tracking structure for Cyclic DFA <dfa.decisionNumber>
*/
class <name>CyclicDFA<dfa.decisionNumber> : public CyclicDFA<< <name>ImplTraits, <name> >, public
<name>Tokens
{
public:
typedef CyclicDFA<< <name>ImplTraits, <name> > BaseType;
typedef BaseType::ContextType CtxType;

private:
<if(dfa.specialStateSTs)>
//to maintain C-Target compatibility, we need to make some of ctx functions look like member funcs
CtxType* m_ctx;
<endif>

public:
<name>CyclicDFA<dfa.decisionNumber>( ANTLR_INT32 decisionNumber
, const ANTLR_UCHAR* description
, const ANTLR_INT32* const eot
, const ANTLR_INT32* const eof
, const ANTLR_INT32* const min
, const ANTLR_INT32* const max
, const ANTLR_INT32* const accept
, const ANTLR_INT32* const special
,
const ANTLR_INT32* const *const transition)
:BaseType( decisionNumber, description, eot, eof, min, max, accept,
special, transition )
{
<if(dfa.specialStateSTs)>
m_ctx = NULL;
<endif>

```

```

}

<if(dfa.specialStateSTs)>
ANTLR_UINT32 LA(ANTLR_INT32 i)
{
    return m_ctx->LA(i);
}

<if(PARSER)>
const CtxType::CommonTokenType* LT(ANTLR_INT32 k)
{
    return m_ctx->LT(k);
}
<endif>
<if(synpreds)>
template<typename PredType>
bool msynpred( PredType pred )
{
    return m_ctx->msynpred(pred);
}
<endif>

ANTLR_INT32 specialStateTransition(CtxType * ctx, RecognizerType* recognizer, IntStreamType* is,
ANTLR_INT32 s)
{
    ANTLR_INT32 _s;

    m_ctx = ctx;
    _s = s;
    switch (s)
    {
        <dfa.specialStateSTs:{state |
        case <i0>:

        <state>}; separator="\n">
    }
    <if(backtracking)>
        if ( ctx->get_backtracking() > 0)
        {
            ctx->set_failedflag( true );
            return -1;
        }
    <endif>
    ExceptionBaseType* ex = new ANTLR_Exception<< <name>ImplTraits, NO_VIABLE_ALT_EXCEPTION,
StreamType>( recognizer, "<dfa.description>" );
    ex->set_decisionNum( <dfa.decisionNumber> );
    ex->set_state(_s);

```

```

    <@noViableAltException()>
    return -1;
}
<endif>
};

static <name>CyclicDFA<dfa.decisionNumber> cdfa<dfa.decisionNumber>(
    <dfa.decisionNumber>, /* Decision number of this dfa */
    /* Which decision this represents: */
    (const ANTLR_UCHAR*)<dfa.description>,
    dfa<dfa.decisionNumber>_eot, /* EOT table */
    dfa<dfa.decisionNumber>_eof, /* EOF table */
    dfa<dfa.decisionNumber>_min, /* Minimum tokens for each state */
    dfa<dfa.decisionNumber>_max, /* Maximum tokens for each state */
    dfa<dfa.decisionNumber>_accept, /* Accept table */
    dfa<dfa.decisionNumber>_special, /* Special transition states */
    dfa<dfa.decisionNumber>_transitions /* Table of transition
tables */
);

/* End of Cyclic DFA <dfa.decisionNumber>
* -----
*/
>>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
* state.
*/
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
{
    ANTLR_UINT32 LA<decisionNumber>_<stateNumber>;<\n>
    ANTLR_MARKER index<decisionNumber>_<stateNumber>;<\n>

    LA<decisionNumber>_<stateNumber> = ctx->LA(1);<\n>
    <if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
    index<decisionNumber>_<stateNumber> = ctx->index();<\n>
    ctx->rewindLast();<\n>
    <endif>
    s = -1;
    <edges; separator="\nelse ">
    <if(semPredState)> <! return input cursor to state before we rewound !>
    ctx->seek(index<decisionNumber>_<stateNumber>);<\n>
    <endif>
    if ( s>=0 )
    {
return s;

```

```

    }
}
break;
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr,
    targetStateNumber, edgeNumber, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> )
{
    s = <targetStateNumber>;
}<\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n>
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "( (<left> ) && (<right> ) )"

orPredicates(operands) ::= "(<operands:{o|(<o>)}; separator=\\|\\>)"

notPredicate(pred) ::= "!(<evalPredicate(pred,{})>)"

evalPredicate(pred,description) ::= "(<pred>)"

evalSynPredicate(pred,description) ::= "this->msynpred( antlr3::ClassForwarder\<<pred>>() )"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber> == <atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "this->LA(<k>) == <atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt)
::= <%
((LA<decisionNumber>_<stateNumber> >= <lower>) && (LA<decisionNumber>_<stateNumber> \<= <upper>))
%>

```



```
isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "((this->LA(<k>) >=
<lower>) && (this->LA(<k>) \<= <upper>))"
```

```
setTest(ranges) ::= "<ranges; separator=\" || \">"
```

```
// A T T R I B U T E S
```

```
makeScopeSet() ::= <<
```

```
/* makeScopeSet()
```

```
*/
```

```
/** Definition of the <scope.name> scope variable tracking
```

```
* structure. An instance of this structure is created by calling
```

```
* <name>_<scope.name>Push().
```

```
*/
```

```
struct <scopeStruct(sname=scope.name,...)>
```

```
{
```

```
/* =====
```

```
 * Programmer defined variables...
```

```
*/
```

```
<scope.attributes:{it |<it.decl>;}; separator="\n">
```

```
/* End of programmer defined variables
```

```
 * =====
```

```
*/
```

```
};
```

```
>>
```

```
globalAttributeScopeDecl(scope)
```

```
::= <<
```

```
<if(scope.attributes)>
```

```
/* globalAttributeScopeDecl(scope)
```

```
*/
```

```
<makeScopeSet(...)>
```

```
<endif>
```

```
>>
```

```
ruleAttributeScopeDecl(scope) ::= <<
```

```
<if(scope.attributes)>
```

```
/* ruleAttributeScopeDecl(scope)
```

```
*/
```

```
<makeScopeSet(...)>
```

```
<endif>
```

```
>>
```

```
globalAttributeScopeDef(scope) ::=
```

```
<<
```

```
/* globalAttributeScopeDef(scope)
```

```

*/
<if(scope.attributes)>

StackType\< <scopeStruct(sname=scope.name)> > <scopeStack(sname=scope.name)>;

<endif>
>>

ruleAttributeScopeDef(scope) ::= <<
<if(scope.attributes)>
/* ruleAttributeScopeDef(scope)
*/
StackType\< <scopeStruct(sname=scope.name)> > <scopeStack(sname=scope.name,...)>;

<endif>
>>

scopeStruct(sname) ::= <<
<sname>Scope
>>

scopeStack(sname) ::= <<
m_<sname>_stack
>>

returnStructName(r) ::= "<r.name>_return"

returnType() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.grammar.recognizerName>::<ruleDescriptor:returnStructName()>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
<endif>
<else>
bool
<endif>
%>

/**
Generate the C type associated with a single or multiple return
* value(s).
*/
ruleLabelType(referencedRule) ::= <%

```

```

<if(referencedRule.hasMultipleReturnValues)>
<referencedRule.name>_return
<else>
<if(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
<endif>
%>

delegateName(d) ::= <<
<if(d.label)><d.label><else>g<d.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
 * must be an object, default value is "0".
 */
initValue(typeName) ::= <<
= <cTypeInitMap.(typeName)>
>>

/** Define a rule label */
ruleLabelDef(label) ::= <<
<ruleLabelType(referencedRule=label.referencedRule)> <label.label.text>;
>>

/** Rule label default value */
ruleLabelInitVal(label) ::= <<
>>

ASTLabelType() ::=
"<if(recognizer.ASTLabelType)><recognizer.ASTLabelType><else>ImplTraits::TreeType*<endif>"

/** Define a return struct for a rule if the
code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
struct <ruleDescriptor:returnStructName()> : public <name>ImplTraits::RuleReturnValueType
{
public:
typedef <name>ImplTraits::RuleReturnValueType BaseType;
<ruleDescriptor:returnStructName()>()
: BaseType()

```

```

    <if(scope)>, <scope.attributes:{it | <it.name>() }; separator=","><endif>
    { init(); }
<ruleDescriptor:returnStructName()>( BaseParserType* parser )
    : BaseType(parser)
    <if(scope)>, <scope.attributes:{it | <it.name>() }; separator=","><endif>
    { init(); }
<ruleDescriptor:returnStructName()>( const <ruleDescriptor:returnStructName()>& other )
    : BaseType(other)
<if(scope)>, <scope.attributes:{it | <it.name>(other.<it.name>) }; separator=","><endif>
{ copy(other);
}
~<ruleDescriptor:returnStructName()>()
{
    <@ruleReturnMembersDelete()>
}

<ruleDescriptor:returnStructName()>&
operator=( const <ruleDescriptor:returnStructName()>& other )
{
    BaseType::operator=( other );
    <if(scope)><scope.attributes:{it | <it.name> = other.<it.name>; }; separator="\n"><endif>
    copy(other);
    return *this;
}
<@ruleReturnMembers()>
void init() { <@ruleReturnMembersInit()> }
void copy( const <ruleDescriptor:returnStructName()>& other ) { <@ruleReturnMembersCopy()> }
<else>
struct <ruleDescriptor:returnStructName()>
{
public:
    <name>ImplTraits::<recognizer.ASTLabelType>    start;
    <name>ImplTraits::<recognizer.ASTLabelType>    stop;
    <ruleDescriptor:returnStructName()>( const <ruleDescriptor:returnStructName()>& other )
    <if(scope.attributes)>
    <scope.attributes:{it | <it.name>(other.<it.name>) }; separator=",">
    <endif>
    {
        start = other.start;
        stop
    = other.stop;
    }

    <ruleDescriptor:returnStructName()>&
operator=( const <ruleDescriptor:returnStructName()>& other )
    {
        start = other.start;
        stop = other.stop;
    }
}

```

```

    <scope.attributes:{it | <it.name> = other.<it.name>; }; separator="\n">
    return *this;
    }
<endif>
    <if(scope)><scope.attributes:{it |<it.type> <it.name>; }; separator="\n"><endif>
};

<endif>
<endif>
>>

parameterScope(scope) ::= <<
<scope.attributes:{it |<it.decl>}; separator=", ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name>=<expr>";

/** Note that the scopeAttributeRef does not have access to the
 * grammar name directly
 */
scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
m_<scope>_stack.at( m_<scope>_stack.size()-<negIndex>-1).<attr.name>
<else>
<if(index)>
m_<scope>_stack.at(<index>).<attr.name>
<else>
m_<scope>_stack.peek().<attr.name>
<endif>
<endif>
%>

scopeSetAttributeRef(scope,attr,expr,index,negIndex)
::= <%
<if(negIndex)>
m_<scope>_stack.at( m_<scope>_stack.size()-<negIndex>-1).<attr.name> = <expr>;
<else>
<if(index)>
m_<scope>_stack.at(<index>).<attr.name> = <expr>;
<else>
m_<scope>_stack.peek().<attr.name> =<expr>;
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers

```

```

* to stack itself not top of stack. This is useful for predicates
* like { $function.size()>0 && $function::name.equals("foo")}?
*/
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
<scope>.<attr.name>
<else>
<scope>
<endif>
>>

returnAttributeRef(ruleDescriptor,attr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
<attr.name>
<endif>
>>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>=<expr>;
<else>
<attr.name>=<expr>;
<endif>
>>

/**
How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach
//
tokenLabelPropertyRef_text(scope,attr) ::= "<scope>->getText()"
tokenLabelPropertyRef_type(scope,attr) ::= "<scope>->get_type()"
tokenLabelPropertyRef_line(scope,attr) ::= "<scope>->get_line()"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>->get_charPositionInLine()"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>->get_channel()"
tokenLabelPropertyRef_index(scope,attr) ::= "<scope>->get_tokenIndex()"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>->get_tree()"
tokenLabelPropertyRef_int(scope,attr) ::= "<name>ImplTraits::ConvertToInt32(<scope>->getText())"

```

```

ruleLabelPropertyRef_start(scope,attr) ::= "<scope>.start"
ruleLabelPropertyRef_stop(scope,attr) ::= "<scope>.stop"
ruleLabelPropertyRef_tree(scope,attr) ::=
    "<scope>.tree"
ruleLabelPropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
(this->get_strstream()->toStringSS(<scope>.start, <scope>.start))
<else>
(this->get_strstream()->toStringTT(<scope>.start, <scope>.stop))
<endif>
>>

ruleLabelPropertyRef_st(scope,attr) ::= "<scope>.st"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "<scope>->get_type()"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "<scope>->get_line()"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "<scope>->get_charPositionInLine()"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "<scope>->get_channel()"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "<scope>->get_tokenIndex()"
lexerRuleLabelPropertyRef_text(scope,attr) ::= "<scope>->getText()"

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "retval.start"
rulePropertyRef_stop(scope,attr) ::= "retval.stop"
rulePropertyRef_tree(scope,attr)
    ::= "retval.tree"
rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
this->get_input()->toStringSS( this->get_adaptor()->getTokenStartIndex(retval.start), this->get_adaptor()-
>getTokenStopIndex(retval.start))
<else>
this->get_strstream()->toStringTT(retval.start, this->LT(-1))
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "this->getText()"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "this->get_state()->get_tokenStartLine()"
lexerRulePropertyRef_pos(scope,attr) ::= "this->get_state()->get_tokenStartCharPositionInLine()"
lexerRulePropertyRef_channel(scope,attr) ::= "this->get_state()->get_channel()"
lexerRulePropertyRef_start(scope,attr) ::= "this->get_state()->get_tokenStartCharIndex()"
lexerRulePropertyRef_stop(scope,attr) ::= "(this->getCharIndex()-1)"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer

```

```

lexerRulePropertyRef_int(scope,attr)
::= "<name>ImplTraits::ConvertToInt32(<scope>->getText())"

// setting $st and $tree is allowed in local rule. everything else is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree=<expr>";
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st=<expr>";

/** How to deal with an @after for C targets. Because we cannot rely on
 * any garbage collection, after code is executed even in backtracking
 * mode. Must be documented clearly.
 */
execAfter(action) ::= <<
{
  <action>
}
>>

/** How to execute an action (when not backtracking) */
execAction(action) ::= <<
<if(backtracking)>
<if(actions.(actionScope).synpredgate)>
if ( <actions.(actionScope).synpredgate> )
{
  <action>
}
<else>
if ( BACKTRACKING == 0 )
{
  <action>
}
<endif>
<else>
{
  <action>
}
<endif>
>>

// M I S C (properties, etc...)

bitsetDeclare(bitsetname, words64, traits) ::= <<

/** Bitset defining follow set for error recovery in rule state: <name> */
static ANTLR_BITWORD
<bitsetname>_bits[] = { <words64:{it |ANTLR_UINT64_LIT(<it>)}; separator=", "> };
static <traits>::BitsetListType <bitsetname>( <bitsetname>_bits, <length(words64)> );

```



>>

```
codeFileExtension() ::= ".cpp"
```

```
true_value() ::= "true"
```

```
false_value() ::= "false"
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Cpp/Cpp.stg

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```

```
*/
```

```
/** Template overrides to add debugging to AST stuff. Dynamic inheritance
```

```
* hierarchy is set up as ASTDbg : AST : Dbg : Java by code generator.
```

```
*/
```

```
parserMembers() ::= <<
```

```
protected DebugTreeAdaptor adaptor;
```

```

public ITreeAdaptor TreeAdaptor
{
    get
    {
        return adaptor;
    }
    set
    {
<if(grammar.grammarIsRoot)>
        this.adaptor = new DebugTreeAdaptor(dbg,adaptor);
<else>
        this.adaptor
        = (DebugTreeAdaptor)adaptor; // delegator sends dbg adaptor
<endif><\n>
        <grammar.directDelegates:{g|<g.delegateName()>.TreeAdaptor = this.adaptor;}>
    }
}<\n>
>>

```

```

parserCtorBody() ::= <<
<super.parserCtorBody()>
>>

```

```

createListenerAndHandshake() ::= <<
DebugEventSocketProxy proxy = new DebugEventSocketProxy( this, port,
<if(TREE_PARSER)>input.TreeAdaptor<else>adaptor<endif> );
DebugListener = proxy;
<inputStreamType> = new Debug<inputStreamType>( input, proxy );
try
{
    proxy.Handshake();
}
catch ( IOException ioe )
{
    ReportError( ioe );
}
>>

```

```

@ctorForRootGrammar.finally() ::= <<
ITreeAdaptor adap = new CommonTreeAdaptor();
TreeAdaptor = adap;
proxy.TreeAdaptor = adap;
>>

```

```

@ctorForProfilingRootGrammar.finally() ::= <<
ITreeAdaptor adap = new CommonTreeAdaptor();
TreeAdaptor = adap;

```

>>

```
@ctorForPredefinedListener.superClassRef() ::= " : base( input, dbg )"

```

```
@ctorForPredefinedListener.finally() ::=<<
<if(grammar.isGrammarIsRoot)><<! don't create new
adaptor for delegates !>
ITreeAdaptor adap = new CommonTreeAdaptor();
TreeAdaptor = adap;<\n>
<endif>
>>

```

```
//@rewriteElement.pregen() ::= "dbg.Location( <e.line>, <e.pos> );"

```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp2/ASTDbg.stg

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Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/ActionScript/ASTParser.stg
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Python/Dbg.stg
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Python3/Dbg.stg
*

```

```
/opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Python/ST.stg
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Python3/ST.stg
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Java/ASTParser.stg

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\*/

/\*\* How to generate rules derived from left-recursive rules.

- \* These rely on recRuleDefArg(), recRuleAltPredicate(),
- \* recRuleArg(), recRuleSetResultAction(), recRuleSetReturnAction()
- \* templates in main language.stg

\*/

group LeftRecursiveRules;

recRuleName(ruleName) ::= "<ruleName>\_"

recPrimaryName(ruleName) ::= "<ruleName>\_primary"

recRuleStart(ruleName, minPrec, userRetvals, userRetvalAssignments) ::= <<

<ruleName><if(userRetvals)> returns [<userRetvals>]<endif>

: <recRuleName(...)>[<minPrec>]

<if(userRetvals)>

{

<userRetvalAssignments; separator="\n">

}

<endif>

;

>>

recRule(ruleName, precArgDef, argName, alts, setResultAction, buildAST,

userRetvals, userRetvalAssignments) ::= <<

```

<recRuleName(...)>[<precArgDef>]<if(userRetvals)> returns [<userRetvals>]<endif>
: <recPrimaryName(...)>
  <if(buildAST)>
  {
    <setResultAction>
  }
  <endif>
  <if(userRetvals)>
  {
    <userRetvalAssignments; separator="\n">
  }
  <endif>
  ( options {backtrack=false;}
  : ( options {backtrack=false;}
    : <alts; separator="\n | ">
    )
  )*)
;
>>

```

```

recPrimaryRule(ruleName, alts, userRetvals) ::= <<
<recPrimaryName(...)><if(userRetvals)> returns [<userRetvals>]<endif>
options {backtrack=true;}
: <alts; separator="\n | ">
;
>>

```

```

recRuleAlt(alt, pred) ::= "{<pred>}?=> <alt>"

```

```

recRuleRef(ruleName, arg) ::= "<recRuleName(...)>[<arg>]"

```

#### Found

in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/LeftRecursiveRules.stg

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/\*

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\*/

/\*\* Templates for building ASTs during tree parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* Each combination has its own template except that label/no label

\* is combined into tokenRef, ruleRef, ...

\*/

/\* addition memVars for returnscopes \*/

@returnScopeInterface.memVars() ::= <<

/\* ASTTreeParser returnScopeInterface.memVars

\*/

<recognizer.ASTLabelType; null="CommonTree"> \*tree;

>>

/\*\* the interface of returnScope methodsDecl \*/

@returnScopeInterface.methodsDecl() ::= <<

/\* ASTTreeParser returnScopeInterface.methodsDecl \*/

- (<recognizer.ASTLabelType; null="CommonTree"> \*)getTree;

- (void) setTree:(<recognizer.ASTLabelType; null="CommonTree"> \*)aTree;<\n>

>>

/\*\* the implementation of returnScope methods \*/

@returnScope.methods() ::= <<

/\* ASTTreeParser returnScope.methods \*/

- (<ASTLabelType> \*)getTree

```

{
    return tree;
}

- (void) setTree:(<ASTLabelType> *)aTree
{
    if (tree != aTree) {
        if (tree != nil) [tree release];
        if (aTree != nil) [aTree retain];
        tree = aTree;
    }
}

- (void) dealloc
{
    [self setTree:nil];
    [super dealloc];
}

@synthesize tree;
>>

@returnScopeProperties() ::= <<
@property (retain) <recognizer.ASTLabelType; null="CommonTree"> *tree;
>>

/** Add a variable to track last element matched */
ruleDeclarations() ::= <<
/* ASTTreeParser
ruleDeclarations */
<super.ruleDeclarations()>
<ASTLabelType> *_first_0 = nil;
<ASTLabelType> *_last = nil;<\n>
>>

/** What to emit when there is no rewrite rule. For auto build
* mode, does nothing.
*/
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
/* ASTTreeParser noRewrite */
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(rewriteMode)>
retval.tree = (<ASTLabelType> *)_first_0;
if ( [treeAdaptor getParent:retval.tree] != nil && [treeAdaptor isNil:[treeAdaptor getParent:retval.tree]] ) )
    retval.tree = (<ASTLabelType> *)[treeAdaptor getParent:retval.tree];
<endif>
<if(backtracking)>}<endif>
>>

```

```

/** match ^(root children) in tree parser; override here to
 * add tree construction actions.
 */
tree(root, actionsAfterRoot, children, nullableChildList,
      enclosingTreeLevel, treeLevel) ::= <<
/* ASTTreeParser tree */
_last = (<ASTLabelType> *)[input LT:1];
{
<ASTLabelType> *_save_last_<treeLevel> = _last;
<ASTLabelType> *_first_<treeLevel> = nil;
<if(!rewriteMode)>
<ASTLabelType>
*root_<treeLevel> = [[[treeAdaptor class] newEmptyTree] retain];
<endif>
<root:element()>
<if(rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
<if(root.el.rule)>
if ( _first_<enclosingTreeLevel>==nil ) _first_<enclosingTreeLevel> = <root.el.label>.tree;
<else>
if ( _first_<enclosingTreeLevel>==nil ) _first_<enclosingTreeLevel> = <root.el.label>;
<endif>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( [input LA:1] == TokenTypeDOWN ) {
[self match:input TokenType:TokenTypeDOWN Follow:nil]; <checkRuleBacktrackFailure()>
<children:element()>
[self match:input TokenType:TokenTypeUP Follow:nil]; <checkRuleBacktrackFailure()>
}
<else>
[self match:input TokenType:TokenTypeDOWN Follow:nil]; <checkRuleBacktrackFailure()>
<children:element()>
[self match:input TokenType:TokenTypeUP Follow:nil]; <checkRuleBacktrackFailure()>
<endif>
<if(!rewriteMode)>
[treeAdaptor addChild:root_<treeLevel> toTree:root_<enclosingTreeLevel>];
<endif>
_last
= _save_last_<treeLevel>;
}<\n>
>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last

```



```

*/
tokenRefBang(token,label,elementIndex,terminalOptions) ::= <<
/* ASTTreeParser tokenRefBang */
_last = (<ASTLabelType> *)[input LT:1];
<super.tokenRef(...)>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
/* ASTTreeParser tokenRef */
_last = (<ASTLabelType> *)[input LT:1];
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
  <label>_tree = [<terminalOptions.node> new<terminalOptions.node>:<label>];
<else>
  <label>_tree = (<ASTLabelType> *)[treeAdaptor dupNode:<label>];
<endif><\n>
  [treeAdaptor addChild:<label>_tree toTree:root_<treeLevel>];
<if(backtracking)>}<endif>
<else><! rewrite mode !>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
if ( _first_<treeLevel>==nil
) _first_<treeLevel> = <label>;
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
/* ASTTreeParser tokenRefAndListLabel */
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex) ::= <<
/* ASTTreeParser tokenRefRuleRoot */
_last = (<ASTLabelType> *)[input LT:1];
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = [<terminalOptions.node> new<terminalOptions.node>:<label>];
<else>
<label>_tree = (<ASTLabelType> *)[treeAdaptor dupNode:<label>];
<endif><\n>
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:<label>_tree old:root_<treeLevel>];

```

```

<if(backtracking)></endif>
<endif>
>>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
/* ASTTreeParser tokenRefRuleRootAndListLabel
*/
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions) ::= <<
/* ASTTreeParser wildcard */
_last = (<ASTLabelType> *)[input LT:1];
<super.wildcard(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<label>_tree = (<ASTLabelType> *)[adaptor dupTree:<label>];
[adaptor addChild:<label>_tree toTree:root_<treeLevel>];
<if(backtracking)></endif>
<else> <! rewrite mode !>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
if ( _first_<treeLevel> == nil ) _first_<treeLevel> = <label>;
<endif>
>>

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
/* ASTTreeParser matchSet */
_last = (<ASTLabelType> *)[input LT:1];
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = [<terminalOptions.node>
new<terminalOptions.node>:<label>];
<else>
<label>_tree = (<ASTLabelType> *)[adaptor dupNode:<label>];
<endif><\n>
[adaptor addChild:<label>_tree toTree:root_<treeLevel>];
<if(backtracking)></endif>
<endif>
}, ...
)>
>>

```

```

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
/* ASTTreeParser matchRuleBlockSet */
<matchSet(...)>
<noRewrite(...)> <! set return tree !>
>>

```

```

matchSetBang(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
/* ASTTreeParser matchSetBang */
_last = (<ASTLabelType> *)[input LT:1];
<super.matchSet(...)>
>>

```

```

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
/* ASTTreeParser matchSetRuleRoot */
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = [<terminalOptions.node> new<terminalOptions.node>:<label>];
<else>
<label>_tree = (<ASTLabelType> *)[adaptor dupNode:<label>];
<endif><\n>
root_<treeLevel>
= (<ASTLabelType> *)[adaptor becomeRoot:<label>_tree old:root_<treeLevel>];
<if(backtracking)>\\}<endif>
<endif>
}, ...
)>
>>

```

```
// RULE REF AST
```

```

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser ruleRef */
_last = (<ASTLabelType> *)[input LT:1];
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>
<if(!rewriteMode)>
[treeAdaptor addChild:<label>.tree toTree:root_<treeLevel>];
<else> <! rewrite mode !>
if ( _first_<treeLevel> == nil ) _first_<treeLevel> = <label>.tree;
<endif>
>>

```

```

/** x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<

```

```

/* ASTTreeParser ruleRefAndListLabel */
<ruleRef(...)>
<!<listLabel(elem = "["+label+" getTree]",...)> !>
<listLabel(elem = {[<label> getTree]},...)>
>>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser ruleRefRuleRoot */
_last = (<ASTLabelType> *)[input LT:1];
<super.ruleRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if
( state.backtracking == 0 ) <endif>
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:<label>.tree old:root_<treeLevel>];
<endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser ruleRefRuleRootAndListLabel */
<ruleRefRuleRoot(...)>
<listLabel(elem = {[<label> getTree]},...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser ruleRefTrack */
_last = (<ASTLabelType> *)[input LT:1];
<super.ruleRefTrack(...)>
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser ruleRefTrackAndListLabel */
_last = (<ASTLabelType> *)[input LT:1];
<super.ruleRefTrackAndListLabel(...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser
ruleRefRuleRootTrack */
_last = (<ASTLabelType> *)[input LT:1];
<super.ruleRefRootTrack(...)>
>>

/** ^(x+=rule ...) rewrite */

```

```

ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ASTTreeParser ruleRefRuleRootTrackAndListLabel */
_last = (<ASTLabelType> *)[input LT:1];
<super.ruleRefRuleRootTrackAndListLabel(...)>
>>

```

```

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,terminalOptions,scope) ::= <<
/* ASTTreeParser createRewriteNodeFromElement */
<if(terminalOptions.node)>
<! new <terminalOptions.node>(stream_<token>.nextNode()) !>
[[[<terminalOptions.node>(stream_<token> alloc] init] nextNode];
<else>
<! stream_<token>.nextNode() !>
[stream_<token> nextNode]
<endif>
>>

```

```

ruleCleanUp() ::= <<
/* ASTTreeParser ruleCleanUp */
<super.ruleCleanUp()>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<\n><endif>
retval.tree = (<ASTLabelType> *)[treeAdaptor
rulePostProcessing:root_0];
<if(backtracking)>}<endif>
<endif>
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/ObjC/ASTTreeParser.stg

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\*/

```
@outputFile.imports() ::= <<
<@super.imports(>

<if(!TREE_PARSER)>
<! tree parser would already have imported !>
using Antlr.Runtime.Tree;
using RewriteRuleITokenStream = Antlr.Runtime.Tree.RewriteRuleTokenStream;
<endif>
>>
```

```
@genericParser.members() ::= <<
<@super.members(>
<parserMembers(>
>>
```

```
parserCtorBody() ::=
<%
<super.parserCtorBody(><\n>
TreeAdaptor =
<if(actions.(actionScope).treeAdaptorInitializer)>
<actions.(actionScope).treeAdaptorInitializer>
<else>
new <actions.(actionScope).treeAdaptorType; null="CommonTreeAdaptor">()
<end>
;
%>
```

```
/** Add an adaptor property that knows how to build trees */
```

```

parserMembers() ::= <<
private <treeAdaptorType()> adaptor;

public <treeAdaptorType()> TreeAdaptor
{
get
{
return adaptor;
}

set
{
this.adaptor = value;
<grammar.directDelegates: {g|<g:delegateName().TreeAdaptor = this.adaptor;}>
}
}
>>

treeAdaptorType() ::= <<
<actions.(actionScope).treeAdaptorType; null="ITreeAdaptor">
>>

ruleReturnBaseType() ::= <%
Ast<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope\<<ASTLabelType>, <labelType>>
%>

/** Add a variable to track rule's return AST */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
<ASTLabelType> root_0 = default(<ASTLabelType>);<\n>
>>

ruleLabelDefs() ::= <<
<super.ruleLabelDefs()>
<[ruleDescriptor.tokenLabels,ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it|<ASTLabelType>
<it.label.text>_tree = default(<ASTLabelType>);}; separator="\n">
<ruleDescriptor.tokenListLabels: {it|<ASTLabelType> <it.label.text>_tree = default(<ASTLabelType>);};
separator="\n">
<ruleDescriptor.allTokenRefsInAltsWithRewrites
: {it|RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>");}; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites
: {it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule <it>");};
separator="\n">
>>

/** When doing auto AST construction, we must define some variables;

```

```

* These should be turned off if doing rewrites. This must be a "mode"
* as a rule could have both rewrite and AST within the same alternative
* block.
*/
@alt.declarations() ::= <<
<if(autoAST)>
<if(outerAlt)>
<if(!rewriteMode)>
root_0 = (<ASTLabelType>)adaptor.Nil();
<endif>
<endif>
<endif>
>>

// T
r a c k i n g   R u l e   E l e m e n t s

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<token>.Add(<label>);<\n>
>>

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the rewrite.
 */
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefTrack(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<token>.Add(<label>);
>>

/** Match ^(label+=TOKEN ...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/**
rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<rule.name>.Add(<label>.Tree);

```



```

>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabelElem(elem={ <label>.Tree },elemType=ASTLabelType,...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<rule>.Add(<label>.Tree);
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRootTrack(...)>
<listLabelElem(elem={ <label>.Tree },elemType=ASTLabelType,...)>
>>

// R e w r i t e

rewriteCode(
alts, description,
referencedElementsDeep,
// ALL referenced elements to right of ->
referencedTokenLabels,
referencedTokenListLabels,
referencedRuleLabels,
referencedRuleListLabels,
referencedWildcardLabels,
referencedWildcardListLabels,
rewriteBlockLevel, enclosingTreeLevel, treeLevel) ::= <<
<\n>{
// AST REWRITE
// elements: <referencedElementsDeep; separator=", ">
// token labels: <referencedTokenLabels; separator=", ">
// rule labels: <referencedRuleLabels; separator=", ">
// token list labels: <referencedTokenListLabels; separator=", ">
// rule list labels: <referencedRuleListLabels; separator=", ">
// wildcard labels: <[referencedWildcardLabels,referencedWildcardListLabels]; separator=", ">
<if(backtracking)>
if (<actions.(actionScope).synpredgate>) {
<endif>
<prevRuleRootRef(>).Tree = root_0;
<rewriteCodeLabels(>
root_0 = (<ASTLabelType>)adaptor.Nil();
<alts:rewriteAlt(); separator="else ">

```

```

<! if tree parser and rewrite=true !>
<if(TREE_PARSER&&rewriteMode)>
<prevRuleRootRef().Tree = (<ASTLabelType>)adaptor.RulePostProcessing(root_0);
if
  (<prevRuleRootRef().Tree != null)
  input.ReplaceChildren(adaptor.GetParent(retval.Start), adaptor.GetChildIndex(retval.Start),
  adaptor.GetChildIndex(_last), retval.Tree);
<endif>
<! if parser or tree-parser && rewrite!=true, we need to set result !>
<if(!TREE_PARSER||!rewriteMode)>
<prevRuleRootRef().Tree = root_0;
<endif>
<if(backtracking)>
}
<endif>
}

>>

rewriteCodeLabels() ::= <<
<referencedTokenLabels
  :{it|RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>",<it>)};
  separator="\n"
>
<referencedTokenListLabels
  :{it|RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it> ", list_<it>)};
  separator="\n"
>
<referencedWildcardLabels
  :{it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"wildcard <it>",<it>)};
  separator="\n"
>
<referencedWildcardListLabels
  :{it|RewriteRuleSubtreeStream stream_<it>=new
RewriteRuleSubtreeStream(adaptor,"wildcard <it> ",list_<it>)};
  separator="\n"
>
<referencedRuleLabels
  :{it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule
<it>",<it>!=null?<it>.Tree:null)};
  separator="\n"
>
<referencedRuleListLabels
  :{it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"token <it> ",list_<it>)};
  separator="\n"
>

```

```

>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
 * list rather shallow like other blocks.
 */
rewriteOptionalBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements, // elements in immediately block; no nested blocks
  description) ::=
<<
// <fileName>:<description>
if (<referencedElementsDeep:{el | stream_<el>.HasNext}; separator="||">)
{
  <alt>
}
<referencedElementsDeep:{el | stream_<el>.Reset();<\n>}>
>>

rewriteClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements,
  // elements in immediately block; no nested blocks
  description) ::=
<<
// <fileName>:<description>
while ( <referencedElements:{el | stream_<el>.HasNext}; separator="||" > )
{
  <alt>
}
<referencedElements:{el | stream_<el>.Reset();<\n>}>
>>

rewritePositiveClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements, // elements in immediately block; no nested blocks
  description) ::=
<<
if (!(<referencedElements:{el | stream_<el>.HasNext}; separator="||">))
{
  throw new RewriteEarlyExitException();
}
while ( <referencedElements:{el | stream_<el>.HasNext}; separator="||" > )
{
  <alt>
}

```

```

<referencedElements:{el | stream_<el>.Reset();<\n}>
>>

rewriteAlt(a) ::= <<
// <a.description>
<if(a.pred)>
if (<a.pred>)
{
<a.alt>
}
<else>
{
<a.alt>
}
<endif>
>>

/** For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "root_0 = null;"

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<
// <fileName>:<description>
{
<ASTLabelType>
root_<treeLevel> = (<ASTLabelType>)adaptor.Nil();
<root:rewriteElement()>
<children:rewriteElement()>
adaptor.AddChild(root_<enclosingTreeLevel>, root_<treeLevel>);
}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <%
<@pregen()>
DebugLocation(<e.line>, <e.pos>);<\n>
<e.el>
%>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,args,terminalOptions={}) ::= <<
adaptor.AddChild(root_<treeLevel>, <createRewriteNodeFromElement(...)>);<\n>
>>

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextNode());<\n>
>>

```

```

/** Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextNode());<\n>
>>

/** Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<label>.NextNode(),
root_<treeLevel>);<\n>
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args] ...) */
rewriteTokenRefRoot(token,elementIndex,args,terminalOptions={}) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<createRewriteNodeFromElement(...)>,
root_<treeLevel>);<\n>
>>

rewriteImaginaryTokenRef(args,token,elementIndex,terminalOptions={}) ::= <<
adaptor.AddChild(root_<treeLevel>, <createImaginaryNode(tokenType=token, ...)>);<\n>
>>

rewriteImaginaryTokenRefRoot(args,token,elementIndex,terminalOptions={}) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<createImaginaryNode(tokenType=token, ...)>,
root_<treeLevel>);<\n>
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;<\n>
>>

/** What is the name of the previous value of this rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting
* in retval struct to hold the value of root_0 right
* before I set it during rewrites. The assign will be to retval.tree.
*/
prevRuleRootRef() ::= "retval"

rewriteRuleRef(rule) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<rule>.NextTree());<\n>
>>

rewriteRuleRefRoot(rule) ::= <<

```

```

root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<rule>.NextNode(), root_<treeLevel>);<\n>
>>

rewriteNodeAction(action) ::= <<
adaptor.AddChild(root_<treeLevel>, <action>);<\n>
>>

rewriteNodeActionRoot(action) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<action>, root_<treeLevel>);<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextTree());<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextTree());<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label)
::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<label>.NextNode(), root_<treeLevel>);<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<label>.NextNode(), root_<treeLevel>);<\n>
>>

rewriteWildcardLabelRef(label) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextTree());<\n>
>>

createImaginaryNode(tokenType,args,terminalOptions={ }) ::= <%
<if(terminalOptions.node)>
<! new MethodNode(IDLabel, args) !>
new <terminalOptions.node>(<tokenType><if(args)>, <args; separator=", "><endif>)
<else>
(<ASTLabelType>)adaptor.Create(<tokenType>, <args; separator=", "><if(!args)>"<tokenType>"<endif>)
<endif>
%>

createRewriteNodeFromElement(token,args,terminalOptions={ }) ::= <%
<if(terminalOptions.node)>
new <terminalOptions.node>(stream_<token>.NextToken()<if(args)>, <args; separator=", "><endif>)

```

```
<else>
<if(args)> <! must create
new node from old !>
adaptor.Create(<token>, <args; separator=", ">)
<else>
stream_<token>.NextNode()
<endif>
<endif>
%>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp2/AST.stg
```

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*/
```

```

@outputFile.imports() ::= <<
<@super.imports()>

<if(!TREE_PARSER)>
<! tree parser would already have imported !>
using Antlr.Runtime.Tree;
using RewriteRuleITokenStream = Antlr.Runtime.Tree.RewriteRuleTokenStream;
<endif>
>>

@genericParser.members() ::= <<
<@super.members()>
<parserMembers()>
>>

parserCtorBody() ::= <<
<super.parserCtorBody()>
<treeAdaptorType()>
treeAdaptor = default(<treeAdaptorType()>);
CreateTreeAdaptor(ref treeAdaptor);
TreeAdaptor = treeAdaptor<if(!actions.(actionScope).treeAdaptorType)> ?? new CommonTreeAdaptor()<endif>;
>>

/** Add an adaptor property that knows how to build trees */
parserMembers() ::= <<
// Implement this function in your helper file to use a custom tree adaptor
partial void CreateTreeAdaptor(ref <treeAdaptorType()> adaptor);

private <treeAdaptorType()> adaptor;

public <treeAdaptorType()> TreeAdaptor
{
get
{
return adaptor;
}

set
{
this.adaptor = value;
<grammar.directDelegates:{g|<g:delegateName()>.TreeAdaptor = this.adaptor;}>
}
}
>>

treeAdaptorType() ::= <<
<actions.(actionScope).treeAdaptorType; null="ITreeAdaptor">
>>

```



```

ruleReturnBaseType() ::= <%
Ast<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope\<<ASTLabelType>, <labelType>>
%>

/** Add a variable to track rule's return AST */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
<ASTLabelType>
root_0 = default(<ASTLabelType>);<\n>
>>

ruleLabelDefs(ruleDescriptor, labelType, ASTLabelType, rewriteElementType) ::= <%
<super.ruleLabelDefs(...)>
<if(!ruleDescriptor.isSynPred)>
<[ruleDescriptor.tokenLabels,ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it|\n><ASTLabelType> <it.label.text>_tree = default(<ASTLabelType>);}>
<ruleDescriptor.tokenListLabels: {it|\n><ASTLabelType> <it.label.text>_tree = default(<ASTLabelType>);}>
<ruleDescriptor.allTokenRefsInAltsWithRewrites
: {it|\n>RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>");}>
<ruleDescriptor.allRuleRefsInAltsWithRewrites
: {it|\n>RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule <it>");}>
<endif>
%>

/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same
alternative
 * block.
 */
@alt.declarations() ::= <<
<if(autoAST && outerAlt && !rewriteMode && !ruleDescriptor.isSynPred)>
root_0 = (<ASTLabelType>)adaptor.Nil();
<endif>
>>

// Tracking Rule Elements

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<token>.Add(<label>);<\n>
>>

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the rewrite.

```

```

*/
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefTrack(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<token>.Add(<label>);
>>

/**
Match ^(label+=TOKEN ...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<rule.name>.Add(<label>.Tree);
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabelElem(elem={<label>.Tree},elemType=ASTLabelType,...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>stream_<rule>.Add(<label>.Tree);
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope)
::= <<
<ruleRefRuleRootTrack(...)>
<listLabelElem(elem={<label>.Tree},elemType=ASTLabelType,...)>
>>

// R e w r i t e

rewriteCode(
alts, description,

```

```

referencedElementsDeep, // ALL referenced elements to right of ->
referencedTokenLabels,
referencedTokenListLabels,
referencedRuleLabels,
referencedRuleListLabels,
referencedWildcardLabels,
referencedWildcardListLabels,
rewriteBlockLevel, enclosingTreeLevel, treeLevel) ::= <<
<\n>{
// AST REWRITE
// elements: <referencedElementsDeep; separator=", ">
// token labels: <referencedTokenLabels; separator=", ">
// rule labels: <referencedRuleLabels; separator=", ">
// token list labels: <referencedTokenListLabels; separator=", ">
// rule list labels: <referencedRuleListLabels; separator=", ">
// wildcard labels: <[referencedWildcardLabels,referencedWildcardListLabels]; separator=", ">
<if(backtracking)>
if (<actions.(actionScope).synpredgate>) {
<endif>
<prevRuleRootRef().Tree = root_0;
<rewriteCodeLabels()>
root_0 = (<ASTLabelType>)adaptor.Nil();
<alts:rewriteAlt();
separator="else ">
<! if tree parser and rewrite=true !>
<if(TREE_PARSER&&rewriteMode)>
<prevRuleRootRef().Tree = (<ASTLabelType>)adaptor.RulePostProcessing(root_0);
if (<prevRuleRootRef().Tree != null)
input.ReplaceChildren(adaptor.GetParent(retval.Start), adaptor.GetChildIndex(retval.Start),
adaptor.GetChildIndex(_last), retval.Tree);
<endif>
<! if parser or tree-parser && rewrite!=true, we need to set result !>
<if(!TREE_PARSER||!rewriteMode)>
<prevRuleRootRef().Tree = root_0;
<endif>
<if(backtracking)>
}
<endif>
}
>>

rewriteCodeLabels() ::= <<
<referencedTokenLabels
:{it|RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>",<it>)};
separator="\n"
>

```

```

<referencedTokenListLabels
: {it|RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>", list_<it>);};
separator="\n"
>
<referencedWildcardLabels
: {it|RewriteRuleSubtreeStream
stream_<it>=new RewriteRuleSubtreeStream(adaptor,"wildcard <it>",<it>);};
separator="\n"
>
<referencedWildcardListLabels
: {it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"wildcard <it>",<it>);};
separator="\n"
>
<referencedRuleLabels
: {it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule
<it>",<it>!=null?<it>.Tree:null);};
separator="\n"
>
<referencedRuleListLabels
: {it|RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"token <it>",<it>);};
separator="\n"
>
>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
 * list rather shallow like other blocks.
 */
rewriteOptionalBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
// <fileName>:<description>
if (<referencedElementsDeep: {el | stream_<el>.HasNext}; separator="||">)
{
<alt>
}
<referencedElementsDeep: {el
| stream_<el>.Reset();<n>>
>>

rewriteClosureBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=

```

```

<<
// <fileName>:<description>
while ( <referencedElements:{el | stream_<el>.HasNext}; separator="||"> )
{
  <alt>
}
<referencedElements:{el | stream_<el>.Reset();<\n>}>
>>

```

```

rewritePositiveClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements, // elements in immediately block; no nested blocks
  description) ::=

```

```

<<
if (!(<referencedElements:{el | stream_<el>.HasNext}; separator="||">))
{
  throw new RewriteEarlyExitException();
}
while ( <referencedElements:{el | stream_<el>.HasNext}; separator="||"> )
{
  <alt>
}
<referencedElements:{el | stream_<el>.Reset();<\n>}>
>>

```

```

rewriteAlt(a) ::= <<

```

```

// <a.description>

```

```

<if(a.pred>

```

```

if (<a.pred>)

```

```

{

```

```

  <a.alt>

```

```

}

```

```

<else>

```

```

{

```

```

  <a.alt>

```

```

}

```

```

<endif>

```

```

>>

```

```

/** For empty rewrites:

```

```

"r : ... -> ;" */

```

```

rewriteEmptyAlt() ::= "root_0 = null;"

```

```

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<

```

```

// <fileName>:<description>

```

```

{

```

```

  <ASTLabelType> root_<treeLevel> = (<ASTLabelType>)adaptor.Nil();

```

```

<root:rewriteElement()>
<children:rewriteElement()>
adaptor.AddChild(root_<enclosingTreeLevel>, root_<treeLevel>);
}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <%
<@pregen()>
DebugLocation(<e.line>, <e.pos>);<\n>
<e.el>
%>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,args,terminalOptions={}) ::= <<
adaptor.AddChild(root_<treeLevel>, <createRewriteNodeFromElement(...)>);<\n>
>>

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextNode());<\n>
>>

/** Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextNode());<\n>
>>

/**
Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<label>.NextNode(), root_<treeLevel>);<\n>
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args] ...) */
rewriteTokenRefRoot(token,elementIndex,args,terminalOptions={}) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<createRewriteNodeFromElement(...)>,
root_<treeLevel>);<\n>
>>

rewriteImaginaryTokenRef(args,token,elementIndex,terminalOptions={}) ::= <<
adaptor.AddChild(root_<treeLevel>, <createImaginaryNode(tokenType=token, ...)>);<\n>
>>

```

```

rewriteImaginaryTokenRefRoot(args,token,elementIndex,terminalOptions={}) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<createImaginaryNode(tokenType=token, ...)>,
root_<treeLevel>);<\n>
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;<\n>
>>

/** What
is the name of the previous value of this rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting in retval struct to hold the value of root_0 right
* before I set it during rewrites. The assign will be to retval.tree.
*/
prevRuleRootRef() ::= "retval"

rewriteRuleRef(rule) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<rule>.NextTree());<\n>
>>

rewriteRuleRefRoot(rule) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<rule>.NextNode(), root_<treeLevel>);<\n>
>>

rewriteNodeAction(action) ::= <<
adaptor.AddChild(root_<treeLevel>, <action>);<\n>
>>

rewriteNodeActionRoot(action) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<action>, root_<treeLevel>);<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextTree());<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label)
::= <<
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextTree());<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<label>.NextNode(), root_<treeLevel>);<\n>

```

>>

```
/** Gen ^($ruleLabel ...) where ruleLabel+=rule */  
rewriteRuleListLabelRefRoot(label) ::= <<  
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(stream_<label>.NextNode(), root_<treeLevel>);<n>  
>>
```

```
rewriteWildcardLabelRef(label) ::= <<  
adaptor.AddChild(root_<treeLevel>, stream_<label>.NextTree());<n>  
>>
```

```
createImaginaryNode(tokenType,args,terminalOptions={ }) ::= <%  
<if(terminalOptions.node)>  
<! new MethodNode(IDLabel, args) !>  
new <terminalOptions.node>(<tokenType><if(args)>, <args; separator=", "><endif>)  
<else>  
(<ASTLabelType>)adaptor.Create(<tokenType>, <args; separator=", "><if(!args)><tokenType><endif>)  
<endif>  
>
```

```
createRewriteNodeFromElement(token,args,terminalOptions={ })  
::= <%  
<if(terminalOptions.node)>  
new <terminalOptions.node>(stream_<token>.NextToken()<if(args)>, <args; separator=", "><endif>)  
<else>  
<if(args)> <! must create new node from old !>  
adaptor.Create(<token>, <args; separator=", ">)  
<else>  
stream_<token>.NextNode()  
<endif>  
<endif>  
>
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/CSharp3/AST.stg

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*/

```

```

/** Template overrides to add debugging to AST stuff. Dynamic inheritance
* hierarchy is set up as ASTDbg : AST : Dbg : Java by code generator.
*/

```

```

parserMembers() ::= <<
// Implement this function in your helper file to use a custom tree adaptor
partial void InitializeTreeAdaptor();
protected DebugTreeAdaptor adaptor;

public
ITreeAdaptor TreeAdaptor
{
get
{
return adaptor;
}
set
{
<if(grammar.grammarIsRoot)>
this.adaptor = new DebugTreeAdaptor(dbg,adaptor);
<else>
this.adaptor = (DebugTreeAdaptor)adaptor; // delegator sends dbg adaptor
<endif><\n>
<grammar.directDelegates:{g|<g.delegateName()>.TreeAdaptor = this.adaptor;}>
}
}

```

```

    }<\n>
>>

parserCtorBody() ::= <<
<super.parserCtorBody()>
>>

createListenerAndHandshake() ::= <<
DebugEventSocketProxy proxy = new DebugEventSocketProxy( this, port,
<if(TREE_PARSER)>input.TreeAdaptor<else>adaptor<endif> );
DebugListener = proxy;
<inputStreamType> = new Debug<inputStreamType>( input, proxy );
try
{
    proxy.Handshake();
}
catch ( IOException ioe )
{
    ReportError( ioe );
}
>>

@ctorForRootGrammar.finally() ::= <<
ITreeAdaptor adap = new CommonTreeAdaptor();
TreeAdaptor = adap;
proxy.TreeAdaptor = adap;
>>

@ctorForProfilingRootGrammar.finally() ::= <<
ITreeAdaptor adap = new CommonTreeAdaptor();
TreeAdaptor = adap;
>>

@ctorForPredefinedListener.superClassRef()
::= " : base( input, dbg )"

@ctorForPredefinedListener.finally() ::= <<
<if(grammar.grammarIsRoot)><! don't create new adaptor for delegates !>
ITreeAdaptor adap = new CommonTreeAdaptor();
TreeAdaptor = adap;<\n>
<endif>
>>

//@rewriteElement.pregen() ::= "dbg.Location( <e.line>, <e.pos> );"

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp3/ASTDbg.stg

```

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\*/

/\*\* Templates for building ASTs during tree parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* Each combination has its own template except that label/no label

\* is combined into tokenRef, ruleRef, ...

\*/

/\*\* Add a variable to track last

element matched \*/

ruleDeclarations() ::= <<

```

<super.ruleDeclarations()>
<ASTLabelType> _last;<\n>
<ASTLabelType> _first_0;<\n>
>>

/** Add a variable to track last element matched */
ruleInitializations() ::= <<
<super.ruleInitializations()>
_last = NULL;<\n>
_first_0 = NULL;<\n>
>>

/** What to emit when there is no rewrite rule. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
<if(backtracking)>if ( BACKTRACKING ==0 ) {<endif>
<if(rewriteMode)>
retval.tree = (<ASTLabelType>)_first_0;
if ( ADAPTOR->getParent(ADAPTOR, retval.tree) != NULL && ADAPTOR->isNilNode(ADAPTOR,
ADAPTOR->getParent(ADAPTOR, retval.tree) ) )
{
    retval.tree = (<ASTLabelType>)ADAPTOR->getParent(ADAPTOR, retval.tree);
}
<endif>
<if(backtracking)>}<endif>
>>

/** match ^(root children) in tree parser; override here to
 * add tree construction actions.
 */
tree(root, actionsAfterRoot, children, nullableChildList,
    enclosingTreeLevel, treeLevel) ::= <<
_last = (<ASTLabelType>)LT(1);
{
<ASTLabelType>
_save_last_<treeLevel>;
<ASTLabelType> _first_<treeLevel>;
<if(!rewriteMode)>
<ASTLabelType> root_<treeLevel>;
<endif>
_save_last_<treeLevel> = _last;
_first_<treeLevel> = NULL;
<if(!rewriteMode)>
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->nilNode(ADAPTOR));
<endif>
<root:element()>
<if(rewriteMode)>

```

```

<if(backtracking)>if ( BACKTRACKING ==0 ) {<endif>
<if(root.el.rule)>
if ( _first_<enclosingTreeLevel> == NULL ) _first_<enclosingTreeLevel> = <root.el.label>.tree;
<else>
if ( _first_<enclosingTreeLevel> == NULL ) _first_<enclosingTreeLevel> = <root.el.label>;
<endif>
<if(backtracking)>}<endif>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( LA(1)==ANTLR3_TOKEN_DOWN ) {
    MATCHT(ANTLR3_TOKEN_DOWN, NULL);
    <children:element()>
    MATCHT(ANTLR3_TOKEN_UP, NULL);
}
<else>
MATCHT(ANTLR3_TOKEN_DOWN, NULL);
<children:element()>
MATCHT(ANTLR3_TOKEN_UP, NULL);
<endif>
<if(!rewriteMode)>
ADAPTOR->addChild(ADAPTOR, root_<enclosingTreeLevel>,
    root_<treeLevel>);
<endif>
_last = _save_last_<treeLevel>;
}<\n>
>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex,terminalOptions) ::= <<
_last = (<ASTLabelType>)LT(1);
<super.tokenRef(...)>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
_last = (<ASTLabelType>)LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( BACKTRACKING ==0 ) {<endif>
<if(terminalOptions.node)>
<label>_tree = <terminalOptions.node>New(<label>);
<else>
<label>_tree = (<ASTLabelType>)ADAPTOR->dupNode(ADAPTOR, <label>);

```

```

<endif>
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <label>_tree);
<if(backtracking)></endif>
<else>
<if(backtracking)>if ( BACKTRACKING ==0 ) {<endif>
if ( _first_<treeLevel> == NULL ) _first_<treeLevel> = <label>;
<if(backtracking)></endif>
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
_last = (<ASTLabelType>)LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( BACKTRACKING == 0 ) {<endif>
<if(terminalOptions.node)>
<label>_tree = <terminalOptions.node>New(<label>);
<else>
<label>_tree = (<ASTLabelType>)ADAPTOR->dupNode(ADAPTOR, <label>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)ADAPTOR->becomeRoot(ADAPTOR, <label>_tree, root_<treeLevel>);
<if(backtracking)></endif>
<endif>
>>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions) ::= <<
_last = (<ASTLabelType>)LT(1);
<super.wildcard(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate>
) {<endif>
<label>_tree = (<ASTLabelType>)ADAPTOR->dupTree(ADAPTOR, <label>);
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <label>_tree);

```

```

<if(backtracking)></endif>
<else> <! rewrite mode !>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>;
<endif>
>>

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
  _last = (<ASTLabelType>)LT(1);
  <super.matchSet(postmatchCode={
  <if(!rewriteMode)>
  <if(backtracking)>if ( BACKTRACKING == 0 ) {<endif>
  <if(terminalOptions.node)>
  <label>_tree = <terminalOptions.node>New(<label>);
  <else>
  <label>_tree = (<ASTLabelType>)ADAPTOR->dupNode(ADAPTOR, <label>);
  <endif><\n>
  ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <label>_tree);
  <if(backtracking)></endif>
  <endif>
  }
  ,...)>
  >>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
  <matchSet(...)>
  <noRewrite()> <! set return tree !>
  >>

matchSetBang(s,label,terminalOptions,elementIndex,postmatchCode)
  ::= <<
  _last = (<ASTLabelType>)LT(1);
  <super.matchSet(...)>
  >>

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
  <super.matchSet(postmatchCode={
  <if(!rewriteMode)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> ){<endif>
  <if(terminalOptions.node)>
  <label>_tree = <terminalOptions.node>New(<label>);
  <else>
  <label>_tree = (<ASTLabelType>)ADAPTOR->dupNode(ADAPTOR, <label>);
  <endif>
  root_<treeLevel> = (<ASTLabelType>)ADAPTOR->becomeRoot(ADAPTOR, <label>_tree, root_<treeLevel>);
  <if(backtracking)></endif>
  }
  }
  >>

```

```

<endif>
}, ...
)>
>>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)LT(1);
  <super.ruleRef(...)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> )
  {
  <endif>
  <if(!rewriteMode)>
    ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <label>.tree);
  <else>
    if ( _first_<treeLevel> == NULL ) _first_<treeLevel> = <label>.tree;
  <endif>
  <if(backtracking)>}<endif>
  >>

/**
  x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRef(...)>
  <super.listLabelAST(elem=label,...)>
  >>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)LT(1);
  <super.ruleRef(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if ( ( <actions.(actionScope).synpredgate> ) ) <endif>root_<treeLevel> =
  (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, <label>.tree, root_<treeLevel>));
  <endif>
  >>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRefRuleRoot(...)>
  <super.listLabelAST(elem=label,...)>
  >>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)LT(1);

```



```

<super.ruleRefTrack(...)>
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)LT(1);
<super.ruleRefTrackAndListLabel(...)>
>>
/**
  ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)LT(1);
<super.ruleRefRuleRootTrack(...)>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)LT(1);
<super.ruleRefRuleRootTrackAndListLabel(...)>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,terminalOptions,scope) ::= <<
<if(terminalOptions.node)>
<terminalOptions.node>New(stream_<token>->nextNode(stream_<token>))
<else>
stream_<token>->nextNode(stream_<token>)
<endif>
>>

ruleCleanup() ::= <<
<super.ruleCleanup(...)>
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) {<\n>
<endif>
<if(!ruleDescriptor.isSynPred)>
  retval.stop = LT(-1);<\n>
<endif>
  retval.tree = (<ASTLabelType>)ADAPTOR->rulePostProcessing(ADAPTOR, root_0);
<if(backtracking)>
}
<endif>
<ruleDescriptor.allTokenRefsInAltsWithRewrites
  :{if (stream_<it> != NULL) stream_<it>->free(stream_<it>);}; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites

```

```
:{if (stream_<it> != NULL) stream_<it>->free(stream_<it>);}; separator="\n">
>>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/C/ASTTreeParser.stg
```

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\*/

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Python/ASTDbg.stg
```

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/\*

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\*/

/\*\* Templates for building ASTs during tree parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* Each combination has its own template except that label/no label

\* is combined into tokenRef, ruleRef, ...

\*/

```
finishedBacktracking(block) ::= <<
```

```
<if(backtracking)>
```

```
if <actions.(actionScope).synpredgate>:
```

```
  <block>
```

```
<else>
```

```
<block>
```

```
<endif>
```

```
>>
```

/\*\*

Add a variable to track last element matched \*/

```
ruleDeclarations() ::= <<
```

```
<super.ruleDeclarations()>
```

```
_first_0 = None
```

```
_last = None<\n>
```

```

>>

/** What to emit when there is no rewrite rule. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
<finishedBacktracking({
<if(rewriteMode)>
retval.tree = _first_0
if self._adaptor.getParent(retval.tree) is not None and self._adaptor.isNil(self._adaptor.getParent(retval.tree)):
    retval.tree = self._adaptor.getParent(retval.tree)
<endif>
})>
>>

/** match ^(root children) in tree parser; override here to
 * add tree construction actions.
 */
tree(root, actionsAfterRoot, children, nullableChildList,
    enclosingTreeLevel, treeLevel) ::= <<
_last = self.input.LT(1)
_save_last_<treeLevel> = _last
_first_<treeLevel> = None
<if(!rewriteMode)>
root_<treeLevel> = self._adaptor.nil()<\n>
<endif>
<root:element()>
<if(rewriteMode)>
<finishedBacktracking({
<if(root.el.rule)>
if _first_<enclosingTreeLevel>
is None:
    _first_<enclosingTreeLevel> = <root.el.label>.tree<\n>
<else>
if _first_<enclosingTreeLevel> is None:
    _first_<enclosingTreeLevel> = <root.el.label><\n>
<endif>
})>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if self.input.LA(1) == DOWN:
    self.match(self.input, DOWN, None)
    <children:element()>
    self.match(self.input, UP, None)

<else>
self.match(self.input, DOWN, None)

```

```

<children:element()>
self.match(self.input, UP, None)<\n>
<endif>
<if(!rewriteMode)>
self._adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>)<\n>
<endif>
_last = _save_last_<treeLevel>

>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex,terminalOptions={}) ::= <<
_last = self.input.LT(1)
<super.tokenRef(...)>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions={}) ::= <<
_last = self.input.LT(1)
<super.tokenRef(...)>
<if(!rewriteMode)>
<finishedBacktracking({
<if(terminalOptions.node)>
<label>_tree
= <terminalOptions.node>(<label>)
<else>
<label>_tree = self._adaptor.dupNode(<label>)
<endif><\n>
self._adaptor.addChild(root_<treeLevel>, <label>_tree)
})>
<else> <! rewrite mode !>
<finishedBacktracking({
if _first_<treeLevel> is None:
_first_<treeLevel> = <label><\n>
})>
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

```

```

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions={}) ::= <<
  _last = self.input.LT(1)
  <super.tokenRef(...)>
  <if(!rewriteMode)>
  <finishedBacktracking({
  <if(terminalOptions.node)>
  <label>_tree = <terminalOptions.node><(<label>)
  <else>
  <label>_tree = self._adaptor.dupNode(<label>)
  <endif><(<n>)
  root_<treeLevel> = self._adaptor.becomeRoot(<label>_tree, root_<treeLevel>)
  })>
  <endif>
>>

```

```

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={})
::= <<
  <tokenRefRuleRoot(...)>
  <listLabel(elem=label,...)>
>>

```

```

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions={}) ::= <<
  _last = self.input.LT(1)
  <super.wildcard(...)>
  <if(!rewriteMode)>
  <finishedBacktracking({
  <label>_tree = self._adaptor.dupTree(<label>)
  self._adaptor.addChild(root_<treeLevel>, <label>_tree)
  })>
  <else> <! rewrite mode !>
  <finishedBacktracking({
  if _first_<treeLevel> is None:
    _first_<treeLevel> = <label>
  })>
  <endif>
>>

```

```

// SET AST
matchSet(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= <<
  _last = self.input.LT(1)
  <super.matchSet(postmatchCode={
  <if(!rewriteMode)>
  <finishedBacktracking({
  <if(terminalOptions.node)>
  <label>_tree = <terminalOptions.node><(<label>)

```

```

<else>
<label>_tree = self._adaptor.dupNode(<label>)
<endif><\n>
self._adaptor.addChild(root_<treeLevel>, <label>_tree)
})>
<endif>
}, ...>
>>

matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={}) ::= <<
::= <<
<matchSet(...)>
<noRewrite(...)> <! set return tree !>
>>

matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= <<
_last = self.input.LT(1)
<super.matchSet(...)>
>>

matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={}) ::= <<
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<finishedBacktracking({
<if(terminalOptions.node)>
<label>_tree = <terminalOptions.node>(<label>)
<else>
<label>_tree = self._adaptor.dupNode(<label>)
<endif><\n>
root_<treeLevel> = self._adaptor.becomeRoot(<label>_tree, root_<treeLevel>)
})>
<endif>
}, ...)>
>>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
_last = self.input.LT(1)
<super.ruleRef(...)>
<finishedBacktracking({
<if(!rewriteMode)>
self._adaptor.addChild(root_<treeLevel>, <label>.tree)
<else> <! rewrite mode !>
if _first_<treeLevel> is None:
_first_<treeLevel> = <label>.tree<\n>
<endif>

```

```

})>
>>

/** x+=rule auto construct
 */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(label, {<label>.tree})>
>>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
_last = self.input.LT(1)
<super.ruleRef(...)>
<if(!rewriteMode)>
<finishedBacktracking({
root_<treeLevel> = self._adaptor.becomeRoot(<label>.tree, root_<treeLevel>)
})>
<endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabel(label, {<label>.tree})>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
_last = self.input.LT(1)
<super.ruleRefTrack(...)>
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
_last = self.input.LT(1)
<super.ruleRefTrackAndListLabel(...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope)
::= <<
_last = self.input.LT(1)
<super.ruleRefRootTrack(...)>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<

```



```

_last = self.input.LT(1)
<super.ruleRefRuleRootTrackAndListLabel(...)>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,scope,terminalOptions={}) ::= <<
<if(terminalOptions.node)>
<terminalOptions.node>(stream_<token>.nextNode())
<else>
stream_<token>.nextNode()
<endif>
>>

ruleCleanUp() ::= <<
<super.ruleCleanUp()>
<if(!rewriteMode)>
<finishedBacktracking({
retval.tree = self._adaptor.rulePostProcessing(root_0)
})>
<endif>
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Python/ASTTreeParser.stg
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```

```

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\*/

/\*\* Add an adaptor property that knows how to build trees \*/

@headerFile.members() ::= <<

/\* @headerFile.members() \*/

pANTLR3\_BASE\_TREE\_ADAPTOR adaptor;

pANTLR3\_VECTOR\_FACTORY vectors;

/\* End @headerFile.members() \*/

>>

/\*\* Install the tree adaptor interface pointer and anything else that

\* tree parsers and producers require.

\*/

@genericParser.apifuncs() ::= <<

<if(PARSER)>

ADAPTOR = ANTLR3\_TREE\_ADAPTORNew(instream->tstream->tokenSource->strFactory);<\n>

<endif>

ctx->vectors =

antlr3VectorFactoryNew(0);

>>

@genericParser.cleanup() ::= <<

ctx->vectors->close(ctx->vectors);

<if(PARSER)>

/\* We created the adaptor so we must free it

\*/

ADAPTOR->free(ADAPTOR);

<endif>

>>

@returnScope.ruleReturnMembers() ::= <<

<super.ASTLabelType()> tree;

>>

/\*\* Add a variable to track rule's return AST \*/

ruleDeclarations() ::= <<

```

<super.ruleDeclarations()>
<ASTLabelType> root_0;<\n>
>>

ruleInitializations() ::= <<
<super.ruleInitializations()>
root_0 = NULL;<\n>
>>

ruleLabelDefs() ::= <<
<super.ruleLabelDefs()>
<ruleDescriptor.tokenLabels:{it | <ASTLabelType> <it.label.text>_tree;}; separator="\n">
<ruleDescriptor.tokenListLabels:{it | <ASTLabelType> <it.label.text>_tree;}; separator="\n">
<ruleDescriptor.allTokenRefsInAltsWithRewrites
: {it | pANTLR3_REWRITE_RULE_<rewriteElementType>_STREAM stream_<it>;}; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites
: {it | pANTLR3_REWRITE_RULE_SUBTREE_STREAM
stream_<it>;}; separator="\n">
>>

/* Note that we defer the actual creation of any rewrite streams we need here and just initialize
* them to NULL. This saves creating huge numbers of rewrite streams that cannot be used as only
* one alt will be taken in a rule, but we are declaring all the streams here. So we define
* a macro that conatins the create code, then use this macro later to check if the stream
* has been created yet. Checking for NULL is almost free in C.
*/
ruleLabelInitializations() ::= <<
<super.ruleLabelInitializations()>
<ruleDescriptor.tokenLabels:{it | <it.label.text>_tree = NULL;}; separator="\n">
<ruleDescriptor.tokenListLabels:{it | <it.label.text>_tree = NULL;}; separator="\n">

<ruleDescriptor.allTokenRefsInAltsWithRewrites
: {it | stream_<it> = NULL;
#define CREATE_stream_<it> if (stream_<it> == NULL) {stream_<it> =
antlr3RewriteRule<rewriteElementType>StreamNewAE(ADAPTOR, RECOGNIZER, (pANTLR3_UINT8)"token
<it>"); \} };
separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites
: {it | stream_<it> = NULL;
#define CREATE_stream_<it> if (stream_<it> == NULL) {stream_<it> =
antlr3RewriteRuleSubtreeStreamNewAE(ADAPTOR, RECOGNIZER, (pANTLR3_UINT8)"rule <it>"); \} };
separator="\n">

<if(ruleDescriptor.hasMultipleReturnValues)>
retval.tree = NULL;
<endif>
>>

```

```

/** a rule label including default value */
ruleLabelInitVal(label) ::= <<
<super.ruleLabelInitVal(...)>
<label.label.text>.tree = NULL;
>>

/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same alternative
 * block.
 */
@alt.declarations() ::= <<
<if(autoAST)>
<if(outerAlt)>
<endif>
<endif>
>>

@alt.initializations() ::= <<
<if(autoAST)>
<if(outerAlt)>
<if(!rewriteMode)>
root_0 = (<ASTLabelType>)(ADAPTOR->nilNode(ADAPTOR));<\n>
<endif>
<endif>
<endif>
>>

// Tracking Rule Elements
//
/** ID but track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if ( <actions.>(actionScope).synpredgate> ) { <endif>CREATE_stream_<token>;
stream_<token>->add(stream_<token>, <label>, NULL);<if(backtracking)> }<endif><\n>
>>

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the rewrite.
 */
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefTrack(...)>
<listLabel(elem=label,...)>
>>

```

```

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>CREATE_stream_<token>; stream_<token>-
>add(stream_<token>, <label>, NULL);<if(backtracking)> }<endif><\n>
>>

```

```

wildcardTrack(label,elementIndex) ::= <<
<super.wildcard(...)>
>>

```

```

/**
rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) { <endif>CREATE_stream_<rule.name>;
stream_<rule.name>->add(stream_<rule.name>, <label>.tree, NULL);<if(backtracking)> }<endif>
>>

```

```

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabelTrack(...)>
>>

```

```

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) { <endif>CREATE_stream_<rule.name>;
stream_<rule.name>->add(stream_<rule.name>, <label>.tree, NULL);<if(backtracking)> }<endif>
>>

```

```

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRootTrack(...)>
<listLabelAST(...)>
>>

```

// RULE REF AST

```

/** Match ^(label+=TOKEN
...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabel(elem=label,...)>

```

>>

```
/* How to accumulate lists when we are doing rewrite tracking...
```

```
*/
```

```
listLabelTrack(label) ::= <<
```

```
/* listLabelTrack(label)
```

```
*/
```

```
if (list_<label> == NULL)
```

```
{
```

```
    list_<label>=ctx->vectors->newVector(ctx->vectors);
```

```
}
```

```
list_<label>->add(list_<label>, <label>.tree, NULL);
```

```
>>
```

```
/* How to accumulate lists of rule outputs (only allowed with AST
```

```
* option but if the user is going to walk the tree, they will want
```

```
* all their custom elements from rule returns.
```

```
*
```

```
* Normally, we use inline structures (which the compiler lays down
```

```
* code to copy from heap allocations. However, here we want to accumulate copies
```

```
* of the returned structures because we are adding them to a list. This only makes sense if the
```

```
* grammar is not rewriting the tree as a tree rewrite only preserves the tree, not the object/structure
```

```
* returned from the
```

```
rule. The rewrite will extract the tree pointer. However, if we are not going to
```

```
* do a tree re-write, then the user may wish to iterate the structures returned by the rule in
```

```
* action code and will expect the user defined returns[] elements to be available when they do this.
```

```
* Hence we cannot just preserve the tree that was returned. So, we must copy the local structure and provide
```

```
* a function that can free the allocated space. We cannot know how to free user allocated elements and
```

```
* presume that the user will know to do this using their own factories for the structures they allocate.
```

```
*/
```

```
listLabelAST(label) ::= <<
```

```
if (list_<label> == NULL)
```

```
{
```

```
    list_<label>=ctx->vectors->newVector(ctx->vectors);
```

```
}
```

```
{
```

```
    RETURN_TYPE_<label> * tcopy;
```

```
    tcopy = (RETURN_TYPE_<label> *)ANTLR3_MALLOC(sizeof(RETURN_TYPE_<label>)); /* Note no  
memory allocation checks! */
```

```
    ANTLR3_MEMCPY((void *)tcopy, (const void *)&<label>, sizeof(RETURN_TYPE_<label>));
```

```
    list_<label>->add(list_<label>, (void
```

```
*)tcopy, freeScope); /* Add whatever the return type is */<n>
```

```
}
```

```
>>
```

```
// R e w r i t e
```

```

rewriteCode(
  alts,
  description,
  referencedElementsDeep, // ALL referenced elements to right of ->
  referencedTokenLabels,
  referencedTokenListLabels,
  referencedRuleLabels,
  referencedRuleListLabels,
  referencedWildcardLabels,
  referencedWildcardListLabels,
  rewriteBlockLevel,
  enclosingTreeLevel,
  treeLevel) ::=
<<

/* AST REWRITE
* elements      : <referencedElementsDeep; separator=", ">
* token labels  : <referencedTokenLabels; separator=", ">
* rule labels   : <referencedRuleLabels; separator=", ">
* token list labels : <referencedTokenListLabels; separator=", ">
* rule list labels : <referencedRuleListLabels; separator=", ">
*/
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) <\n>
<endif>
{
  <rewriteCodeLabelsDecl()>
  <rewriteCodeLabelsInit()>
  root_0 = (<ASTLabelType>)(ADAPTOR->nilNode(ADAPTOR));
  <prevRuleRootRef()>.tree = root_0;
  <alts:rewriteAlt()>
  separator="else ">
  <if(TREE_PARSER)>
  <if(rewriteMode)>
  <prevRuleRootRef()>.tree = (<ASTLabelType>)(ADAPTOR->rulePostProcessing(ADAPTOR, root_0));
  INPUT->replaceChildren(INPUT, ADAPTOR->getParent(ADAPTOR, retval.start),
    ADAPTOR->getChildIndex(ADAPTOR, retval.start),
    ADAPTOR->getChildIndex(ADAPTOR, _last),
    retval.tree);
  <endif>
  <endif>
  <prevRuleRootRef()>.tree = root_0; // set result root
  <rewriteCodeLabelsFree()>
}
>>

```

```

rewriteCodeLabelsDecl() ::= <<
<referencedTokenLabels
  :{it | pANTLR3_REWRITE_RULE_<rewriteElementType>_STREAM stream_<it>;}
  separator="\n"
>
<referencedTokenListLabels
  :{it | pANTLR3_REWRITE_RULE_<rewriteElementType>_STREAM stream_<it>;}
  separator="\n"
>
<referencedRuleLabels
  :{it | pANTLR3_REWRITE_RULE_SUBTREE_STREAM stream_<it>;}
  separator="\n"
>
<referencedRuleListLabels
  :{it | pANTLR3_REWRITE_RULE_SUBTREE_STREAM stream_<it>;}
  separator="\n"
>
>>

rewriteCodeLabelsInit()
::= <<
<referencedTokenLabels
: {it | stream_<it>=antlr3RewriteRule<rewriteElementType>StreamNewAEE(ADAPTOR, RECOGNIZER,
(pANTLR3_UINT8)"token <it>", <it>);}
separator="\n"
>
<referencedTokenListLabels
: {it | stream_<it>=antlr3RewriteRule<rewriteElementType>StreamNewAEV(ADAPTOR, RECOGNIZER,
(pANTLR3_UINT8)"token <it>", list_<it>);}
separator="\n"
>
<referencedRuleLabels
: {it | stream_<it>=antlr3RewriteRuleSubtreeStreamNewAEE(ADAPTOR, RECOGNIZER,
(pANTLR3_UINT8)"token <it>", <it>.tree != NULL ? <it>.tree : NULL);}
separator="\n"
>
<referencedRuleListLabels
: {it | stream_<it>=antlr3RewriteRuleSubtreeStreamNewAEV(ADAPTOR, RECOGNIZER,
(pANTLR3_UINT8)"token <it>", list_<it>);}
separator="\n"
>
>>

rewriteCodeLabelsFree() ::= <<
<referencedTokenLabels
: {it | if (stream_<it> != NULL) stream_<it>->free(stream_<it>);}
separator="\n"
>
<referencedTokenListLabels

```



```

: {it | if (stream_<it> != NULL) stream_<it>->free(stream_<it>);};
separator="\n"
>
<referencedRuleLabels
: {it
| if (stream_<it> != NULL) stream_<it>->free(stream_<it>);};
separator="\n"
>
<referencedRuleListLabels
: {it | if (stream_<it> != NULL) stream_<it>->free(stream_<it>);};
separator="\n"
>
>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
 * list rather shallow like other blocks.
 */
rewriteOptionalBlock(
alt,
rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
// <fileName>:<description>
{
if ( <referencedElementsDeep:{el | (stream_<el> != NULL && stream_<el>->hasNext(stream_<el>)) } ;
separator="|| "> )
{
<alt>
}
<referencedElementsDeep:{el | if ( stream_<el> != NULL) stream_<el>->reset(stream_<el>);<n>}>
}<n>
>>

rewriteClosureBlock(
alt,
rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
// <fileName>:<description>
{
while
( <referencedElements:{el | (stream_<el> != NULL && stream_<el>->hasNext(stream_<el>)) } ; separator="|| "> )
{
<alt>

```

```

}
<referencedElements:{el | if (stream_<el> != NULL) stream_<el>->reset(stream_<el>);<\n>}>
}<\n>
>>
RewriteEarlyExitException() ::=
<<
CONSTRUCTEX();
EXCEPTION->type      = ANTLR3_REWRITE_EARLY_EXCEPTION;
EXCEPTION->name      = (void *)ANTLR3_REWRITE_EARLY_EXCEPTION_NAME;
>>
rewritePositiveClosureBlock(
alt,
rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
if (<referencedElements:{el | (stream_<el> == NULL || !stream_<el>->hasNext(stream_<el>)) }; separator="|| ">)
{
  <RewriteEarlyExitException()>
}
else
{
  while (<referencedElements:{el | (stream_<el>->hasNext(stream_<el>)) }; separator="|| ">) {
    <alt>
  }
  <referencedElements:{el | stream_<el>->reset(stream_<el>);<\n>}>
}
>>

rewriteAlt(a) ::= <<
// <a.description>
<if(a.pred)>
if (<a.pred>)
{
  <a.alt>
}<\n>
<else>
{
  <a.alt>
}<\n>
<endif>
>>

/** For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "root_0 = NULL; /* \<-- rewriteEmptyAlt() */"

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<

```

```

// <fileName>:<description>
{
  <ASTLabelType> root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->nilNode(ADAPTOR));
  <root:rewriteElement()>
  <children:rewriteElement()>
  ADAPTOR->addChild(ADAPTOR, root_<enclosingTreeLevel>, root_<treeLevel>);
}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <<
<@pregen()>
<e.el>
>>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,terminalOptions,args) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <createRewriteNodeFromElement(...)>);<\n>
>>

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, stream_<label> == NULL ? NULL : stream_<label>-
>nextNode(stream_<label>));<\n>
>>

/**
  Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, stream_<label> == NULL ? NULL : stream_<label>-
>nextNode(stream_<label>));<\n>
>>

/** Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->becomeRootToken(ADAPTOR, stream_<label> == NULL ?
NULL : stream_<label>->nextToken(stream_<label>), root_<treeLevel>));<\n>
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args] ...) */
rewriteTokenRefRoot(token,elementIndex,terminalOptions,args) ::= <<
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR,
<createRewriteNodeFromElement(...)>, root_<treeLevel>));<\n>
>>

```

```

rewriteImaginaryTokenRef(args,token,terminalOptions,elementIndex) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <createImaginaryNode(tokenType=token,
...)>);<\n>
>>

rewriteImaginaryTokenRefRoot(args,token,terminalOptions,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR,
<createImaginaryNode(tokenType=token, ...)>, root_<treeLevel>));<\n>
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;<\n>
>>

/** What is the name of the previous value of this rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting in retval struct to hold the value of root_0 right
* before I set it during rewrites. The assign will be to retval.tree.
*/
prevRuleRootRef() ::= "retval"

rewriteRuleRef(rule,dup) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, stream_<rule> == NULL ? NULL : stream_<rule>-
>nextTree(stream_<rule>));<\n>
>>

rewriteRuleRefRoot(rule,dup) ::= <<
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, stream_<rule> == NULL ? NULL
: stream_<rule>->nextNode(stream_<rule>), root_<treeLevel>));<\n>
>>

rewriteNodeAction(action)
::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, <action>);<\n>
>>

rewriteNodeActionRoot(action) ::= <<
root_<treeLevel> = (<ASLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, <action>, root_<treeLevel>));<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, stream_<label> == NULL ? NULL : stream_<label>-
>nextTree(stream_<label>));<\n>
>>

```

```

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, stream_<label> == NULL ? NULL : stream_<label>-
>nextTree(stream_<label>));<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, stream_<label> == NULL ? NULL
: stream_<label>->nextNode(stream_<label>), root_<treeLevel>));<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label)
::= <<
root_<treeLevel> = (<ASTLabelType>)(ADAPTOR->becomeRoot((<ASTLabelType>)(stream_<label> == NULL
? NULL : stream_<label>->nextNode(stream_<label>), root_<treeLevel>));<\n>
>>

rewriteWildcardLabelRef(label) ::= <<
ADAPTOR->addChild(ADAPTOR, root_<treeLevel>, stream_<label> == NULL ? NULL : stream_<label>-
>nextTree(stream_<label>));<\n>
>>

createImaginaryNode(tokenType,terminalOptions,args) ::= <<
<if(terminalOptions.node)>
<! new MethodNode(IDLabel, args) !>
<terminalOptions.node>New(<tokenType><if(args)>, <args; separator=","><endif>)
<else>
<if(args)>

#if <length(args)> == 2
(<ASTLabelType>)ADAPTOR->createTypeTokenText(ADAPTOR, <tokenType>, TOKTEXT(<args; separator=",">,
">))
#else
(<ASTLabelType>)ADAPTOR->createTypeText(ADAPTOR, <tokenType>, (pANTLR3_UINT8)<args;
separator=","> ">)
#endif

<else>
(<ASTLabelType>)ADAPTOR->createTypeText(ADAPTOR, <tokenType>, (pANTLR3_UINT8)"<tokenType>")
<endif>
<endif>
>>

createRewriteNodeFromElement(token,terminalOptions,args)
::= <<
<if(terminalOptions.node)>

```

```

<terminalOptions.node>New(stream_<token>->nextToken(stream_<token><if(args)>, <args; separator=",
"><endif>)
<else>
<if(args)> <! must create new node from old !>

#if <length(args)> == 2
ADAPTOR->createTypeTokenText(ADAPTOR, <token>->getType(<token>, TOKTEXT(<token>, <args;
separator=", ">)) /* JIMI */
#else
ADAPTOR->createTypeToken(ADAPTOR, <token>->getType(<token>, <token>, <args; separator=", ">)
#endif

<else>
stream_<token> == NULL ? NULL : stream_<token>->nextNode(stream_<token>)
<endif>
<endif>
>>

```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/C/AST.stg  
No license file was found, but licenses were detected in source scan.

/\*

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```
*/
/** Template subgroup to add template rewrite output
 * If debugging, then you'll also get STDbg.stg loaded.
 */

@returnScopeInterface.memVars() ::= <<
<@super.memVars()>
/* ST returnInterface.memVars */
ST *st;
>>

@returnScopeInterface.properties() ::= <<
<@super.properties()>
/* ST returnScope.properties */
@property (retain, getter=getST, setter=setST:) ST *st;
>>

@returnScopeInterface.methodsDecl() ::= <<
<@super.methodsDecl()>
/* ST AST returnScopeInterface.methodsDecl */
-
(id) getTemplate;
- (NSString *) toString;
- (NSString *) description;
>>

@returnScopeInterface() ::= <<
/* ST returnScopeInterface */
@interface <returnScopeInterface.name> : ReturnScope {
<returnScopeInterface.memVars()>
}
<returnScopeInterface.properties()>

<returnScopeInterface.methods()>
@end
>>

@returnScopeImplementation.synthesize() ::= <<
<@super.synthesize()>
/* ST returnScope.synthesize */
@synthesize st;
>>

@returnScopeImplementation.methods() ::= <<
<@super.methods()>
/* ST returnScope.methods */
- (id) getTemplate { return st; }
```

```
- (NSString *) toString { return st==nil?nil:[st toString]; }
- (NSString *) description { [self toString]; }
>>
```

```
@returnScopeImplementation() ::= <<
@implementation <returnScopeImplementation.name>
<returnScopeImplementation.synthesize()>

<returnScopeImplementation.methods()>
@end
>>
```

```
/** Add this to each rule's return value struct */
@returnScope.ruleReturnMembers() ::= <<
<@super.ruleReturnMembers()>
/* ST returnScope.ruleReturnMembers --
empty */
>>
```

```
@genericParserHeaderFile.memVars() ::= <<
<@super.memVars()>
/* ST genericParserHeaderFile.memVars -- empty now */
STGroup *templateLib; /* ST -- really a part of STAttrMap */
>>
```

```
@genericParserHeaderFile.properties() ::= <<
<@super.properties()>
/* ST genericParser.properties */
@property (retain, getter=getTemplateLib, setter=setTemplateLib:) STGroup *templateLib;
>>
```

```
@genericParserHeaderFile.methodsDecl() ::= <<
<@super.methodsDecl()>
/* ST genericParser.methodsDecl */
- init;
- (STGroup *) getTemplateLib;
- (void) setTemplateLib:(STGroup *)aTemplateLib;
@end
>>
```

```
@genericParser.synthesize() ::= <<
<@super.synthesize()>
/* ST genericParserImplementation.synthesize */
@synthesize templateLib;
>>
```

```
@genericParser.methods() ::= <<
<@super.methods()>
```



```

/* ST genericParser.methods */

- (STGroup *)getTemplateLib
{
    return templateLib;
}

- (void) setTemplateLib:(STGroup *)aTemplateLib
{
    templateLib = aTemplateLib;
}

>>

@genericParser.members() ::= <<
<@super.members()>
STGroup
*templateLib = [STGroup newSTGroup:@"<name>Templates"];

- (STGroup *) getTemplateLib
{
    return templateLib;
}

- (void) setTemplateLib:(STGroup *) templateLib
{
    this.templateLib = templateLib;
}

/** allows convenient multi-value initialization:
 * "new STAttrMap().put(...).put(...)"
 */
/* REPLACE THIS STATIC CLASS
static class STAttrMap extends HashMap {
- (STAttrMap *) setObject:(id)aValue forKey:(NS*)String attrName
{
    [super setObject:value forKey:attrName];
    return self;
}
- (STAttrMap *) setObjectWithInt:(NSInteger)value forKey:(NSString *)attrName
{
    [super setObject:[NSNumber numberWithInt:value] forKey:attrName];
    return self;
}
}
*/
>>

```

```

@STAttrMap() ::= <<
/* ----- ST start STAttrMap ----- */
<@STAttrMap.interface()>
<@STAttrMap.implementation()>
/* ----- ST end STAttrMap ----- */
>>

@STAttrMap.interface() ::= <<
/* ----- ST start STAttrMap.interface ----- */
@interface STAttrMap : HashMap {
/* <@STAttrMap.memVars()>
*/
    STGroup *templateLib;
}

/* <@STAttrMap.properties()> */
@property (retain, getter=getTemplateLib, setter=setTemplateLib:) STGroup *templateLib;
/* <@STAttrMap.methodsDecl()> */
- (id) init;
- (STAttrMap *) setObject:(id)value forKey:(NSString *)attrName;
- (STAttrMap *) setObjectWithInt:(NSInteger)value forKey:(NSString *)attrName;
- (void) setTemplateLib:(STGroup *)aTemplateLib;
- (STGroup *) getTemplateLib;
@end
/* ----- ST end STAttrMap.interface ----- */
>>

@STAttrMap.implementation() ::= <<
/* ----- ST start STAttrMap.implementation ----- */
/** allows convenient multi-value initialization:
 * "new STAttrMap().put(...).put(...)"
 */
@implementation STAttrMap
@synthesize templateLib;

<@STAttrMap.methods()>
@end
/* ----- ST end STAttrMap.implementation ----- */
>>

@STAttrMap.memVars() ::= <<
/* ----- ST start STAttrMap.memVars ----- */
    STGroup *templateLib;
/* ----- ST end STAttrMap.memVars ----- */
>>

@STAttrMap.properties()

```

```

::= <<
/* ----- ST start STAttrMap.properties ----- */
@property (retain, getter=getTemplateLib, setter=setTemplateLib:) STGroup *templateLib;
/* ----- ST end STAttrMap.properties ----- */
>>

```

```

@STAttrMap.methodsDecl() ::= <<
/* ----- ST start STAttrMap.methodsDecl ----- */
- (id) init;
- (STAttrMap *) setObject:(id)value forKey:(NSString *)attrName;
- (STAttrMap *) setObjectWithInt:(NSInteger)value forKey:(NSString *)attrName;
- (void) setTemplateLib:(STGroup *)aTemplateLib;
- (STGroup *) getTemplateLib;
/* ----- ST end STAttrMap.methodsDecl ----- */
>>

```

```

@STAttrMap.methods() ::= <<
/* ----- ST start STAttrMap.methods ----- */
- (id) init
{
    self = [super initWithLen:16];
    if ( self != nil ) {
        templateLib = [STGroup newSTGroup:"<name>Templates"];
    }
    return self;
}

- (STAttrMap *) setObject:(id)aValue forKey:(NSString *)aAttrName
{
    [super setObject:aValue forKey:aAttrName];
    return self;
}

-
(STAttrMap *) setObjectWithInt:(NSInteger)aValue forKey:(NSString *)aAttrName
{
    [super setObject:[NSNumber numberWithInt:aValue] forKey:aAttrName];
    return self;
}

- (void) setTemplateLib:(STGroup *)aTemplateLib
{
    templateLib = aTemplateLib;
}

- (STGroup *)getTemplateLib
{
    return templateLib;
}

```

```

/* ----- ST end STAttrMap.methods ----- */
>>

/** x+=rule when output=template */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ST ruleRefAndListLable */
<ruleRef(...)>
<listLabel(elem=[label getTemplate,...]>
>>

rewriteTemplate(alts) ::= <<
/* ----- ST start rewriteTemplate ----- */
// TEMPLATE REWRITE
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) {
    <alts:rewriteTemplateAlt(); separator="else ">
    <if(rewriteMode)><replaceTextInLine()><endif>
}
<else>
<alts:rewriteTemplateAlt(); separator="else ">
<if(rewriteMode)><replaceTextInLine()><endif>
<endif>
/* ----- ST end rewriteTemplate ----- */
>>

replaceTextInLine()
::= <<
/* ----- ST start replaceTextInLine ----- */
<if(TREE_PARSER)>
[[ (TokenRewriteStream *)input getTokenStream]
    replaceFromIndex:[ [input getTreeAdaptor] getTokenStartIndex:retval.start]
        ToIndex:[ [input getTreeAdaptor] getTokenStopIndex:retval.start]
        Text:retval.st];
<else>
[[ (TokenRewriteStream *)input]
    replaceFromIndex:[ ((CommonToken *)retval.start) getTokenIndex]
        ToIndex:[ [input LT:-1] getTokenIndex]
        Text:retval.st];
<endif>
/* ----- ST end replaceTextInLine ----- */
>>

rewriteTemplateAlt() ::= <<
/* ----- ST start rewriteTemplateAlt ----- */
/* ST <it.description> */
<if(it.pred)>
if (<it.pred> ) {
    retval.st = <it.alt>;
}

```

```

    }<\n>
<else>
{
    retval.st = <it.alt>;
}<\n>
<endif>
/* ----- ST end rewriteTemplateAlt ----- */
>>

rewriteEmptyTemplate(alts) ::= <<
nil;
>>

/** Invoke a template with a set of attribute name/value pairs.
 * Set the value
 * of the rule's template *after* having set
 * the attributes because the rule's template might be used as
 * an attribute to build a bigger template; you get a self-embedded
 * template.
 */
rewriteExternalTemplate(name,args) ::= <<
/* ----- ST start rewriteExternalTemplate ----- */
[templateLib getInstanceOf:@"<name>"
<if(args)>[[STAttrMap newSTAttrMap] <args:{a | setObject:<a.value> forKey:@"<a.name>"}><endif>]
/* ----- ST end rewriteExternalTemplate ----- */
>>

/** expr is a string expression that says what template to load */
rewriteIndirectTemplate(expr,args) ::= <<
/* ----- ST start rewriteIndirectTemplate ----- */
[templateLib getInstanceOf:<expr>
<if(args)> [[STAttrMap newSTAttrMap]<args:{a | setObject:<a.value> forKey:@"<a.name>"}>]
<else>]<endif>
/* ----- ST end rewriteIndirectTemplate ----- */
>>

/** Invoke an inline template with a set of attribute name/value pairs */
rewriteInlineTemplate(args, template) ::= <<
/* ----- ST
start rewriteInlineTemplate ----- */
STGroup *templateLib;
templateLib.templates = [STAttrMap newSTAttrMap];
<if(args)> [templateLib.templates <args:{a | setObject:<a.value> forKey:@"<a.name>"}>]<endif>
[ST newST:templateLib template:@"<template>"];
/* ----- ST end rewriteInlineTemplate ----- */
>>

/** plain -> {foo} action */

```

```

rewriteAction(action) ::= <<
/* ----- ST start rewriteAction ----- */
<action>
/* ----- ST end rewriteAction ----- */
>>

/** An action has %st.attrName=expr; or % {st}.attrName=expr; */
actionSetAttribute(st,attrName,expr) ::= <<
/* ----- ST start actionSetAttribute ----- */
[[ST attributes] setObject:<expr> forKey:@ "<attrName>"];
<![<st> setAttribute:<expr> name:@ "<attrName>"];!>
/* ----- ST end actionSetAttribute ----- */
>>

/** Translate % {stringExpr} */
actionStringConstructor(stringExpr) ::= <<
/* ----- ST start actionStringConstructor ----- */
[ST newSTWithTemplate:<stringExpr>]
/* -----
ST end actionStringConstructor ----- */
>>

```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/ObjC/ST.stg

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\*/

/\*\* Template overrides to add debugging to AST stuff. Dynamic inheritance

\* hierarchy is set up as ASTDbg : AST : Dbg : Java by code generator.

\*/

parserMembers() ::= <<

```
DebugTreeAdaptor *adaptor = [DebugTreeAdaptor newTreeAdaptor:(id)dbg Adaptor:[CommonTreeAdaptor
newTreeAdaptor]];
```

// fix this

- (void) setTreeAdaptor:(id<TreeAdaptor>)anAdaptor

{

```
    adaptor = [DebugTreeAdaptor newTreeAdaptor:dbg Adaptor:anAdaptor];
```

<if(grammar.grammarIsRoot)>

```
    adaptor = [DebugTreeAdaptor
newTreeAdaptor:adaptor withDBG:dbg];
```

<else>

```
    adaptor = (DebugTreeAdaptor *)adaptor; // delegator sends dbg adaptor
```

<endif><\n>

```
    <grammar.directDelegates:{g[<g.delegateName()> setTreeAdaptor:adaptor];}>
```

}

- (id<TreeAdaptor>)getTreeAdaptor

{

```
    return adaptor;
```

><\n>

>>

parserCtorBody() ::= <<

<super.parserCtorBody()>

>>

createListenerAndHandshake() ::= <<

DebugEventSocketProxy proxy =

```
    [DebugEventSocketProxy newDebugEventSocketProxy:self, port, <if(TREE_PARSER)>[input
getTreeAdaptor]<else>adaptor<endif>];
```

[self setDebugListener:proxy];

```
[self set<inputStreamType>:[Debug<inputStreamType> newDebug<inputStreamType>:input with:proxy]];
```

try {

```
    [proxy handshake];
```

}

@catch (IOException \*ioe) {

```
    [self reportError:ioe];
```

```
}  
>>
```

```
@ctorForRootGrammar.finally() ::= <<  
CommonTreeAdaptor *adap = [CommonTreeAdaptor newTreeAdaptor];  
[self setTreeAdaptor:adap];  
[proxy setTreeAdaptor:adap];  
>>
```

```
@ctorForProfilingRootGrammar.finally() ::= <<  
CommonTreeAdaptor *adap = [CommonTreeAdaptor  
newTreeAdaptor];  
[self setTreeAdaptor:adap];  
[proxy setTreeAdaptor:adap];  
>>
```

```
@ctorForPredefinedListener.superClassRef() ::= @"super(input, dbg);"
```

```
@ctorForPredefinedListener.finally() ::= <<  
<if(grammar.grammarIsRoot)> <! don't create new adaptor for delegates !>  
CommonTreeAdaptor *adap = [CommonTreeAdaptor newTreeAdaptor];  
[self setTreeAdaptor:adap];<\n>  
<endif>  
>>
```

```
@treeParserHeaderFile.superClassName ::= "DebugTreeParser"
```

```
@rewriteElement.pregen() ::= "[debugListener locationLine:<e.line> column:<e.pos>];"
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-  
jar/org/antlr/codegen/templates/ObjC/ASTDbg.stg
```

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```

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\*/

/\*\* Templates for building ASTs during normal parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* The situation is not too bad as rewrite (->) usage makes ^ and !

\* invalid. There is no huge explosion of combinations.

\*/

```
finishedBacktracking(block) ::= <<
```

```
<if(!ruleDescriptor.isSynPred)>
```

```
<if(backtracking)>
```

```
if <actions.(actionScope).synpredgate>:
```

```
    <block>
```

```
<else>
```

```
<block>
```

```
<endif>
```

```
<endif>
```

```
>>
```

```
@ruleBody.setErrorReturnValue() ::= <<
```

```
retval.tree = self._adaptor.errorNode(self.input, retval.start, self.input.LT(-1), re)
```

```
>>
```

```
// TOKEN AST STUFF
```

```
/** ID and output=AST */
```

```
tokenRef(token,label,elementIndex,terminalOptions={}) ::= <<
```

```
<super.tokenRef(...)>
```

```
<finishedBacktracking({
```

```

<label>_tree = <createNodeFromToken(...)>
self._adaptor.addChild(root_0, <label>_tree)
})>
>>

/** ID! and output=AST (same as plain tokenRef) */
tokenRefBang(token,label,elementIndex,terminalOptions={ }) ::= "<super.tokenRef(...)>"

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions={ }) ::= <<
<super.tokenRef(...)>
<finishedBacktracking({
<label>_tree = <createNodeFromToken(...)>
root_0 = self._adaptor.becomeRoot(<label>_tree, root_0)
})>
>>

/** ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefBang(...)>
<listLabel(elem=label,...)>
>>

/**
label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending on the operator. I don't like making
// the template name have the operator as the number of templates gets
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label plus ... The combinations might require complicated
// rather than just added on code. Investigate

```

```

that refactoring when
// I have more time.

matchSet(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= <%
<super.matchSet(postmatchCode={<finishedBacktracking({self._adaptor.addChild(root_0,
<createNodeFromToken(...)>)}>}, ...)>
%>

matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={}) ::= <<
<matchSet(...)>
>>

matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= "<super.matchSet(...)>"

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts: (A|B|...|C)

matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={}) ::= <<
<if(label)>
<label> = self.input.LT(1)<\n>
<endif>
<super.matchSet(postmatchCode={<finishedBacktracking({root_0 =
self._adaptor.becomeRoot(<createNodeFromToken(...)>, root_0)}>}, ...)>
>>

// RULE REF AST

/** rule when output=AST */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<finishedBacktracking({self._adaptor.addChild(root_0,
<label>.tree}))>
>>

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<finishedBacktracking({root_0 = self._adaptor.becomeRoot(<label>.tree, root_0)}>
>>

/** x+=rule when output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(label, {<label>.tree})>
>>

```

```

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefBang(...)>
<listLabel(label, {<label>.tree})>
>>

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabel(label, {<label>.tree})>
>>

// WILDCARD AST

wildcard(token,label,elementIndex,terminalOptions={}) ::= <<
<super.wildcard(...)>
<finishedBacktracking({
<label>_tree = self._adaptor.createWithPayload(<label>)
self._adaptor.addChild(root_0,
<label>_tree)
})>
>>

wildcardBang(label,elementIndex) ::= "<super.wildcard(...)>"

wildcardRuleRoot(token,label,elementIndex,terminalOptions={}) ::= <<
<super.wildcard(...)>
<finishedBacktracking({
<label>_tree = self._adaptor.createWithPayload(<label>)
root_0 = self._adaptor.becomeRoot(<label>_tree, root_0)
})>
>>

createNodeFromToken(label,terminalOptions={}) ::= <%
<if(terminalOptions.node)>
<terminalOptions.node>(<label>) <! new MethodNode(IDLabel) !>
<else>
self._adaptor.createWithPayload(<label>)
<endif>
%>

ruleCleanup() ::= <<
<super.ruleCleanup()>
<finishedBacktracking({
retval.tree = self._adaptor.rulePostProcessing(root_0)
self._adaptor.setTokenBoundaries(retval.tree, retval.start, retval.stop)
})>

```

>>

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Python/ASTParser.stg

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\*/

```
@outputFile.imports() ::= <<
```

```
<@super.imports(>
```

```
<if(!TREE_PARSER)><! tree parser would already have imported !>
```

```
import org.antlr.runtime.tree.*;<\n>
```

```
<endif>
```

```
>>
```

```
@genericParser.members() ::= <<
```

```
<@super.members(>
```

```
<parserMembers(>
```

```
>>
```

```

/** Add an adaptor property that knows how to build trees */
parserMembers() ::= <<
protected var adaptor:TreeAdaptor = new CommonTreeAdaptor();<\n>
override public function set treeAdaptor(adaptor:TreeAdaptor):void {
    this.adaptor = adaptor;

    <grammar.directDelegates: {g|<g:delegateName()>.treeAdaptor = this.adaptor;}>
}
override public function get treeAdaptor():TreeAdaptor {
    return adaptor;
}
>>

@returnScope.ruleReturnMembers() ::= <<
<ASTLabelType> tree;
public function get tree():Object { return tree; }
>>

/** Add a variable to track rule's return AST */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
var root_0:<ASTLabelType> = null;<\n>
>>

ruleLabelDefs() ::= <<
<super.ruleLabelDefs()>
<[ruleDescriptor.tokenLabels,ruleDescriptor.wildcardTreeLabels,
    ruleDescriptor.wildcardTreeListLabels]:{it |var <it.label.text>_tree:<ASTLabelType>=null;}; separator="\n">
<ruleDescriptor.tokenListLabels:{it |var <it.label.text>_tree:<ASTLabelType>=null;}; separator="\n">
<ruleDescriptor.allTokenRefsInAltsWithRewrites
    :{it |var stream_<it>:RewriteRule<rewriteElementType>Stream=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>");}; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites
    :{it |var stream_<it>:RewriteRuleSubtreeStream=new
RewriteRuleSubtreeStream(adaptor,"rule <it>");}; separator="\n">
>>

/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same alternative
 * block.
 */
@alt.declarations() ::= <<
<if(autoAST)>
<if(outerAlt)>
<if(!rewriteMode)>
root_0 = <ASTLabelType>(adaptor.nil());<\n>
<endif>

```

```

<endif>
<endif>
>>

// Tracking Rule Elements

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<token>.add(<label>);<\n>
>>

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the rewrite.
 */
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions)
 ::= <<
<tokenRefTrack(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<token>.add(<label>);<\n>
>>

/** Match ^(label+=TOKEN ...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabel(elem=label,...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<rule.name>.add(<label>.tree);
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabel(label, {<label>.tree})>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope)

```

```

 ::= <<
 <ruleRefRuleRoot(...)>
 <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<rule>.add(<label>.tree);
 >>

 /** ^(x+=rule ...) rewrite */
 ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
 <ruleRefRuleRootTrack(...)>
 <listLabel(label, {<label>.tree})>
 >>

 // R e w r i t e

 rewriteCode(
 alts, description,
 referencedElementsDeep, // ALL referenced elements to right of ->
 referencedTokenLabels,
 referencedTokenListLabels,
 referencedRuleLabels,
 referencedRuleListLabels,
 referencedWildcardLabels,
 referencedWildcardListLabels,
 rewriteBlockLevel, enclosingTreeLevel, treeLevel) ::=
 <<

 // AST REWRITE
 // elements: <referencedElementsDeep; separator=", ">
 // token labels: <referencedTokenLabels; separator=", ">
 // rule labels: <referencedRuleLabels; separator=", ">
 // token list labels: <referencedTokenListLabels; separator=", ">
 // rule list labels: <referencedRuleListLabels; separator=", ">
 // wildcard labels: <[referencedWildcardLabels,referencedWildcardListLabels];
 separator=", ">
 <if(backtracking)>
 if ( <actions.(actionScope).synpredgate> ) {<n>
 <endif>
 <prevRuleRootRef(>.tree = root_0;
 <rewriteCodeLabels(>
 root_0 = <ASTLabelType>(adaptor.nil());
 <alts:rewriteAlt(); separator="else ">
 <! if tree parser and rewrite=true !>
 <if(TREE_PARSER)>
 <if(rewriteMode)>
 <prevRuleRootRef(>.tree = <ASTLabelType>(adaptor.rulePostProcessing(root_0));
 input.replaceChildren(adaptor.getParent(retval.start),
 adaptor.getChildIndex(retval.start),
 adaptor.getChildIndex(_last),
 retval.tree);

```



```

<endif>
<endif>
<! if parser or tree-parser && rewrite!=true, we need to set result !>
<if(!TREE_PARSER)>
<prevRuleRootRef().tree = root_0;
<else>
<if(!rewriteMode)>
<prevRuleRootRef().tree = root_0;
<endif>
<endif>
<endif>
<if(backtracking)>
}
<endif>
>>

rewriteCodeLabels() ::= <<
<referencedTokenLabels
  :{it |var stream_<it>:RewriteRule<rewriteElementType>Stream=new
RewriteRule<rewriteElementType>Stream(adaptor,"token
<it>",<it>);};
  separator="\n"
>
<referencedTokenListLabels
  :{it |var stream_<it>:RewriteRule<rewriteElementType>Stream=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>", list_<it>);};
  separator="\n"
>
<referencedWildcardLabels
  :{it |var stream_<it>:RewriteRuleSubtreeStream=new RewriteRuleSubtreeStream(adaptor,"wildcard
<it>",<it>);};
  separator="\n"
>
<referencedWildcardListLabels
  :{it |var stream_<it>:RewriteRuleSubtreeStream=new RewriteRuleSubtreeStream(adaptor,"wildcard
<it>",<it>",<it>");};
  separator="\n"
>
<referencedRuleLabels
  :{it |var stream_<it>:RewriteRuleSubtreeStream=new RewriteRuleSubtreeStream(adaptor,"rule
<it>",<it>!=null?<it>.tree:null);};
  separator="\n"
>
<referencedRuleListLabels
  :{it |var stream_<it>:RewriteRuleSubtreeStream=new RewriteRuleSubtreeStream(adaptor,"token
<it>",<it>",<it>");};
  separator="\n"
>
>>

```

```

/** Generate code for an optional rewrite block; note
it uses the deep ref'd element
* list rather shallow like other blocks.
*/
rewriteOptionalBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
// <fileName>:<description>
if ( <referencedElementsDeep:{el | stream_<el>.hasNext}; separator="||"> ) {
  <alt>
}
<referencedElementsDeep:{el | stream_<el>.reset();<\n>}>
>>

```

```

rewriteClosureBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
// <fileName>:<description>
while ( <referencedElements:{el | stream_<el>.hasNext}; separator="||"> ) {
  <alt>
}
<referencedElements:{el | stream_<el>.reset();<\n>}>
>>

```

```

rewritePositiveClosureBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
if ( !(<referencedElements:{el
| stream_<el>.hasNext}; separator="||"> ) ) {
  throw new RewriteEarlyExitException();
}
while ( <referencedElements:{el | stream_<el>.hasNext}; separator="||"> ) {
  <alt>
}
<referencedElements:{el | stream_<el>.reset();<\n>}>
>>

```

```

rewriteAlt(a) ::= <<

```

```

// <a.description>
<if(a.pred)>
if (<a.pred>) {
  <a.alt>
}<\n>
<else>
{
  <a.alt>
}<\n>
<endif>
>>

/** For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "root_0 = null;"

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<
// <fileName>:<description>
{
var root_<treeLevel>:<ASTLabelType> = <ASTLabelType>(adaptor.nil());
<root:rewriteElement()>
<children:rewriteElement()>
adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>);
}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <<
<@pregen()>
<e.el>
>>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,terminalOptions,args) ::= <<
adaptor.addChild(root_<treeLevel>, <createRewriteNodeFromElement(...)>);<\n>
>>

/**
  Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextNode());<\n>
>>

/** Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextNode());<\n>
>>

```

```

/** Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>));<\n>
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args] ...) */
rewriteTokenRefRoot(token,elementIndex,terminalOptions,args) ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(<createRewriteNodeFromElement(...)>,
root_<treeLevel>));<\n>
>>

rewriteImaginaryTokenRef(args,token,terminalOptions,elementIndex) ::= <<
adaptor.addChild(root_<treeLevel>,
<createImaginaryNode(token,terminalOptions,args)>);<\n>
>>

rewriteImaginaryTokenRefRoot(args,token,terminalOptions,elementIndex) ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(<createImaginaryNode(token,terminalOptions,args)>,
root_<treeLevel>));<\n>
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;<\n>
>>

/** What is the name of the previous value of this rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting in retval struct to hold the value of root_0 right
* before I set it during rewrites. The assign will be to retval.tree.
*/
prevRuleRootRef() ::= "retval"

rewriteRuleRef(rule) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<rule>.nextTree());<\n>
>>

rewriteRuleRefRoot(rule) ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(stream_<rule>.nextNode(), root_<treeLevel>));<\n>
>>

rewriteNodeAction(action) ::= <<
adaptor.addChild(root_<treeLevel>, <action>);<\n>
>>

```

```

rewriteNodeActionRoot(action)
 ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(<action>, root_<treeLevel>));<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>));<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label) ::= <<
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>));<\n>
>>

rewriteWildcardLabelRef(label) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());<\n>
>>

createImaginaryNode(tokenType,terminalOptions,args)
 ::= <<
<if(terminalOptions.node)>
<! new MethodNode(IDLabel, args) !>
new <terminalOptions.node>(<tokenType><if(args)>, <args; separator=", "><endif>)
<else>
<ASTLabelType>(adaptor.create(<tokenType>, <args; separator=", "><if(!args)>"<tokenType>"<endif>))
<endif>
>>

createRewriteNodeFromElement(token,terminalOptions,args) ::= <<
<if(terminalOptions.node)>
new <terminalOptions.node>(stream_<token>.nextToken(<if(args)>, <args; separator=", "><endif>)
<else>
<if(args)> <! must create new node from old !>
adaptor.create(<token>, <args; separator=", ">)
<else>
stream_<token>.nextNode()

```

```
<endif>
<endif>
>>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/ActionScript/AST.stg
```

No license file was found, but licenses were detected in source scan.

```
/*
```

```
[The "BSD license"]
```

```
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```

```
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```

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```
*/
```

```
@genericParserHeaderFile.memVars() ::= <<
```

```
/* AST parserHeaderFile.memVars */
```

```
NSInteger ruleLevel;
```

```
NSArray *ruleNames;
```

```
<@super.memVars()> /* AST super.memVars */
```

```
<parserMemVars()> /* AST parserMemVars */
```

```
>>
```

```
@genericParserHeaderFile.properties() ::= <<
```

```
/* AST parserHeaderFile.properties */
```

```
<@super.properties()> /* AST super.properties */
```

```

<parserProperties()> /* AST parserproperties */
>>

@genericParserHeaderFile.methodsDecl() ::= <<
/* AST parserHeaderFile.methodsDecl
*/
<@super.methodsDecl()> /* AST super.methodsDecl */
<parserMethodsDecl()> /* AST parsermethodsDecl */
>>

@genericParser.synthesize() ::= <<
/* AST genericParser.synthesize */
<@super.synthesize()>
<parserSynthesize()>
>>

@genericParser.methods() ::= <<
/* AST genericParser.methods */
<@super.methods()>
<parserMethods()>
>>

/* additional init code for tree support */
@genericParser.init() ::= <<
/* AST genericParser.init */
<@super.init()>
[self setTreeAdaptor:[[CommonTreeAdaptor newTreeAdaptor] retain]];
>>

@genericParser.dealloc() ::= <<
/* AST genericParser.dealloc */
[self setTreeAdaptor:nil];
<@super.dealloc()>
>>

/* Add an adaptor property that knows how to build trees */
parserMemVars() ::= <<
/* AST parserMemVars */
id<TreeAdaptor> treeAdaptor;
>>

/* Add an adaptor property that knows how to build trees */
parserProperties() ::= <<
/* AST parserProperties */
@property (retain, getter=getTreeAdaptor, setter=setTreeAdaptor:) id<TreeAdaptor> treeAdaptor;
>>

/**

```

```

Declaration of additional tree support methods - go in interface of parserHeaderFile() */
parserMethodsDecl() ::= <<
/* AST parserMethodsDecl */
- (id\<TreeAdaptor>) getTreeAdaptor;
- (void) setTreeAdaptor:(id\<TreeAdaptor>)theTreeAdaptor;
>>

/* Add an adaptor property that knows how to build trees */
parserSynthesize() ::= <<
/* AST parserProperties */
@synthesize treeAdaptor;
>>

/** Definition of addition tree support methods - go in implementation of genericParser() */
parserMethods() ::= <<
/* AST parserMethods */
- (id\<TreeAdaptor>) getTreeAdaptor
{
    return treeAdaptor;
}

- (void) setTreeAdaptor:(id\<TreeAdaptor>)aTreeAdaptor
{
    if (aTreeAdaptor != treeAdaptor) {
        treeAdaptor = aTreeAdaptor;
    }
}
>>

/** addition memVars for returnscopes */
@returnScopeInterface.memVars() ::= <<
/* AST returnScopeInterface.memVars */
<recognizer.ASTLabelType; null="CommonTree"> *tree;
>>

/** the interface of returnScope properties */
@returnScopeInterface.properties() ::= <<
/* AST returnScopeInterface.properties
*/
@property (retain, getter=getTree, setter=setTree:) <recognizer.ASTLabelType; null="CommonTree"> *tree;
>>

/** the interface of returnScope methodsDecl */
@returnScopeInterface.methodsDecl() ::= <<
/* AST returnScopeInterface.methodsDecl */
- (<recognizer.ASTLabelType; null="CommonTree"> *)getTree;<\n>
- (void) setTree:(<recognizer.ASTLabelType; null="CommonTree"> *)aTree;<\n>
>>

```



```

/** the implementation of returnScope synthesize */
@returnScopeImplementation.synthesize() ::= <<
/* AST returnScope.synthesize */
@synthesize tree;
>>

```

```

/** the implementation of returnScope methods */
@returnScopeImplementation.methods() ::= <<
/* AST returnScope.methods */
- (<ASTLabelType> *)getTree
{
    return tree;
}

```

```

- (void) setTree:<ASTLabelType> *aTree
{
    if (tree != aTree) {
        if (tree != nil) [tree release];
        if (aTree != nil) [aTree retain];
        tree = aTree;
    }
}

```

```

- (void) dealloc
{
    self.tree = nil;
    [super dealloc];
}

```

```
>>
```

```

/** Add
a variable to track rule's return AST */
ruleDeclarations() ::= <<
/* AST ruleDeclarations */
<super.ruleDeclarations()>
<ASTLabelType> *root_0 = nil;<\n>
>>

```

```

ruleLabelDefs() ::= <<
/* AST ruleLabelDefs */
<super.ruleLabelDefs()>
<[ruleDescriptor.tokenLabels,ruleDescriptor.wildcardTreeLabels,
ruleDescriptor.wildcardTreeListLabels]:{it | <ASTLabelType> *<it.label.text>_tree=nil;}; separator="\n">
<ruleDescriptor.tokenListLabels:{it | <ASTLabelType> *<it.label.text>_tree = nil;}; separator="\n">
<ruleDescriptor.allTokenRefsInAltsWithRewrites:{it | RewriteRuleTokenStream *stream_<it> =
[[RewriteRule<rewriteElementType>Stream newRewriteRule<rewriteElementType>Stream:treeAdaptor

```

```

        description:@"token <it>"] retain];}; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites:{it | RewriteRuleSubtreeStream *stream_<it> =
    [[RewriteRuleSubtreeStream newRewriteRuleSubtreeStream:treeAdaptor

        description:@"rule <it>"] retain];}; separator="\n">
>>

ruleCleanUp() ::= <<
/* AST ruleCleanUp */
<super.ruleCleanUp()>
<[ruleDescriptor.allTokenRefsInAltsWithRewrites,ruleDescriptor.allRuleRefsInAltsWithRewrites]:{it |
[stream_<it> release];}; separator="\n">
<!
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(backtracking)>if ( state.backtracking == 0 ) {<\n>
<endif>
    [<prevRuleRootRef()> setTree:(<ASTLabelType> *)[treeAdaptor rulePostProcessing:root_0]];<\n>
    [treeAdaptor setTokenBoundaries:[<prevRuleRootRef()> getTree]
        From:[<prevRuleRootRef()> getStart]
        To:[<prevRuleRootRef()> getStop]];<\n>
<if(backtracking)>}<\n>
<endif>
<endif>
[root_0 release];
!>
>>

rewriteCodeLabelsCleanUp() ::= <<
/* AST rewriteCodeLabelsCleanUp */
<referencedTokenLabels:{it | [stream_<it> release];}; separator="\n">
<referencedTokenListLabels:{it | [stream_<it> release];}; separator="\n">
<referencedRuleLabels:{it |
[stream_<it> release];}; separator="\n">
<referencedRuleListLabels:{it | [stream_<it> release];}; separator="\n">
>>

/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same alternative
 * block.
 */
@alt.declarations() ::= <<
<if(autoAST)>
<if(outerAlt)>
<if(!rewriteMode)>
root_0 = (<ASTLabelType> *)[[[treeAdaptor class] newEmptyTree] retain];<\n>
<endif>
<endif>

```

```

<endif>
>>

// Tracking Rule Elements

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex) ::= <<
<! <super.tokenRef(...)> !>
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) <endif>
  [stream_<token> addElement:<label>];<\n>
>>

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the
 * rewrite.
 */
tokenRefTrackAndListLabel(token,label,elementIndex) ::= <<
<tokenRefTrack(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex) ::= <<
<! <super.tokenRef(...)> !>
<tokenRefBang(...)>
<if(backtracking)>
if ( !<actions.(actionScope).synpredgate> ) <endif>
  [stream_<token> addElement:<label>];<\n>
>>

/** Match ^(label+=TOKEN ...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabel(elem=label,...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>
[stream_<rule.name> addElement:[<label> getTree]];
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>

```

```

<listLabel(elem={ [<label> getTree ],...}>
>>

/**
^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<! <super.ruleRefRuleRoot(...)> !>
<ruleRefRuleRoot(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>
  [stream_<rule.name> addElement:[<label> getTree]];<\n>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRootTrack(...)>
<listLabel(elem={ [<label> getTree ],...}>
>>

// R e w r i t e

rewriteCode(
alts, description,
referencedElementsDeep, // ALL referenced elements to right of ->
referencedTokenLabels,
referencedTokenListLabels,
referencedRuleLabels,
referencedRuleListLabels,
referencedWildcardLabels,
referencedWildcardListLabels,
rewriteBlockLevel, enclosingTreeLevel, treeLevel) ::=
<<

// AST REWRITE
// elements: <referencedElementsDeep; separator=", ">
// token labels: <referencedTokenLabels; separator=", ">
// rule labels: <referencedRuleLabels; separator=", ">
// token list
labels: <referencedTokenListLabels; separator=", ">
// rule list labels: <referencedRuleListLabels; separator=", ">
// wildcard labels: <[referencedWildcardLabels,referencedWildcardListLabels]; separator=", ">
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) {<\n>
<endif>
<prevRuleRootRef()>.tree = root_0;<\n>
<rewriteCodeLabels()>
root_0 = (<ASTLabelType> *)[[[treeAdaptor class] newEmptyTree] retain];<\n>
<alts:rewriteAlt(); separator="else ">
<! if tree parser and rewrite=true !>

```

```

<if(TREE_PARSER)>
<if(rewriteMode)>
<prevRuleRootRef(>.tree = (<ASTLabelType>)[treeAdaptor rulePostProcessing:root_0];
[input replaceChildren:[treeAdaptor getParent:retval.start]
    From:[treeAdaptor getChildIndex:retval.start]
    To:[treeAdaptor getChildIndex:_last]
    With:retval.tree];
<endif>
<endif>
<! if parser or tree-parser && rewrite!=true, we need to set result !>
<if(!TREE_PARSER)>
<prevRuleRootRef(>.tree = root_0;<\n>
<else>
<if(!rewriteMode)>
<prevRuleRootRef(>.tree
= root_0;<\n>
<endif>
<endif>
<if(backtracking)>
}
<endif>
>>

rewriteCodeLabels() ::= <<
<referencedTokenLabels
: {it | RewriteRule<rewriteElementType>Stream *stream_<it> =
[[RewriteRule<rewriteElementType>Stream newRewriteRule<rewriteElementType>Stream:treeAdaptor
description:@ "token <it>" element:<it>] retain];};
separator="\n"
>
<referencedTokenListLabels: {it | RewriteRule<rewriteElementType>Stream *stream_<it> =
[[RewriteRule<rewriteElementType>Stream newRewriteRule<rewriteElementType>Stream:treeAdaptor
description:@ "token <it>" elements:list_<it>] retain];};
separator="\n"
>
<referencedWildcardLabels: {it | RewriteRuleSubtreeStream stream_<it> =
[[RewriteRuleSubtreeStream newRewriteRuleSubtreeStream:treeAdaptor
description:"wildcard <it>" element:<it>] retain];};
separator="\n"
>
<referencedWildcardListLabels: {it | RewriteRuleSubtreeStream stream_<it> =
[[RewriteRuleSubtreeStream newRewriteRuleSubtreeStream:treeAdaptor
descriptor:"wildcard <it>" elements:list_<it>] retain];};
separator="\n"
>
<referencedRuleLabels: {it | RewriteRuleSubtreeStream *stream_<it> =
[[RewriteRuleSubtreeStream newRewriteRuleSubtreeStream:treeAdaptor
description:@ "token <it>" element:<it>!=nil?[<it> getTree]:nil] retain];};

```

```

    separator="\n"
>
<referencedRuleListLabels:{it | RewriteRuleSubtreeStream *stream_<it> =
  [[RewriteRuleSubtreeStream newRewriteRuleSubtreeStream:treeAdaptor
    description:@"token <it>" elements:list_<it>] retain];};
    separator="\n"
>
>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
 * list rather shallow like other blocks.
 */
rewriteOptionalBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements, // elements in immediately block; no nested blocks
  description) ::=
<<
// <fileName>:<description>
if ( <referencedElementsDeep:{el | [stream_<el> hasNext]}; separator="||">
) {
  <alt>
}
<referencedElementsDeep:{el | [stream_<el> reset];<\n>}>
>>

rewriteClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements, // elements in immediately block; no nested blocks
  description) ::=
<<
// <fileName>:<description>
while ( <referencedElements:{el | [stream_<el> hasNext]}; separator="||"> ) {
  <alt>
}
<referencedElements:{el | [stream_<el> reset];<\n>}>
>>

rewritePositiveClosureBlock(
  alt,rewriteBlockLevel,
  referencedElementsDeep, // all nested refs
  referencedElements, // elements in immediately block; no nested blocks
  description) ::=
<<
// <fileName>:<description>
{
if ( !(<referencedElements:{el | [stream_<el> hasNext]}; separator=" || ">) ) {

```

```

    @throw [RewriteEarlyExitException newException];
}
while ( <referencedElements:{el | [stream_<el> hasNext]}; separator=" || "> ) {
    <alt>
}
<referencedElements:{el | [stream_<el> reset];<\n>}>
}
>>

rewriteAlt(a) ::= <<
// <a.description>
<if(a.pred)>
if (<a.pred>)
{
    <a.alt>
}<\n>
<else>
{
    <a.alt>
}<\n>
<endif>
>>

/** For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "root_0 = nil;"

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<
// <fileName>:<description>
{
    <ASTLabelType> *root_<treeLevel> = (<ASTLabelType> *)[[[treeAdaptor class] newEmptyTree] retain];
    <root:rewriteElement()>
    <children:rewriteElement()>
    [treeAdaptor addChild:root_<treeLevel> toTree:root_<enclosingTreeLevel>];
}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <<
<@pregen()>
<e.el>
>>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,terminalOptions,args) ::= <<
// TODO: args: <args; separator=",">
[treeAdaptor addChild:<createRewriteNodeFromElement(...)> toTree:root_<treeLevel>];<\n>
>>

```

```

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
[treeAdaptor addChild:[stream_<label> nextNode] toTree:root_<treeLevel>];<\n>
>>

/**
Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
[treeAdaptor addChild:[stream_<label> nextNode] toTree:root_<treeLevel>];<\n>
>>

/** Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:[stream_<label> nextNode]
old:root_<treeLevel>];<\n>
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args] ...) */
rewriteTokenRefRoot(token,elementIndex,terminalOptions,args) ::= <<
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:<createRewriteNodeFromElement(...)>
old:root_<treeLevel>];<\n>
>>

rewriteImaginaryTokenRef(args,token,terminalOptions,elementIndex) ::= <<
[treeAdaptor addChild:<createImaginaryNode(tokenType=token, ...)> toTree:root_<treeLevel>];<\n>
>>

rewriteImaginaryTokenRefRoot(args,token,terminalOptions,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType>
*)[treeAdaptor becomeRoot:<createImaginaryNode(tokenType=token, ...)> old:root_<treeLevel>];<\n>
>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;<\n>
>>

/** What is the name of the previous value of this rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting in retval struct to hold the value of root_0 right
* before I set it during rewrites. The assign will be to retval.tree.
*/
prevRuleRootRef() ::= "retval"

```



```

rewriteRuleRef(rule) ::= <<
[treeAdaptor addChild:[stream_<rule> nextTree] toTree:root_<treeLevel>];<\n>
>>

rewriteRuleRefRoot(rule) ::= <<
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:(id\<Tree>)[stream_<rule> nextNode]
old:root_<treeLevel>];<\n>
>>

rewriteNodeAction(action) ::= <<
[treeAdaptor addChild:<action> toTree:root_<treeLevel>];<\n>
>>

rewriteNodeActionRoot(action) ::= <<
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:<action>
old:root_<treeLevel>];<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
[treeAdaptor addChild:[stream_<label> nextTree] toTree:root_<treeLevel>];<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
[treeAdaptor addChild:[stream_<label> nextTree] toTree:root_<treeLevel>];<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:[stream_<label> nextNode]
old:root_<treeLevel>];<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label) ::= <<
root_<treeLevel> = (<ASTLabelType> *)[treeAdaptor becomeRoot:[stream_<label> nextNode]
old:root_<treeLevel>];<\n>
>>

rewriteWildcardLabelRef(label) ::= <<
[treeAdaptor addChild:[stream_<label> nextTree] toTree:root_<treeLevel>];<\n>
>>

createImaginaryNode(tokenType,terminalOptions,args) ::= <<
<if(terminalOptions.node)>
  [ <terminalOptions.node> new<terminalOptions.node>:<tokenType> <if(args)>, <args>; separator=", "><endif>]
<else>

```

```

<if(args)>
  [[treeAdaptor createTree:<tokenType> <if(first(args))>FromToken:<first(args)><endif>
<if(first(rest(args)))>Text:<first(rest(args))><else>Text: @ "<tokenType>"<endif>] retain]
  <else>
    [[treeAdaptor createTree:<tokenType> Text: @ "<tokenType>"] retain]
  <endif>
<endif>
>>

createRewriteNodeFromElement(token,terminalOptions,args) ::= <<
<if(terminalOptions.node)>
  [<terminalOptions.node> new<terminalOptions.node>:[stream_<token> nextToken]<if(args)>, <args>
separator=", "><endif>]
<else>
  <if(args)> <! must create new node from old !>
    [[treeAdaptor createTree:<token> Text:<first(rest(args))> <args> separator=", ">] retain]
  <else>
    [stream_<token> nextNode]
  <endif>
<endif>
>>

```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/ObjC/AST.stg

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\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Java/ST.stg  
\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Java/Dbg.stg  
\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Python/AST.stg  
\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/ObjC/ST4ObjC.stg

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\*/

/\*\* Templates for building ASTs during tree parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

```

* no label, label, list label (label/no-label handled together)
* child, root
* token, set, rule, wildcard
*
* Each combination has its own template except that label/no label
* is combined into tokenRef, ruleRef, ...
*/

/** Add a variable to track last element matched */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
var _first_0:<ASTLabelType>
= null;
var _last:<ASTLabelType> = null;<\n>
>>

/** What to emit when there is no rewrite rule. For auto build
* mode, does nothing.
*/
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(rewriteMode)>
retval.tree = <ASTLabelType>(_first_0);
if ( adaptor.getParent(retval.tree)!=null && adaptor.isNil( adaptor.getParent(retval.tree) ) )
    retval.tree = <ASTLabelType>(adaptor.getParent(retval.tree));
<endif>
<if(backtracking)>}<endif>
>>

/** match ^(root children) in tree parser; override here to
* add tree construction actions.
*/
tree(root, actionsAfterRoot, children, nullableChildList,
    enclosingTreeLevel, treeLevel) ::= <<
_last = <ASTLabelType>(input.LT(1));
{
var _save_last_<treeLevel>:<ASTLabelType> = _last;
var _first_<treeLevel>:<ASTLabelType> = null;
<if(!rewriteMode)>
var root_<treeLevel>:<ASTLabelType> = <ASTLabelType>(adaptor.nil());
<endif>
<root:element()>
<if(rewriteMode)>
<if(backtracking)>if
( <actions.(actionScope).synpredgate> )<endif>
<if(root.el.rule)>
if ( _first_<enclosingTreeLevel>==null ) _first_<enclosingTreeLevel> = <root.el.label>.tree;
<else>

```

```

if ( _first_<enclosingTreeLevel>==null ) _first_<enclosingTreeLevel> = <root.el.label>;
<endif>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( input.LA(1)==TokenConstants.DOWN ) {
    matchStream(input, TokenConstants.DOWN, null); <checkRuleBacktrackFailure()>
    <children:element()>
    matchStream(input, TokenConstants.UP, null); <checkRuleBacktrackFailure()>
}
<else>
matchStream(input, TokenConstants.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
matchStream(input, TokenConstants.UP, null); <checkRuleBacktrackFailure()>
<endif>
<if(!rewriteMode)>
adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>);
<endif>
_last = _save_last_<treeLevel>;
}<\n>
>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex,terminalOptions)
::= <<
_last = <ASTLabelType>(input.LT(1));
<super.tokenRef(...)>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
_last = <ASTLabelType>(input.LT(1));
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = new <terminalOptions.node>(<label>);
<else>
<label>_tree = <ASTLabelType>(adaptor.dupNode(<label>));
<endif><\n>
adaptor.addChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>

```

```

if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>;
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions)
 ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.tokenRef(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
  <if(terminalOptions.node)>
  <label>_tree = new <terminalOptions.node>(<label>);
  <else>
  <label>_tree = <ASTLabelType>(adaptor.dupNode(<label>));
  <endif><\n>
  root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(<label>_tree, root_<treeLevel>));
  <if(backtracking)>}<endif>
  <endif>
  >>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions) ::= <<
  _last = (<ASTLabelType>)input.LT(1);
  <super.wildcard(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
  <label>_tree = (<ASTLabelType>)adaptor.dupTree(<label>);
  adaptor.addChild(root_<treeLevel>, <label>_tree);
  <if(backtracking)>}<endif>
  <else>
  <! rewrite mode !>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
  if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>;
  <endif>
  >>

```

```

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
_last = <ASTLabelType>(input.LT(1));
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = new <terminalOptions.node>(<label>);
<else>
<label>_tree = <ASTLabelType>(adaptor.dupNode(<label>));
<endif><\n>
adaptor.addChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}\}<endif>
<endif>
}, ...
)>
>>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
<matchSet(...)>
<noRewrite(...)> <! set return tree !>
>>

matchSetBang(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
_last = <ASTLabelType>(input.LT(1));
<super.matchSet(...)>
>>

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug)
::= <<
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = new <terminalOptions.node>(<label>);
<else>
<label>_tree = <ASTLabelType>(adaptor.dupNode(<label>));
<endif><\n>
root_<treeLevel> = <ASTLabelType>(adaptor.becomeRoot(<label>_tree, root_<treeLevel>));
<if(backtracking)>}\}<endif>
<endif>
}, ...
)>
>>

// RULE REF AST

```

```

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.ruleRef(...)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>
  <if(!rewriteMode)>
  adaptor.addChild(root_<treeLevel>, <label>.tree);
  <else> <! rewrite mode !>
  if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>.tree;
  <endif>
  >>

/** x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRef(...)>
  <listLabel(label, {<label>.tree})>
  >>

/** ^(rule ...) auto
construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.ruleRef(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>root_<treeLevel> =
  <ASTLabelType>(adaptor.becomeRoot(<label>.tree, root_<treeLevel>));
  <endif>
  >>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRefRuleRoot(...)>
  <listLabel(label, {<label>.tree})>
  >>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.ruleRefTrack(...)>
  >>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.ruleRefTrackAndListLabel(...)>
  >>

```



```

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.ruleRefRuleRootTrack(...)>
>>

/**
  ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _last = <ASTLabelType>(input.LT(1));
  <super.ruleRefRuleRootTrackAndListLabel(...)>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,terminalOptions,scope) ::= <<
  <if(terminalOptions.node)>
  new <terminalOptions.node>(stream_<token>.nextNode())
  <else>
  stream_<token>.nextNode()
  <endif>
>>

ruleCleanUp() ::= <<
  <super.ruleCleanUp()>
  <if(!rewriteMode)>
  <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<\n><endif>
  retval.tree = <ASTLabelType>(adaptor.rulePostProcessing(root_0));
  <if(backtracking)>}<endif>
  <endif>
>>

```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/ActionScript/ASTTreeParser.stg

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```

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```

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* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF
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*/
/** Template overrides to add debugging to normal Java output;
* If ASTs are built, then you'll also get ASTDbg.stg loaded.
*/

```

```

@outputFile.imports() ::= <<
<@super.imports(>
using Antlr.Runtime.Debug;
using IOException = System.IO.IOException;
>>

```

```

@genericParser.members() ::= <<
<if(grammar.grammarIsRoot)>
public static readonly
string[] ruleNames =
new string[]
{
"invalidRule", <grammar.allImportedRules:{rST | "<rST.name>"}; wrap="\n", separator=", ">
};<\n>
<endif>
<if(grammar.grammarIsRoot)><! grammar imports other grammar(s) !>
int ruleLevel = 0;
public virtual int RuleLevel { get { return ruleLevel; } }
public virtual void IncRuleLevel() { ruleLevel++; }
public virtual void DecRuleLevel() { ruleLevel--; }
<if(profile)>
<ctorForProfilingRootGrammar(>

```

```

<else>
<ctorForRootGrammar(>
<endif>
<ctorForPredefinedListener(>
<else><! imported grammar !>
public int RuleLevel { get { return <grammar.delegators:{g| <g:delegateName(>>>.RuleLevel; } }
public void IncRuleLevel() { <grammar.delegators:{g| <g:delegateName(>>>.IncRuleLevel(); }
public void DecRuleLevel() { <grammar.delegators:{g| <g:delegateName(>>>.DecRuleLevel(); }
<ctorForDelegateGrammar(>
<endif>
<if(profile)>
public override bool AlreadyParsedRule( IIntStream input, int ruleIndex )
{
int stopIndex = GetRuleMemoization(ruleIndex, input.Index);
((Profiler)dbg).ExamineRuleMemoization(input,
ruleIndex, stopIndex, <grammar.composite.rootGrammar.recognizerName>.ruleNames[ruleIndex]);
return base.AlreadyParsedRule(input, ruleIndex);
}<\n>
public override void Memoize( IIntStream input, int ruleIndex, int ruleStartIndex )
{
((Profiler)dbg).Memoize(input, ruleIndex, ruleStartIndex,
<grammar.composite.rootGrammar.recognizerName>.ruleNames[ruleIndex]);
base.Memoize(input, ruleIndex, ruleStartIndex);
}<\n>
<endif>
protected virtual bool EvalPredicate( bool result, string predicate )
{
dbg.SemanticPredicate( result, predicate );
return result;
}<\n>
>>

ctorForRootGrammar() ::= <<
<! bug: can't use <@super.members(>> cut-n-paste instead !>
<! Same except we add port number and profile stuff if root grammar !>
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input )
: this( input, DebugEventSocketProxy.DefaultDebuggerPort, new RecognizerSharedState() )
{
}
<actions.(actionScope).ctorModifier;
null="public"> <name>( <inputStreamType> input, int port, RecognizerSharedState state )
: base( input, state )
{
<createListenerAndHandshake(>
<grammar.directDelegates:{g|<g:delegateName(>> = new <g.recognizerName>( input, dbg, this.state,
this<grammar.delegators:{g|, <g:delegateName(>>>> );}; separator="\n">
<parserCtorBody(>
<@finally(>

```

```

}<\n>
>>

ctorForProfilingRootGrammar() ::= <<
<! bug: can't use <@super.members()> cut-n-paste instead !>
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input )
: this( input, new Profiler(null), new RecognizerSharedState() )
{
}
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, IDebugEventListener dbg,
RecognizerSharedState state )
: base( input, dbg, state )
{
Profiler p = (Profiler)dbg;
p.setParser(this);
<grammar.directDelegates:
{g|<g:delegateName()> = new <g.recognizerName>( input, dbg, this.state, this<grammar.delegators:{g|,
<g:delegateName()>> );}; separator="\n">
<parserCtorBody()>
<@finally()>
}
}<\n>
>>

/**
Basically we don't want to set any dbg listeners are root will have it. */
ctorForDelegateGrammar() ::= <<
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, IDebugEventListener dbg,
RecognizerSharedState state<grammar.delegators:{g|, <g.recognizerName> <g:delegateName()>> )
: base( input, dbg, state )
{
<grammar.directDelegates:
{g|<g:delegateName()> = new <g.recognizerName>( input, this, this.state<grammar.delegators:{g|,
<g:delegateName()>> );}; separator="\n">
<parserCtorBody()>
}<\n>
}<\n>
>>

ctorForPredefinedListener() ::= <<
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, IDebugEventListener dbg
)
<@superClassRef>: base( input, dbg, new RecognizerSharedState() )<@end>
{
<if(profile)>
Profiler p = (Profiler)dbg;
p.setParser(this);
<endif>
<grammar.directDelegates:{g|<g:delegateName()> = new <g.recognizerName>(input, dbg, this.state,

```

```

this<grammar.delegators:{g|,
  <g:delegateName(>}>}); separator="\n">
<parserCtorBody(>
  <@finally(>
  }<\n>
>>

createListenerAndHandshake() ::= <<
<if(TREE_PARSER)>
DebugEventSocketProxy proxy = new DebugEventSocketProxy( this, port, input.TreeAdaptor );<\n>
<else>
DebugEventSocketProxy proxy = new DebugEventSocketProxy( this, port, null );<\n>
<endif>
DebugListener = proxy;
try
{
  proxy.Handshake();
}
catch ( IOException ioe )
{
  ReportError( ioe );
}
>>

@genericParser.superClassName() ::= "Debug<@super.superClassName(>)"

/*
* Much of the following rules were merged into CSharp3.stg.
*/

@rule.preamble() ::= <<
if (RuleLevel == 0)
  DebugListener.Commence();
IncRuleLevel();
>>
//@rule.preamble() ::= <<
//try
//{
// dbg.EnterRule( GrammarFileName, "<ruleName>" );
// if ( RuleLevel == 0 )
// {
//   dbg.Commence();
// }
// IncRuleLevel();
// dbg.Location( <ruleDescriptor.tree.line>, <ruleDescriptor.tree.charPositionInLine> );<\n>
//>>

@rule.postamble() ::= <<

```

```

DecRuleLevel();
if (RuleLevel == 0)
    DebugListener.Terminate();
>>
//@rule.postamble()
::= <<
//dbg.Location(<ruleDescriptor.EORNode.line>, <ruleDescriptor.EORNode.charPositionInLine>);<\n>
//}
//finally
//{{
// dbg.ExitRule( GrammarFileName, "<ruleName>" );
// DecRuleLevel();
// if ( RuleLevel == 0 )
// {
//   dbg.Terminate();
// }
//}<\n>
//>>

//@insertSynpreds.start() ::= "dbg.BeginBacktrack( state.backtracking );"
//@insertSynpreds.stop() ::= "dbg.EndBacktrack( state.backtracking, success );"

// Common debug event triggers used by region overrides below

//enterSubRule() ::= <<
//try
//{{
// dbg.EnterSubRule( <decisionNumber> );<\n>
//>>

//exitSubRule() ::= <<
//}
//finally
//{{
// dbg.ExitSubRule( <decisionNumber> );
//}<\n>
//>>

//enterDecision() ::= <<
//try
//{{
// dbg.EnterDecision( <decisionNumber> );<\n>
//>>

//exitDecision() ::= <<
//}
//finally
//{{

```

```

// dbg.ExitDecision( <decisionNumber> );
//}<\n>
//>>

//enterAlt(n) ::= "dbg.EnterAlt( <n> );<\n>"

// Region overrides that tell various constructs to add debugging
triggers

//@block.predecision() ::= "<enterSubRule()><enterDecision()>"

//@block.postdecision() ::= "<exitDecision()>"

//@block.postbranch() ::= "<exitSubRule()>"

//@ruleBlock.predecision() ::= "<enterDecision()>"

//@ruleBlock.postdecision() ::= "<exitDecision()>"

//@ruleBlockSingleAlt.preal() ::= "<enterAlt(n=\"1\")>"

//@blockSingleAlt.preal() ::= "<enterAlt(n=\"1\")>"

//@positiveClosureBlock.preloop() ::= "<enterSubRule()>"

//@positiveClosureBlock.postloop() ::= "<exitSubRule()>"

//@positiveClosureBlock.predecision() ::= "<enterDecision()>"

//@positiveClosureBlock.postdecision() ::= "<exitDecision()>"

//@positiveClosureBlock.earlyExitException() ::=
// "dbg.RecognitionException( eee<decisionNumber> );<\n>"

//@closureBlock.preloop() ::= "<enterSubRule()>"

//@closureBlock.postloop() ::= "<exitSubRule()>"

//@closureBlock.predecision() ::= "<enterDecision()>"

//@closureBlock.postdecision() ::= "<exitDecision()>"

//@altSwitchCase.preal() ::= "<enterAlt(n=i)>"

//@element.prematch()
::=
// "dbg.Location( <it.line>, <it.pos> );"

```

```

//@matchSet.mismatchedSetException() ::=
// "dbg.RecognitionException( mse );"

//@dfaState.noViableAltException() ::= "dbg.RecognitionException( nvae );"

//@dfaStateSwitch.noViableAltException() ::= "dbg.RecognitionException( nvae );"

//dfaDecision(decisionNumber,description) ::= <<
//try
//{
// isCyclicDecision = true;
// <super.dfaDecision(...)>
//}
//catch ( NoViableAltException nvae )
//{
// dbg.RecognitionException( nvae );
// throw nvae;
//}
//>>

//@cyclicDFA.errorMethod() ::= <<
//public override void Error( NoViableAltException nvae )
//{
// ((DebugParser)recognizer).dbg.RecognitionException( nvae );
//}
//>>

/** Force predicate validation to trigger an event */
evalPredicate(pred,description) ::= <<
EvalPredicate(<pred>, "<description>")
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp3/Dbg.stg

```

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/\*

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\*/

group AST;

```
@outputFile.imports() ::= <<
<@super.imports()>
>>
```

```
@genericParser.members() ::= <<
<@super.members()>
<parserMembers()>
>>
```

/\*\* Add an adaptor property that knows how to build trees \*/

```
parserMembers() ::= <<
<!protected TreeAdaptor adaptor = new CommonTreeAdaptor();<n>!>
setTreeAdaptor: function(adaptor) {
  this.adaptor = adaptor;
  <grammar.directDelegates: {g|<g.delegateName()>.setTreeAdaptor(this.adaptor);}>
},
getTreeAdaptor: function() {
  return this.adaptor;
},
>>
```

```
@returnScope.ruleReturnMembers()
::= <<
getTree: function() { return this.tree; }
>>
```

/\*\* Add a variable to track rule's return AST \*/

```
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
```

```

var root_0 = null;<\n>
>>

ruleLabelDefs() ::= <<
<super.ruleLabelDefs()>
<ruleDescriptor.tokenLabels:{ var <it.label.text>_tree=null;}; separator="\n">
<ruleDescriptor.tokenListLabels:{ var <it.label.text>_tree=null;}; separator="\n">
<ruleDescriptor.allTokenRefsInAltsWithRewrites
  :{ var stream_<it>=new org.antlr.runtime.tree.RewriteRuleTokenStream(this.adaptor,"token <it>");};
separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites
  :{ var stream_<it>=new org.antlr.runtime.tree.RewriteRuleSubtreeStream(this.adaptor,"rule <it>");};
separator="\n">
>>

/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same alternative
 * block.
 */
@alt.declarations()
::= <<
<if(autoAST)>
<if(outerAlt)>
<if(!rewriteMode)>
root_0 = this.adaptor.nil();<\n>
<endif>
<endif>
<endif>
>>

// Tracking Rule Elements

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<token>.add(<label>);<\n>
>>

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the rewrite.
 */
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefTrack(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) track for rewrite */

```

```

tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<token>.add(<label>);<\n>
>>

/** Match ^(label+=TOKEN ...) track for rewrite
*/
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabel(elem=label,...)>
>>

wildcardTrack(label,elementIndex) ::= <<
<super.wildcard(...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<rule.name>.add(<label>.getTree());
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabel(elem=label+".getTree()",...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<rule>.add(<label>.getTree());
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRootTrack(...)>
<listLabel(elem=label+".getTree()",...)>
>>

//
R e w r i t e

rewriteCode(
alts, description,
referencedElementsDeep, // ALL referenced elements to right of ->
referencedTokenLabels,
referencedTokenListLabels,

```

```

referencedRuleLabels,
referencedRuleListLabels,
referencedWildcardLabels,
referencedWildcardListLabels,
rewriteBlockLevel, enclosingTreeLevel, treeLevel) ::=
<<

// AST REWRITE
// elements: <referencedElementsDeep; separator=", ">
// token labels: <referencedTokenLabels; separator=", ">
// rule labels: <referencedRuleLabels; separator=", ">
// token list labels: <referencedTokenListLabels; separator=", ">
// rule list labels: <referencedRuleListLabels; separator=", ">
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) {<n>
<endif>
<prevRuleRootRef().tree = root_0;
<rewriteCodeLabels()>
root_0 = this.adaptor.nil();
<alts:rewriteAlt(); separator="else ">
<! if tree parser and rewrite=true !>
<if(TREE_PARSER)>
<if(rewriteMode)>
<prevRuleRootRef().tree
= this.adaptor.rulePostProcessing(root_0);
this.input.replaceChildren(this.adaptor.getParent(retval.start),
this.adaptor.getChildIndex(retval.start),
this.adaptor.getChildIndex(_last),
retval.tree);

<endif>
<endif>
<! if parser or tree-parser && rewrite!=true, we need to set result !>
<if(!TREE_PARSER)>
<prevRuleRootRef().tree = root_0;
<else>
<if(!rewriteMode)>
<prevRuleRootRef().tree = root_0;
<endif>
<endif>
<endif>
<if(backtracking)>
}
<endif>
>>

rewriteCodeLabels() ::= <<
<referencedTokenLabels
: {var stream_<it>=new org.antlr.runtime.tree.RewriteRule<rewriteElementType>Stream(this.adaptor,"token
<it>",<it>)};

```

```

    separator="\n"
>
<referencedTokenListLabels
    :{var stream_<it>=new org.antlr.runtime.tree.RewriteRule<rewriteElementType>Stream(this.adaptor,"token
<it>", list_<it>);};
    separator="\n"
>
<referencedWildcardLabels
    :{var stream_<it>=new org.antlr.runtime.tree.RewriteRuleSubtreeStream(this.adaptor,"wildcard
<it>",<it>);};
    separator="\n"
>
<referencedWildcardListLabels
    :{var stream_<it>=new org.antlr.runtime.tree.RewriteRuleSubtreeStream(this.adaptor,"wildcard <it>",<it>);};
    separator="\n"
>
<referencedRuleLabels
    :{var stream_<it>=new org.antlr.runtime.tree.RewriteRuleSubtreeStream(this.adaptor,"token
<it>",<it>!=null?<it>.tree:null);};
    separator="\n"
>
<referencedRuleListLabels
    :{var stream_<it>=new org.antlr.runtime.tree.RewriteRuleSubtreeStream(this.adaptor,"token <it>",<it>);};
    separator="\n"
>
>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
 * list rather shallow like other blocks.
 */
rewriteOptionalBlock(
    alt,rewriteBlockLevel,
    referencedElementsDeep, // all nested refs
    referencedElements, // elements in immediately block; no nested blocks
    description) ::=
<<
// <fileName>:<description>
if ( <referencedElementsDeep:{el | stream_<el>.hasNext()}; separator="||"> ) {
    <alt>
}
<referencedElementsDeep:{el
| stream_<el>.reset();<n>}>
>>

rewriteClosureBlock(
    alt,rewriteBlockLevel,
    referencedElementsDeep, // all nested refs
    referencedElements, // elements in immediately block; no nested blocks

```

```

description) ::=
<<
// <fileName>:<description>
while ( <referencedElements:{el | stream_<el>.hasNext()}; separator="||"> ) {
  <alt>
}
<referencedElements:{el | stream_<el>.reset();<\n>}>
>>

```

```

rewritePositiveClosureBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
if ( !(<referencedElements:{el | stream_<el>.hasNext()}; separator="||">) ) {
  throw new org.antlr.runtime.tree.RewriteEarlyExitException();
}
while ( <referencedElements:{el | stream_<el>.hasNext()}; separator="||"> ) {
  <alt>
}
<referencedElements:{el | stream_<el>.reset();<\n>}>
>>

```

```

rewriteAlt(a) ::= <<
// <a.description>
<if(a.pred)>
if (<a.pred> ) {
  <a.alt>
}<\n>
<else>
{
  <a.alt>
}<\n>
<endif>
>>

```

```

/**
For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "root_0 = null;"

```

```

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<
// <fileName>:<description>
{
var root_<treeLevel> = this.adaptor.nil();
<root:rewriteElement()>
<children:rewriteElement()>
this.adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>);
}

```

```

}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <<
<@pregen()>
<e.el>
>>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,terminalOptions,args) ::= <<
this.adaptor.addChild(root_<treeLevel>, <createRewriteNodeFromElement(...)>);<\n>
>>

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
this.adaptor.addChild(root_<treeLevel>, stream_<label>.nextNode());<\n>
>>

/** Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
this.adaptor.addChild(root_<treeLevel>, stream_<label>.nextNode());<\n>
>>

/**
Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>);<\n>
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args] ...) */
rewriteTokenRefRoot(token,elementIndex,terminalOptions,args) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(<createRewriteNodeFromElement(...)>, root_<treeLevel>);<\n>
>>

rewriteImaginaryTokenRef(args,token,terminalOptions,elementIndex) ::= <<
this.adaptor.addChild(root_<treeLevel>, <createImaginaryNode(tokenType=token, ...)>);<\n>
>>

rewriteImaginaryTokenRefRoot(args,token,terminalOptions,elementIndex) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(<createImaginaryNode(tokenType=token, ...)>,
root_<treeLevel>);<\n>
>>

```

```

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;<\n>
>>

/** What is the name of the previous value of this
rule's root tree? This
* let's us refer to $rule to mean previous value. I am reusing the
* variable 'tree' sitting in retval struct to hold the value of root_0 right
* before I set it during rewrites. The assign will be to retval.tree.
*/
prevRuleRootRef() ::= "retval"

rewriteRuleRef(rule) ::= <<
this.adaptor.addChild(root_<treeLevel>, stream_<rule>.nextTree());<\n>
>>

rewriteRuleRefRoot(rule) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(stream_<rule>.nextNode(), root_<treeLevel>);<\n>
>>

rewriteNodeAction(action) ::= <<
this.adaptor.addChild(root_<treeLevel>, <action>);<\n>
>>

rewriteNodeActionRoot(action) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(<action>, root_<treeLevel>);<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
this.adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());<\n>
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
this.adaptor.addChild(root_<treeLevel>,
stream_<label>.nextTree());<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>);<\n>
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label) ::= <<
root_<treeLevel> = this.adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>);<\n>
>>

```



>>

```
rewriteWildcardLabelRef(label) ::= <<  
this.adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());<\n>  
>>
```

```
createImaginaryNode(tokenType,terminalOptions,args) ::= <<  
<if(terminalOptions.node)>  
<! new MethodNode(IDLabel, args) !>  
new <terminalOptions.node><(tokenType><if(args)>, <args; separator=", "><endif>  
<else>  
this.adaptor.create(<tokenType>, <args; separator=", "><if(!args)>"<tokenType>"<endif>  
<endif>  
>>
```

```
createRewriteNodeFromElement(token,terminalOptions,args) ::= <<  
<if(terminalOptions.node)>  
new <terminalOptions.node>(stream_<token>.nextToken(<if(args)>,  
<args; separator=", "><endif>  
<else>  
<if(args)> <! must create new node from old !>  
this.adaptor.create(<token>, <args; separator=", ">  
<else>  
stream_<token>.nextNode()  
<endif>  
<endif>  
>>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-  
jar/org/antlr/codegen/templates/JavaScript/AST.stg  
No license file was found, but licenses were detected in source scan.
```

```
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- \*/

/\*\* Templates for building ASTs during tree parsing.

- \*
- \* Deal with many combinations. Dimensions are:
- \* Auto build or rewrite
- \* no label, label, list label (label/no-label handled together)
- \* child, root
- \* token, set, rule, wildcard
- \*
- \* Each combination has its own template except that label/no label
- \* is combined
- into tokenRef, ruleRef, ...
- \*/

```
/** Add a variable to track last element matched */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
<if(!ruleDescriptor.isSynPred)>
<ASTLabelType> _first_0 = default(<ASTLabelType>);
<ASTLabelType> _last = default(<ASTLabelType>);
<endif>
>>
```

/\*\* What to emit when there is no rewrite rule. For auto build

- \* mode, does nothing.
- \*/
- noRewrite(rewriteBlockLevel=false, treeLevel=false) ::= <<
- <if(!ruleDescriptor.isSynPred)>
- <if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
- <if(rewriteMode)>
- retval.Tree = (<ASTLabelType>)\_first\_0;

```

if (adaptor.GetParent(retval.Tree)!=null && adaptor.IsNil(adaptor.GetParent(retval.Tree)))
    retval.Tree = (<ASTLabelType>)adaptor.GetParent(retval.Tree);
<endif>
<if(backtracking)><endif>
<endif>
>>

/** match ^(root children) in tree parser; override here to
 * add tree construction actions.
 */
tree(root, actionsAfterRoot, children, nullableChildList,
    enclosingTreeLevel, treeLevel) ::= <<
<if(!ruleDescriptor.isSynPred)>
    _last
    = (<ASTLabelType>)input.LT(1);
    {
    <ASTLabelType> _save_last_<treeLevel> = _last;
    <ASTLabelType> _first_<treeLevel> = default(<ASTLabelType>);
    <if(!rewriteMode)>
    <ASTLabelType> root_<treeLevel> = (<ASTLabelType>)adaptor.Nil();
    <endif>
    <root:element()>
    <if(rewriteMode)>
    <if(backtracking)>if (<actions.(actionScope).synpredgate><endif>
    <if(root.el.rule)>
    if (_first_<enclosingTreeLevel> == null) _first_<enclosingTreeLevel> = <root.el.label>.Tree;
    <else>
    if (_first_<enclosingTreeLevel> == null) _first_<enclosingTreeLevel> = <root.el.label>;
    <endif>
    <endif>
    <actionsAfterRoot:element()>
    <if(nullableChildList)>
    if (input.LA(1) == TokenTypes.Down) {
        Match(input, TokenTypes.Down, null); <checkRuleBacktrackFailure()>
        <children:element()>
        Match(input, TokenTypes.Up, null); <checkRuleBacktrackFailure()>
    }
    <else>
    Match(input, TokenTypes.Down, null); <checkRuleBacktrackFailure()>
    <children:element()>
    Match(input, TokenTypes.Up, null); <checkRuleBacktrackFailure()>
    <endif>
    <if(!rewriteMode)>
    adaptor.AddChild(root_<enclosingTreeLevel>,
        root_<treeLevel>);
    <endif>
    _last = _save_last_<treeLevel>;
    }
}

```

```

<else>
<super.tree(...)>
<endif>
>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<else>
<super.tokenRefBang(...)>
<endif>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<if(terminalOptions.node)>
<label>_tree = new
<terminalOptions.node>(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.text)>,<terminalOptions.text; format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.text)>,<terminalOptions.text;
format="string"><endif>);
<endif><\n>
adaptor.AddChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if (<actions.(actionScope).synpredgate>)<endif>
if (_first_<treeLevel> == null) _first_<treeLevel> = <label>;
<endif>
<else>
<super.tokenRef(...)>
<endif>
>>

/** label+=TOKEN auto construct */

```

```

tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
<tokenRef(...)>
<listLabelElem(elem=label,...)>
<else>
<super.tokenRefAndListLabel(...)>
<endif>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<if(terminalOptions.node)>
<label>_tree = new
<terminalOptions.node><(if(terminalOptions.type)><terminalOptions.type>,<endif><label><(if(terminalOptions.text)>,<terminalOptions.text;
format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<(if(terminalOptions.type)><terminalOptions.type>,<endif><label><(if(terminalOptions.text)>,<terminalOptions.text; format="string"><endif>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_<treeLevel>);
<if(backtracking)>}<endif>
<endif>
<else>
<super.tokenRefRuleRoot(...)>
<endif>
>>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
<tokenRefRuleRoot(...)>
<listLabelElem(elem=label,...)>
<else>
<super.tokenRefRuleRootAndListLabel(...)>
<endif>
>>

/** Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);

```

```

<super.wildcard(...)>
<if(!rewriteMode)>
<if(backtracking)>if
  (<actions.(actionScope).synpredgate>) {<endif>
<label>_tree = (<ASTLabelType>)adaptor.DupTree(<label>);
adaptor.AddChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if (<actions.(actionScope).synpredgate>)<endif>
if (_first_<treeLevel> == null) _first_<treeLevel> = <label>;
<endif>
<else>
<super.wildcard(...)>
<endif>
>>

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<if(terminalOptions.node)>
<label>_tree = new
<terminalOptions.node>(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(terminalOptions.tex
t)>,<terminalOptions.text; format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<if(terminalOptions.type)><terminalOptions.type>,<endif><label><if(termin
alOptions.text)>,<terminalOptions.text;
format="string"><endif>);
<endif><\n>
adaptor.AddChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}\}<endif>
<endif>
}, ...
)>
<else>
<super.matchSet(...)>
<endif>
>>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
<if(!ruleDescriptor.isSynPred)>
<matchSet(...)>
<noRewrite(...)> <! set return tree !>

```

```

<else>
<super.matchRuleBlockSet(...)>
<endif>
>>

matchSetBang(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.matchSet(...)>
<else>
<super.matchSetBang(...)>
<endif>
>>

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
<if(!ruleDescriptor.isSynPred)>
<super.matchSet(postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
<if(terminalOptions.node)>
<label>_tree = new
<terminalOptions.node><(if(terminalOptions.type)><terminalOptions.type>,<endif><label><(if(terminalOptions.tex
t)>,<terminalOptions.text;
format="string"><endif>);
<else>
<label>_tree =
(<ASTLabelType>)adaptor.DupNode(<(if(terminalOptions.type)><terminalOptions.type>,<endif><label><(if(termin
alOptions.text)>,<terminalOptions.text; format="string"><endif>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)adaptor.BecomeRoot(<label>_tree, root_<treeLevel>);
<if(backtracking)>}\}<endif>
<endif>
}, ...
)>
<else>
<super.matchSetRuleRoot(...)>
<endif>
>>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRef(...)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>)<endif>
<if(!rewriteMode)>

```

```

adaptor.AddChild(root_<treeLevel>, <label>.Tree);
<else> <! rewrite mode !>
if (_first_<treeLevel> == null) _first_<treeLevel> = <label>.Tree;
<endif>
<else>
<super.ruleRef(...)>
<endif>
>>

/** x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<ruleRef(...)>
<listLabelElem(elem={<label>.Tree},...)>
<else>
<super.ruleRefAndListLabel(...)>
<endif>
>>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) <endif>root_<treeLevel> =
(<ASTLabelType>)adaptor.BecomeRoot(<label>.Tree, root_<treeLevel>);
<endif>
<else>
<super.ruleRefRuleRoot(...)>
<endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<ruleRefRuleRoot(...)>
<listLabelElem(elem={<label>.Tree},...)>
<else>
<super.ruleRefRuleRootAndListLabel(...)>
<endif>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefTrack(...)>

```



```

>>

/**
  x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.ruleRefTrackAndListLabel(...)>
<else>
<super.ruleRefTrackAndListLabel(...)>
<endif>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.ruleRefRuleRootTrack(...)>
<else>
<super.ruleRefRuleRootTrack(...)>
<endif>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.ruleRefRuleRootTrackAndListLabel(...)>
<else>
<super.ruleRefRuleRootTrackAndListLabel(...)>
<endif>
>>

/** Streams for token refs are tree nodes now; override to
  * change NextToken to NextNode.
  */
createRewriteNodeFromElement(token,terminalOptions,args)
  ::= <%
<if(terminalOptions.node)>
  new
  <terminalOptions.node><if(terminalOptions.type)><terminalOptions.type>,<endif>stream_<token>.NextNode()
<else>
  stream_<token>.NextNode()
<endif>
  %>

ruleCleanUp() ::= <<
<super.ruleCleanUp()>

```

```
<if(!ruleDescriptor.isSynPred)>
<if(!rewriteMode)>
<if(backtracking)>if (<actions.(actionScope).synpredgate>) {<endif>
retval.Tree = (<ASTLabelType>)adaptor.RulePostProcessing(root_0);
<if(backtracking)>}<endif>
<endif>
<endif>
>>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp3/ASTTreeParser.stg
```

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```
/*
```

```
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```

```
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```

```
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```

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```

```
*/
```

```
/*
```

```
New style messages. This file contains the actual layout of the messages emitted by ANTLR.
```

```
The text itself is coming out of the languages/*stg files, according to the chosen locale.
```

```
This file contains the default format ANTLR uses.
```

```
*/
```

```
group antlr;
```

```
location(file, line, column) ::= "<file>:<line>:<column>:"
```

```
message(id, text) ::= "<id> <text>"
```

```
report(location, message, type) ::= "<type>(<message.id>): <location> <message.text>"
```

```
wantsSingleLineMessage() ::= "false"
```

Found in path(s):

\*

```
/opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-  
jar/org/antlr/tool/templates/messages/formats/antlr.stg
```

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```
/*
```

```
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```

```
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```

```
Copyright (c) 2007-2008 Johannes Luber
```

```
Copyright (c) 2005-2007 Kunle Odutola
```

```
Copyright (c) 2005-2006 Terence Parr
```

```
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```
*/
```

```
/** Templates for building ASTs during tree parsing.
```

```

*
* Deal with many combinations. Dimensions are:
* Auto build or rewrite
* no label, label, list label (label/no-label handled together)
* child, root
* token, set, rule, wildcard
*
* Each combination has its own template except that label/no label
* is combined into tokenRef, ruleRef, ...
*/
group ASTTreeParser;

/** Add a variable to track last element matched */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
_First[0] := nil;
_Last := nil;<\n>
>>

ruleDeclarationVars() ::= <<
<super.ruleDeclarationVars()>
_First, _Save_Last: array [0..63] of I<ASTLabelType>;
_Last: I<ASTLabelType>;
>>

/** What to emit when there is no rewrite rule. For auto build
* mode, does nothing.
*/
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
<if(backtracking)>if (State.Backtracking = 0) then
begin<endif>
<if(rewriteMode)>
RetVal.Tree := _First[0] as I<ASTLabelType>;
if (Adaptor.GetParent(RetVal.Tree) \<\> nil) and (Adaptor.IsNil(Adaptor.GetParent(RetVal.Tree))) then
RetVal.Tree := Adaptor.GetParent(RetVal.Tree) as I<ASTLabelType>;
<endif>
<if(backtracking)>end;<endif>
>>

/** match ^(root children) in tree parser; override here to
* add tree construction actions.
*/
tree(root, actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
_Last := Input.LT(1)
as I<ASTLabelType>;
begin
_Save_Last[<treeLevel>] := _Last;

```

```

_First[<treeLevel>] := nil;
<if(!rewriteMode)>
Root[<treeLevel>] := Adaptor.GetNilNode as I<ASTLabelType>;<\n>
<endif>
<root:element()>
<if(rewriteMode)>
<if(backtracking)>if (State.Backtracking = 0) then <endif>
<if(root.el.rule)>
if (_First[<enclosingTreeLevel>] = nil) then _First[<enclosingTreeLevel>] := <root.el.label>.Tree;
<else>
if (_First[<enclosingTreeLevel>] = nil) then _First[<enclosingTreeLevel>] := <root.el.label>;
<endif>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if (Input.LA(1) = TToken.DOWN) then
begin
Match(Input, TToken.DOWN, nil); <checkRuleBacktrackFailure()>
<children:element()>
Match(Input, TToken.UP, nil); <checkRuleBacktrackFailure()>
end;
<else>
Match(Input, TToken.DOWN, nil); <checkRuleBacktrackFailure()>
<children:element()>
Match(Input, TToken.UP, nil); <checkRuleBacktrackFailure()>
<endif>
<if(!rewriteMode)>
Adaptor.AddChild(Root[<enclosingTreeLevel>],
Root[<treeLevel>]);
<endif>
_Last := _Save_Last[<treeLevel>];
end;<\n>
>>

```

```
// TOKEN AST STUFF
```

```

/** ID! and output=AST (same as plain tokenRef) 'cept add
* setting of _last
*/

```

```

tokenRefBang(token,label,elementIndex) ::= <<
_Last := Input.LT(1) as I<ASTLabelType>;
<super.tokenRef(...)>
>>

```

```
/** ID auto construct */
```

```

tokenRef(token,label,elementIndex,terminalOptions) ::= <<
_Last := Input.LT(1) as I<ASTLabelType>;
<super.tokenRef(...)>

```

```

<if(!rewriteMode)>
<if(backtracking)>
if (State.Backtracking = 0) then
begin<\n>
<endif>
<if(terminalOptions.node)>
<label>_tree := T<terminalOptions.node>.Create(<label>);
<else>
<label>_tree := Adaptor.DupNode(<label>) as I<ASTLabelType>;
<endif><\n>
Adaptor.AddChild(Root[<treeLevel>], <label>_tree);
<if(backtracking)>
end;
<endif>
<else> <! rewrite mode !>
<if(backtracking)>if (State.Backtracking = 0) then <endif>
if (_First[<treeLevel>] = nil) then _First[<treeLevel>] := <label>;
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions)
::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
_Last := Input.LT(1) as I<ASTLabelType>;
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>
if (State.Backtracking = 0) then
begin
<endif>
<if(terminalOptions.node)>
<label>_tree := T<terminalOptions.node>.Create(<label>);
<else>
<label>_tree := Adaptor.DupNode(<label>) as I<ASTLabelType>;
<endif><\n>
Root[<treeLevel>] := Adaptor.BecomeRoot(<label>_tree, Root[<treeLevel>]) as I<ASTLabelType>;
<if(backtracking)>
end;
<endif>
<endif>
>>

```

```

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
_Llast := Input.LT(1) as I<ASTLabelType>;
<super.matchSet(..., postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if
(State.Backtracking = 0) then begin <endif>
<if(terminalOptions.node)>
<label>_tree := T<terminalOptions.node>.Create(<label>);
<else>
<label>_tree := Adaptor.DupNode(<label>) as I<ASTLabelType>;
<endif><\n>
Adaptor.AddChild(Root[<treeLevel>], <label>_tree);
<if(backtracking)>end;<endif>
<endif>
}
)>
>>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
<matchSet(...)>
<noRewrite()> <! set return tree !>
>>

matchSetBang(s,label,elementIndex,postmatchCode) ::= <<
_Last := Input.LT(1) as I<ASTLabelType>;
<super.matchSet(...)>
>>

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
<super.matchSet(..., postmatchCode={
<if(!rewriteMode)>
<if(backtracking)>if (State.Backtracking = 0) then begin <endif>
<if(terminalOptions.node)>
<label>_tree := T<terminalOptions.node>.Create(<label>);
<else>
<label>_tree := Adaptor.DupNode(<label>) as I<ASTLabelType>;
<endif><\n>
Root[<treeLevel>] := Adaptor.BecomeRoot(<label>_tree,
Root[<treeLevel>]) as I<ASTLabelType>;
<if(backtracking)>end;<endif>

```

```

<endif>
}
)>
>>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
  _Last := Input.LT(1) as I<ASTLabelType>;
  <super.ruleRef(...)>
  <if(backtracking)>if (State.Backtracking = 0) then <endif>
  <if(!rewriteMode)>
  Adaptor.AddChild(Root[<treeLevel>], <label>.Tree);
  <else> <! rewrite mode !>
  if (_First[<treeLevel>] = nil) then _First[<treeLevel>] := <label>.Tree;
  <endif>
  >>

/** x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRef(...)>
  <listLabel(elem=label+".Tree",...)>
  >>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
  _Last := Input.LT(1) as I<ASTLabelType>;
  <super.ruleRef(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if (State.Backtracking = 0) then <endif>Root[<treeLevel>] :=
  Adaptor.BecomeRoot(<label>.Tree, Root[<treeLevel>]) as I<ASTLabelType>;
  <endif>
  >>

/**
  ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRefRuleRoot(...)>
  <listLabel(elem=label+".Tree",...)>
  >>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
  _Last := Input.LT(1) as I<ASTLabelType>;
  <super.ruleRefTrack(...)>
  >>

```



```

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _Last := Input.LT(1) as I<ASTLabelType>;
  <super.ruleRefTrackAndListLabel(...)>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
  _Last := Input.LT(1) as I<ASTLabelType>;
  <super.ruleRefRuleRootTrack(...)>
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  _Last := Input.LT(1) as I<ASTLabelType>;
  <super.ruleRefRuleRootTrackAndListLabel(...)>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken
 * to nextNode.
 */
createRewriteNodeFromElement(token,terminalOptions,scope) ::= <<
  <if(terminalOptions.node)>
  T<terminalOptions.node>.Create((Locals['Stream_<token>'] as IRewriteRuleElementStream).NextNode)
  <else>
  (Locals['Stream_<token>'] as IRewriteRuleElementStream).NextNode
  <endif>
>>

ruleCleanUp() ::= <<
  <super.ruleCleanUp()>
  <if(!rewriteMode)>
  <if(backtracking)>
  if (State.Backtracking = 0) then
  begin<\n>
  <endif>
  RetVal.Tree := Adaptor.RulePostProcessing(Root[0]) as I<ASTLabelType>;
  <if(backtracking)>
  end;
  <endif>
  <endif>
>>

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Delphi/ASTTreeParser.stg

```

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\*/

/\*\* Templates for building ASTs during tree parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* Each combination has its own template except that label/no label

\* is combined into tokenRef, ruleRef, ...

\*/

group ASTTreeParser;

/\*\* Add a variable to track last element matched \*/

ruleDeclarations()

```

 ::= <<
 <super.ruleDeclarations()>
 <ASTLabelType> _first_0 = null;
 <ASTLabelType> _last = null;<\n>
 >>

/** What to emit when there is no rewrite rule. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= <<
 <if(backtracking)>if ( state.backtracking==0 ) {<endif>
 <if(rewriteMode)>
 retval.tree = (<ASTLabelType>)_first_0;
 if ( adaptor.getParent(retval.tree)!=null && adaptor.isNil( adaptor.getParent(retval.tree) ) )
   retval.tree = (<ASTLabelType>)adaptor.getParent(retval.tree);
 <endif>
 <if(backtracking)>}<endif>
 >>

/** match ^(root children) in tree parser; override here to
 * add tree construction actions.
 */
tree(root, actionsAfterRoot, children, nullableChildList,
   enclosingTreeLevel, treeLevel) ::= <<
 _last = (<ASTLabelType>)input.LT(1);
 {
 <ASTLabelType> _save_last_<treeLevel> = _last;
 <ASTLabelType> _first_<treeLevel> = null;
 <if(!rewriteMode)>
 <ASTLabelType> root_<treeLevel> = (<ASTLabelType>)adaptor.nil();
 <endif>
 <root:element()>
 <if(rewriteMode)>
 <if(backtracking)>if
 ( state.backtracking==0 )<endif>
 <if(root.el.rule)>
 if ( _first_<enclosingTreeLevel>==null ) _first_<enclosingTreeLevel> = <root.el.label>.tree;
 <else>
 if ( _first_<enclosingTreeLevel>==null ) _first_<enclosingTreeLevel> = <root.el.label>;
 <endif>
 <endif>
 <actionsAfterRoot:element()>
 <if(nullableChildList)>
 if ( input.LA(1)==Token.DOWN ) {
   match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
   <children:element()>
   match(input, Token.UP, null); <checkRuleBacktrackFailure()>
 }
 }

```

```

<else>
match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
match(input, Token.UP, null); <checkRuleBacktrackFailure()>
<endif>
<if(!rewriteMode)>
adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>);
<endif>
_last = _save_last_<treeLevel>;
}<\n>
>>

// TOKEN AST STUFF

/** ID! and output=AST (same as plain tokenRef) 'cept add
 * setting of _last
 */
tokenRefBang(token,label,elementIndex) ::= <<
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
>>

/**
ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( state.backtracking==0 ) {<endif>
<if(terminalOptions.node)>
<label>_tree = new <terminalOptions.node>(<label>);
<else>
<label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
<endif><\n>
adaptor.addChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if ( state.backtracking==0 )<endif>
if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>;
<endif>
>>

/** label+=TOKEN auto construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

```

```

/** ^(ID ...) auto construct */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
  _last = (<ASTLabelType>)input.LT(1);
  <super.tokenRef(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if
    ( state.backtracking==0 ) {<endif>
  <if(terminalOptions.node)>
  <label>_tree = new <terminalOptions.node>(<label>);
  <else>
  <label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
  <endif><\n>
  root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<label>_tree, root_<treeLevel>);
  <if(backtracking)>}<endif>
  <endif>
  >>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
  <tokenRefRuleRoot(...)>
  <listLabel(elem=label,...)>
  >>

// SET AST

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
  _last = (<ASTLabelType>)input.LT(1);
  <super.matchSet(..., postmatchCode={
  <if(!rewriteMode)>
  <if(backtracking)>if ( state.backtracking==0 ) {<endif>
  <if(terminalOptions.node)>
  <label>_tree = new <terminalOptions.node>(<label>);
  <else>
  <label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
  <endif><\n>
  adaptor.addChild(root_<treeLevel>, <label>_tree);
  <if(backtracking)>}<endif>
  <endif>
  }
  )>
  >>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0")
  ::= <<
  <matchSet(...)>
  <noRewrite()> <! set return tree !>
  >>

```

```

matchSetBang(s,label,elementIndex,postmatchCode) ::= <<
  _last = (<ASTLabelType>)input.LT(1);
  <super.matchSet(...)>
  >>

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
  <super.matchSet(..., postmatchCode={
  <if(!rewriteMode)>
  <if(backtracking)>if ( state.backtracking==0 ) {<endif>
  <if(terminalOptions.node)>
  <label>_tree = new <terminalOptions.node>(<label>);
  <else>
  <label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
  <endif><\n>
  root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<label>_tree, root_<treeLevel>);
  <if(backtracking)>}<endif>
  <endif>
  }
  )>
  >>

// RULE REF AST

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)input.LT(1);
  <super.ruleRef(...)>
  <if(backtracking)>if ( state.backtracking==0 ) <endif>
  <if(!rewriteMode)>
  adaptor.addChild(root_<treeLevel>, <label>.getTree());
  <else>
  <! rewrite mode !>
  if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>.tree;
  <endif>
  >>

/** x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
  <ruleRef(...)>
  <listLabel(elem=label+".getTree()",...)>
  >>

/** ^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
  _last = (<ASTLabelType>)input.LT(1);
  <super.ruleRef(...)>
  <if(!rewriteMode)>
  <if(backtracking)>if ( state.backtracking==0 ) <endif>root_<treeLevel> =

```

```

(<ASTLabelType>)adaptor.becomeRoot(<label>.getTree(), root_<treeLevel>);
<endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<listLabel(elem=label+".getTree()",...)>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,terminalOptions,scope) ::= <<
<if(terminalOptions.node)>
new <terminalOptions.node>(stream_<token>.nextNode())
<else>
stream_<token>.nextNode()
<endif>
>>

ruleCleanUp()
::= <<
<super.ruleCleanUp()>
<if(!rewriteMode)>
<if(backtracking)>if ( state.backtracking==0 ) {<\n><endif>
retval.tree = (<ASTLabelType>)adaptor.rulePostProcessing(root_0);
<if(backtracking)>}<endif>
<endif>
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Perl5/ASTTreeParser.stg

```

No license file was found, but licenses were detected in source scan.

```

/*

```

```

[The "BSD license"]

```

```

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```

```

http://www.temporal-wave.com

```

```

http://www.linkedin.com/in/jimidle

```

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\*/

/\*

\* This code generating template and the associated C runtime was produced by:

\* Jim Idle jim|hereisanat|idle|dotgoeshere|ws.

\* If it causes the destruction of the Universe, it will be pretty cool so long as

\* I am in a different one at the time.

\*/

cTypeInitMap ::= [

"int" : "0", // Integers start out being 0

"long" : "0", // Longs start out

being 0

"float" : "0.0", // Floats start out being 0

"double" : "0.0", // Doubles start out being 0

"ANTLR3\_BOOLEAN" : "ANTLR3\_FALSE", // Booleans start out being Antlr C for false

"byte" : "0", // Bytes start out being 0

"short" : "0", // Shorts start out being 0

"char" : "0" // Chars start out being 0

]

leadIn(type) ::=

<<

/\*\* \file

\* This <type> file was generated by \$ANTLR version <ANTLRVersion>

\*

\* - From the grammar source file : <fileName>

\* - On : <generatedTimestamp>

<if(LEXER)>

\* - for the lexer : <name>Lexer

<endif>



```

<if(PARSER)>
*   -           for the parser : <name>Parser
<endif>
<if(TREE_PARSER)>
*   -           for the tree parser : <name>TreeParser
<endif>
*
* Editing it, at least manually, is not wise.
*
* C language generator and runtime by Jim Idle, jimi|hereisanat|idle|dotgoeshere|ws.
*
*
>>

/** The overall file structure of a recognizer; stores methods for rules
* and cyclic DFAs plus support code.
*/
outputFile( LEXER,
            PARSER,
            TREE_PARSER,
            actionScope,
            actions,
            docComment,
            recognizer,
            name,
            tokens,
            tokenNames,
            rules,
            cyclicDFAs,
            bitsets,
            buildTemplate,
            buildAST,
            rewriteMode,
            profile,
            backtracking,
            synpreds,
            memoize,
            numRules,
            fileName,
            ANTLRVersion,
            generatedTimestamp,
            trace,
            scopes,
            superClass,
            literals
            ) ::=
<<
<leadIn("C source")>

```

```
*/
// [The "BSD license"]
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// http://www.linkedin.com/in/jimidle
//
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//
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// THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

```
<if(actions.(actionScope).header)>
```

```
/* =====
```

```
* This is what the grammar programmer asked us to put at the top of every file.
```

```
*/
```

```
<actions.(actionScope).header>
```

```
/* End of Header action.
```

```
* =====
```

```
*/
```

```
<endif>
```

```
/* -----
```

```
* Include the ANTLR3 generated header file.
```

```
*/
```

```
#include "<name>.h"
```

```
<actions.(actionScope).postinclude>
```

```
/* ----- */
```

```
<docComment>
```

```
<if(literals)>
```

```
/** String
```

```
literals used by <name> that we must do things like MATCHS() with.
```

```
* C will normally just lay down 8 bit characters, and you can use L"xxx" to
```

```
* get wchar_t, but wchar_t is 16 bits on Windows, which is not UTF32 and so
```

```
* we perform this little trick of defining the literals as arrays of UINT32
```

```
* and passing in the address of these.
```

```
*/
```

```
<literals:{it | static ANTLR3_UCHAR lit_<i>[] = <it>;}; separator="\n">
```

```
<endif>
```

```
/* MACROS that hide the C interface implementations from the
```

```
* generated code, which makes it a little more understandable to the human eye.
```

```
* I am very much against using C pre-processor macros for function calls and bits
```

```
* of code as you cannot see what is happening when single stepping in debuggers
```

```
* and so on. The exception (in my book at least) is for generated code, where you are
```

```
* not maintaining it, but may wish to read and understand it. If you single step it, you know that input()
```

```
* hides some indirect calls, but is always referring to the input
```

```
stream. This is
```

```
* probably more readable than ctx->input->istream->input(snarfle0->blarg) and allows me to rejig
```

```
* the runtime interfaces without changing the generated code too often, without
```

```
* confusing the reader of the generated output, who may not wish to know the gory
```

```
* details of the interface inheritance.
```

```
*/
```

```
#define CTX ctx
```

```
/* Aids in accessing scopes for grammar programmers
```

```
*/
```

```
#undef SCOPE_TYPE
```

```
#undef SCOPE_STACK
```

```
#undef SCOPE_TOP
```

```
#define SCOPE_TYPE(scope) p<name>_##scope##_SCOPE
```

```
#define SCOPE_STACK(scope) p<name>_##scope##_Stack
```

```
#define SCOPE_TOP(scope) ctx->p<name>_##scope##_Top
```

```
#define SCOPE_SIZE(scope) ctx->p<name>_##scope##_Stack_limit
```

```
#define SCOPE_INSTANCE(scope, i) (ctx->SCOPE_STACK(scope)->get(ctx->SCOPE_STACK(scope),i))
```

```
<if(LEXER)>
```

```

/* Macros for accessing things in a lexer
*/
#undef LEXER
#undef RECOGNIZER
#undef RULEMEMO
#undef GETCHARINDEX
#undef GETLINE
#undef GETCHARPOSITIONINLINE
#undef EMIT
#undef EMITNEW
#undef
    MATCHC
#undef MATCHS
#undef MATCHRANGE
#undef LTOKEN
#undef HASFAILED
#undef FAILEDFLAG
#undef INPUT
#undef STRSTREAM
#undef LA
#undef HASEXCEPTION
#undef EXCEPTION
#undef CONSTRUCTEX
#undef CONSUME
#undef LRECOVER
#undef MARK
#undef REWIND
#undef REWINDLAST
#undef BACKTRACKING
#undef MATCHANY
#undef MEMOIZE
#undef HAVEPARSEDRULE
#undef GETTEXT
#undef INDEX
#undef SEEK
#undef PUSHSTREAM
#undef POPSTREAM
#undef SETTEXT
#undef SETTEXT8

#define LEXER ctx->pLexer
#define RECOGNIZER LEXER->rec
#define LEXSTATE RECOGNIZER->state
#define TOKSOURCE LEXSTATE->tokSource
#define GETCHARINDEX() LEXER->getCharIndex(LEXER)
#define GETLINE() LEXER->getLine(LEXER)
#define GETTEXT() LEXER->getText(LEXER)
#define GETCHARPOSITIONINLINE() LEXER->getCharPositionInLine(LEXER)

```

```

#define EMIT() LEXSTATE->type = _type; LEXER->emit(LEXER)
#define EMITNEW(t) LEXER->emitNew(LEXER,
t)
#define MATCHC(c) LEXER->matchc(LEXER, c)
#define MATCHS(s) LEXER->matchs(LEXER, s)
#define MATCHRANGE(c1,c2) LEXER->matchRange(LEXER, c1, c2)
#define MATCHANY() LEXER->matchAny(LEXER)
#define LTOKEN LEXSTATE->token
#define HASFAILED() (LEXSTATE->failed == ANTLR3_TRUE)
#define BACKTRACKING LEXSTATE->backtracking
#define FAILEDFLAG LEXSTATE->failed
#define INPUT LEXER->input
#define STRSTREAM INPUT
#define ISTREAM INPUT->istream
#define INDEX() ISTREAM->index(ISTREAM)
#define SEEK(n) ISTREAM->seek(ISTREAM, n)
#define EOF_TOKEN &(LEXSTATE->tokSource->eofToken)
#define HASEXCEPTION() (LEXSTATE->error == ANTLR3_TRUE)
#define EXCEPTION LEXSTATE->exception
#define CONSTRUCTEX() RECOGNIZER->exConstruct(RECOGNIZER)
#define LRECOVER() LEXER->recover(LEXER)
#define MARK() ISTREAM->mark(ISTREAM)
#define REWIND(m) ISTREAM->rewind(ISTREAM, m)
#define
    REWINDLAST() ISTREAM->rewindLast(ISTREAM)
#define MEMOIZE(ri,si) RECOGNIZER->memoize(RECOGNIZER, ri, si)
#define HAVEPARSEDRULE(r) RECOGNIZER->alreadyParsedRule(RECOGNIZER, r)
#define PUSHSTREAM(str) LEXER->pushCharStream(LEXER, str)
#define POPSTREAM() LEXER->popCharStream(LEXER)
#define SETTEXT(str) LEXSTATE->text = str
#define SKIP() LEXSTATE->token = &(TOKSOURCE->skipToken)
#define USER1 LEXSTATE->user1
#define USER2 LEXSTATE->user2
#define USER3 LEXSTATE->user3
#define CUSTOM LEXSTATE->custom
#define RULEMEMO LEXSTATE->ruleMemo
#define DBG RECOGNIZER->debugger

/* If we have been told we can rely on the standard 8 bit or UTF16 input
* stream, then we can define our macros to use the direct pointers
* in the input object, which is much faster than indirect calls. This
* is really only significant to lexers with a lot of fragment rules (which
* do not place LA(1) in a temporary at the moment) and even then
* only if there is
a lot of input (order of say 1M or so).
*/
#if defined(ANTLR3_INLINE_INPUT_8BIT) || defined(ANTLR3_INLINE_INPUT_UTF16)

```

```

#ifdef ANTLR3_INLINE_INPUT_8BIT

/* 8 bit character set */

#define NEXTCHAR ((pANTLR3_UINT8)(INPUT->nextChar))
#define DATAP ((pANTLR3_UINT8)(INPUT->data))

#else

#define NEXTCHAR ((pANTLR3_UINT16)(INPUT->nextChar))
#define DATAP ((pANTLR3_UINT16)(INPUT->data))

#endif

#define LA(n) ((NEXTCHAR + n) > (DATAP + INPUT->sizeBuf) ? ANTLR3_CHARSTREAM_EOF :
(ANTLR3_UCHAR)*(NEXTCHAR + n - 1))
#define CONSUME() \
{ \
    if (NEXTCHAR < (DATAP + INPUT->sizeBuf)) \
    { \
        INPUT->charPositionInLine++; \
        if ((ANTLR3_UCHAR)*(NEXTCHAR) == INPUT->newlineChar) \
        { \
            INPUT->line++; \
            INPUT->charPositionInLine = 0; \
            INPUT->currentLine = (void *) (NEXTCHAR + 1); \
        } \
        INPUT->nextChar = (void *) (NEXTCHAR + 1); \
    } \
}

#else

// Pick up the input character by calling the input stream implementation.
//
#define CONSUME() INPUT->istream->consume(INPUT->istream)
#define LA(n) INPUT->istream->_LA(INPUT->istream, n)

#endif
<endif>

<if(PARSER)>
/* Macros for accessing things in the parser
*/

#undef PARSER
#undef RECOGNIZER
#undef HAVEPARSEDRULE

```

```

#undef MEMOIZE
#undef INPUT
#undef STRSTREAM
#undef HASEXCEPTION
#undef EXCEPTION
#undef MATCHT
#undef
    MATCHANYT
#undef FOLLOWSTACK
#undef FOLLOWPUSH
#undef FOLLOWPOP
#undef PRECOVER
#undef PREPORTERROR
#undef LA
#undef LT
#undef CONSTRUCTEX
#undef CONSUME
#undef MARK
#undef REWIND
#undef REWINDLAST
#undef PERRORRECOVERY
#undef HASFAILED
#undef FAILEDFLAG
#undef RECOVERFROMMISMATCHEDSET
#undef RECOVERFROMMISMATCHEDELEMENT
#undef INDEX
#undef ADAPTOR
#undef SEEK
#undef RULEMEMO
#undef DBG

#define PARSE  ctx->pParser
#define RECOGNIZER  PARSE->rec
#define PSRSTATE  RECOGNIZER->state
#define HAVEPARSEDRULE(r)  RECOGNIZER->alreadyParsedRule(RECOGNIZER, r)
#define MEMOIZE(ri,si)  RECOGNIZER->memoize(RECOGNIZER, ri, si)
#define INPUT  PARSE->tstream
#define STRSTREAM  INPUT
#define ISTREAM  INPUT->istream
#define INDEX()  ISTREAM->index(INPUT->istream)
#define HASEXCEPTION()  (PSRSTATE->error == ANTLR3_TRUE)
#define EXCEPTION  PSRSTATE->exception
#define
    MATCHT(t, fs)  RECOGNIZER->match(RECOGNIZER, t, fs)
#define MATCHANYT()  RECOGNIZER->matchAny(RECOGNIZER)
#define FOLLOWSTACK  PSRSTATE->following
#ifdef SKIP_FOLLOW_SETS
#define FOLLOWPUSH(x)

```

```

#define FOLLOWPOP()
#else
#define FOLLOWPUSH(x) FOLLOWSTACK->push(FOLLOWSTACK, ((void *)&(x)), NULL)
#define FOLLOWPOP() FOLLOWSTACK->pop(FOLLOWSTACK)
#endif
#define PRECOVER() RECOGNIZER->recover(RECOGNIZER)
#define PREPORTERROR() RECOGNIZER->reportError(RECOGNIZER)
#define LA(n) INPUT->istream->_LA(ISTREAM, n)
#define LT(n) INPUT->_LT(INPUT, n)
#define CONSTRUCTEX() RECOGNIZER->exConstruct(RECOGNIZER)
#define CONSUME() ISTREAM->consume(ISTREAM)
#define MARK() ISTREAM->mark(ISTREAM)
#define REWIND(m) ISTREAM->rewind(ISTREAM, m)
#define REWINDLAST() ISTREAM->rewindLast(ISTREAM)
#define SEEK(n) ISTREAM->seek(ISTREAM, n)
#define PERRORRECOVERY PSRSTATE->errorRecovery
#define
    FAILEDFLAG PSRSTATE->failed
#define HASFAILED() (FAILEDFLAG == ANTLR3_TRUE)
#define BACKTRACKING PSRSTATE->backtracking
#define RECOVERFROMMISMATCHEDSET(s) RECOGNIZER->recoverFromMismatchedSet(RECOGNIZER,
s)
#define RECOVERFROMMISMATCHEDELEMENT(e) RECOGNIZER-
>recoverFromMismatchedElement(RECOGNIZER, s)
#define ADAPTOR          ctx->adaptor
#define RULEMEMO         PSRSTATE->ruleMemo
#define DBG              RECOGNIZER->debugger

<endif>

<if(TREE_PARSER)>
/* Macros for accessing things in the parser
*/

#undef  PARSER
#undef  RECOGNIZER
#undef  HAVEPARSEDRULE
#undef  INPUT
#undef  STRSTREAM
#undef  HASEXCEPTION
#undef  EXCEPTION
#undef  MATCHT
#undef  MATCHANYT
#undef  FOLLOWSTACK
#undef  FOLLOWPUSH
#undef  FOLLOWPOP
#undef  PRECOVER
#undef  PREPORTERROR

```



```

#undef LA
#undef LT
#undef CONSTRUCTEX
#undef CONSUME
#undef MARK
#undef REWIND
#undef REWINDLAST
#undef PERRORRECOVERY
#undef
    HASFAILED
#undef FAILEDFLAG
#undef RECOVERFROMMISMATCHEDSET
#undef RECOVERFROMMISMATCHEDELEMENT
#undef BACKTRACKING
#undef ADAPTOR
#undef RULEMEMO
#undef SEEK
#undef INDEX
#undef DBG

#define PARSER    ctx->pTreeParser
#define RECOGNIZER  PARSER->rec
#define PSRSTATE  RECOGNIZER->state
#define HAVEPARSEDRULE(r)  RECOGNIZER->alreadyParsedRule(RECOGNIZER, r)
#define INPUT    PARSER->ctnstream
#define ISTREAM  INPUT->tnstream->istream
#define STRSTREAM  INPUT->tnstream
#define HASEXCEPTION()  (PSRSTATE->error == ANTLR3_TRUE)
#define EXCEPTION  PSRSTATE->exception
#define MATCHT(t, fs)  RECOGNIZER->match(RECOGNIZER, t, fs)
#define MATCHANYT()  RECOGNIZER->matchAny(RECOGNIZER)
#define FOLLOWSTACK  PSRSTATE->following
#define FOLLOWPUSH(x)  FOLLOWSTACK->push(FOLLOWSTACK, ((void *)&(x)), NULL)
#define FOLLOWPOP()  FOLLOWSTACK->pop(FOLLOWSTACK)
#define
    PRECOVER()  RECOGNIZER->recover(RECOGNIZER)
#define PREPORTERROR()  RECOGNIZER->reportError(RECOGNIZER)
#define LA(n)  ISTREAM->_LA(ISTREAM, n)
#define LT(n)  INPUT->tnstream->_LT(INPUT->tnstream, n)
#define CONSTRUCTEX()  RECOGNIZER->exConstruct(RECOGNIZER)
#define CONSUME()  ISTREAM->consume(ISTREAM)
#define MARK()  ISTREAM->mark(ISTREAM)
#define REWIND(m)  ISTREAM->rewind(ISTREAM, m)
#define REWINDLAST()  ISTREAM->rewindLast(ISTREAM)
#define PERRORRECOVERY  PSRSTATE->errorRecovery
#define FAILEDFLAG  PSRSTATE->failed
#define HASFAILED()  (FAILEDFLAG == ANTLR3_TRUE)
#define BACKTRACKING  PSRSTATE->backtracking

```

```

#define RECOVERFROMMISMATCHEDSET(s) RECOGNIZER->recoverFromMismatchedSet(RECOGNIZER,
s)
#define RECOVERFROMMISMATCHEDELEMENT(e) RECOGNIZER-
>recoverFromMismatchedElement(RECOGNIZER, s)
#define ADAPTOR INPUT->adaptor
#define RULEMEMO PSRSTATE->ruleMemo
#define SEEK(n) ISTREAM->seek(ISTREAM,
n)
#define INDEX() ISTREAM->index(ISTREAM)
#define DBG RECOGNIZER->debugger

```

```
<endif>
```

```
#define TOKTEXT(tok, txt) tok, (pANTLR3_UINT8)txt
```

```

/* The 4 tokens defined below may well clash with your own #defines or token types. If so
* then for the present you must use different names for your defines as these are hard coded
* in the code generator. It would be better not to use such names internally, and maybe
* we can change this in a forthcoming release. I deliberately do not #undef these
* here as this will at least give you a redefined error somewhere if they clash.
*/

```

```

#define UP ANTLR3_TOKEN_UP
#define DOWN ANTLR3_TOKEN_DOWN
#define EOR ANTLR3_TOKEN_EOR
#define INVALID ANTLR3_TOKEN_INVALID

```

```

/* =====
* Functions to create and destroy scopes. First come the rule scopes, followed
* by the global
* declared scopes.
*/

```

```

<rules: {r |<if(r.ruleDescriptor.ruleScope)>
<ruleAttributeScopeFuncDecl(scope=r.ruleDescriptor.ruleScope)>
<ruleAttributeScopeFuncs(scope=r.ruleDescriptor.ruleScope)>
<endif>}>

```

```

<recognizer.scopes:{it |<if(it.isDynamicGlobalScope)>
<globalAttributeScopeFuncDecl(it)>
<globalAttributeScopeFuncs(it)>
<endif>}>

```

```
/* ===== */
```

```
/* =====
```

```
* Start of recognizer
```

```

*/

<recognizer>

/* End of code
* =====
*/

>>
headerFileExtension() ::= ".h"

headerFile( LEXER,
            PARSEr,
            TREE_PARSER,
            actionScope,
            actions,
            docComment,
            recognizer,
            name,
            tokens,
            tokenNames,
            rules,
            cyclicDFAs,
            bitsets,
            buildTemplate,

            buildAST,
            rewriteMode,
            profile,
            backtracking,
            synpreds,
            memoize,
            numRules,
            fileName,
            ANTLRVersion,
            generatedTimestamp,
            trace,
            scopes,
            superClass,
            literals
            ) ::=

<<
<leadIn("C header")>
<if(PARSEr)>
* The parser <mainName()>
<endif>
<if(LEXER)>
* The lexer <mainName()>

```

```

<endif>
<if(TREE_PARSER)>
* The tree parser <mainName()>
<endif>
has the callable functions (rules) shown below,
* which will invoke the code for the associated rule in the source grammar
* assuming that the input stream is pointing to a token/text stream that could begin
* this rule.
*
* For instance if you call the first (topmost) rule in a parser grammar, you will
* get the results of a full parse, but calling a rule half way through the grammar will
* allow you to pass part of a full token stream to the parser, such as for syntax checking
* in editors
and so on.
*
* The parser entry points are called indirectly (by function pointer to function) via
* a parser context typedef p<name>, which is returned from a call to <name>New().
*
<if(LEXER)>
* As this is a generated lexer, it is unlikely you will call it 'manually'. However
* the methods are provided anyway.
*
<endif>
* The methods in p<name> are as follows:
*
* <rules: {r | <if(!r.ruleDescriptor.isSynPred)> - <headerReturnType(ruleDescriptor=r.ruleDescriptor,...)>
p<name>-><r.ruleDescriptor.name>(p<name>)<endif>}; separator="\n * ">
*
* The return type for any particular rule is of course determined by the source
* grammar file.
*/
// [The "BSD license"]
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// http://www.temporal-wave.com
// http://www.linkedin.com/in/jimidle
//
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// THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
```

```
#ifndef _<name>_H
#define _<name>_H
<actions.(actionScope).preincludes>
/* =====
* Standard antlr3 C runtime definitions
*/
#include <antlr3.h>
```

```
/* End of standard antlr 3 runtime definitions
* =====
*/
<actions.(actionScope).includes>
```

```
#ifdef __cplusplus
extern "C" {
#endif
```

```
// Forward declare the context typedef so that we can use it before it is
// properly defined. Delegates and delegates (from import statements) are
// interdependent and their context structures contain pointers to each other
// C only allows such things to be declared if you pre-declare the typedef.
//
```

```
typedef struct <name>_Ctx_struct
<name>, * p<name>;
```

```
<if(recognizer.grammar.delegates)>
// Include delegate definition header files
//
<recognizer.grammar.delegates: {g|#include <<g.recognizerName>.h>; separator="\n">
```

```
<endif>
```

```
<actions.(actionScope).header>
```

```

#ifdef ANTLR3_WINDOWS
// Disable: Unreferenced parameter, - Rules with parameters that are not used
// constant conditional, - ANTLR realizes that a prediction is always true (synpred usually)
// initialized but unused variable - tree rewrite variables declared but not needed
// Unreferenced local variable - lexer rule declares but does not always use _type
// potentially uninitialized variable used - retval always returned from a rule
// unreferenced local function has been removed - susually getTokenNames or freeScope, they can go without
warnigns
//
// These are only really displayed at warning level /W4 but that is the code ideal I am aiming at
// and the codegen must generate some of these
warnings by necessity, apart from 4100, which is
// usually generated when a parser rule is given a parameter that it does not use. Mostly though
// this is a matter of orthogonality hence I disable that one.
//
#pragma warning( disable : 4100 )
#pragma warning( disable : 4101 )
#pragma warning( disable : 4127 )
#pragma warning( disable : 4189 )
#pragma warning( disable : 4505 )
#pragma warning( disable : 4701 )
#endif
<if(backtracking)>

/* =====
* BACKTRACKING IS ENABLED
* =====
*/
<endif>

<rules:{r | <headerReturnScope(ruleDescriptor=r.ruleDescriptor,...)>}>

<scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeDecl(it)><endif>}>
<rules:{r | <ruleAttributeScopeDecl(scope=r.ruleDescriptor.ruleScope)>}>
<if(recognizer.grammar.delegators)>
// Include delegator definition header files
//
<recognizer.grammar.delegators: {g|#include <<<g.recognizerName>.h>}; separator="\n">

<endif>

/** Context tracking structure for <mainName()>
*/
struct
<name>_Ctx_struct
{
/** Built in ANTLR3 context tracker contains all the generic elements

```

```

    * required for context tracking.
    */
<if(PARSER)>
    pANTLR3_PARSER pParser;
<endif>
<if(LEXER)>
    pANTLR3_LEXER pLexer;
<endif>
<if(TREE_PARSER)>
    pANTLR3_TREE_PARSER pTreeParser;
<endif>

<if(recognizer.grammar.delegates)>
    <recognizer.grammar.delegates:
        {g|p<g.recognizerName> <g.delegateName(>); separator="\n">
    <endif>
<if(recognizer.grammar.delegators)>
    <recognizer.grammar.delegators:
        {g|p<g.recognizerName> <g.delegateName(>); separator="\n">
    <endif>
<scopes:{it | <if(it.isDynamicGlobalScope)>
    <globalAttributeScopeDef(it)>
<endif>} separator="\n\n">
<rules: {r | <if(r.ruleDescriptor.ruleScope)>
    <ruleAttributeScopeDef(scope=r.ruleDescriptor.ruleScope)>
<endif>}>

<if(LEXER)>
    <rules:{r | <if(!r.ruleDescriptor.isSynPred)><headerReturnType(ruleDescriptor=r.ruleDescriptor)>
(*m<r.ruleDescriptor.name>) (struct <name>_Ctx_struct
    * ctx<if(r.ruleDescriptor.parameterScope)>,
<endif><r.ruleDescriptor.parameterScope:parameterScope(>>);<endif>}; separator="\n">
<endif>
<if(!LEXER)>
    <rules:{r | <headerReturnType(ruleDescriptor=r.ruleDescriptor)> (*<r.ruleDescriptor.name>) (struct
<name>_Ctx_struct * ctx<if(r.ruleDescriptor.parameterScope)>,
<endif><r.ruleDescriptor.parameterScope:parameterScope(>>);}; separator="\n">
<! generate rule/method definitions for imported rules so they
appear to be defined in this recognizer. !>
    // Delegated rules
<recognizer.grammar.delegatedRules:{ ruleDescriptor|
    <headerReturnType(ruleDescriptor)> (*<ruleDescriptor.name>)(struct <name>_Ctx_struct *
ctx<if(ruleDescriptor.parameterScope)>, <endif><ruleDescriptor.parameterScope:parameterScope(>>);};
separator="\n">
<endif>

const char * (*getGrammarFileName());
void (*reset) (struct <name>_Ctx_struct * ctx);

```

```

void (*free) (struct <name>_Ctx_struct * ctx);
<@members>
<@end>
<actions.(actionScope).context>
};

//
Function prototypes for the constructor functions that external translation units
// such as delegators and delegates may wish to call.
//
ANTLR3_API p<name> <name>New      (<inputType()> instream<recognizer.grammar.delegators:{g|,
p<g.recognizerName> <g.delegateName()>}>);
ANTLR3_API p<name> <name>NewSSD   (<inputType()> instream,
pANTLR3_RECOGNIZER_SHARED_STATE state<recognizer.grammar.delegators:{g|, p<g.recognizerName>
<g.delegateName()>}>);
<if(!recognizer.grammar.grammarIsRoot)>
extern pANTLR3_UINT8 <recognizer.grammar.composite.rootGrammar.recognizerName>TokenNames[];
<endif>

/** Symbolic definitions of all the tokens that the <grammarType()> will work with.
* \{
*
* Antlr will define EOF, but we can't use that as it is too common in
* in C header files and that would be confusing. There is no way to filter this out at the moment
* so we just undef it here for now. That isn't the value we get back from C recognizers
* anyway. We are looking
* for ANTLR3_TOKEN_EOF.
*/
#ifdef EOF
#undef EOF
#endif
#ifdef Tokens
#undef Tokens
#endif
<tokens:{it | #define <it.name>    <it.type>}; separator="\n">
#ifdef EOF
#undef EOF
#define EOF ANTLR3_TOKEN_EOF
#endif

#ifdef TOKENSOURCE
#define TOKENSOURCE(lxr) lxr->pLexer->rec->state->tokSource
#endif

/* End of token definitions for <name>
* =====
*/

```



```

/** \} */

#ifdef __cplusplus
}
#endif

#endif

/* END - Note:Keep extra line feed to satisfy UNIX systems */

>>

inputType() ::= <<<
<if(LEXER)>
pANTLR3_INPUT_STREAM
<endif>
<if(PARSER)>
pANTLR3_COMMON_TOKEN_STREAM
<endif>
<if(TREE_PARSER)>
pANTLR3_COMMON_TREE_NODE_STREAM
<endif>
>>

grammarType() ::= <<
<if(PARSER)>
parser
<endif>
<if(LEXER)>
lexer
<endif>
<if(TREE_PARSER)>
tree parser
<endif>
>>

mainName() ::= <<
<if(PARSER)>
<name>
<endif>
<if(LEXER)>
<name>
<endif>
<if(TREE_PARSER)>
<name>
<endif>
>>

```

```
headerReturnScope(ruleDescriptor) ::= "<returnScope(...)>"
```

```
headerReturnType(ruleDescriptor)
```

```
::= <<
```

```
<if(LEXER)>
```

```
<if(!ruleDescriptor.isSynPred)>
```

```
void
```

```
<else>
```

```
<returnType()>
```

```
<endif>
```

```
<else>
```

```
<returnType()>
```

```
<endif>
```

```
>>
```

```
// Produce the lexer output
```

```
//
```

```
lexer( grammar,
```

```
  name,
```

```
    tokens,
```

```
    scopes,
```

```
    rules,
```

```
    numRules,
```

```
    filterMode,
```

```
    superClass,
```

```
    labelType="pANTLR3_COMMON_TOKEN") ::= <<
```

```
<if(filterMode)>
```

```
/* Forward declare implementation function for ANTLR3_TOKEN_SOURCE interface when
```

```
* this is a filter mode lexer.
```

```
*/
```

```
static pANTLR3_COMMON_TOKEN <name>NextToken (pANTLR3_TOKEN_SOURCE toksource);
```

```
/* Override the normal MEMOIZE and HAVEALREADYPARSED macros as this is a filtering
```

```
* lexer. In filter mode, the memoizing and backtracking are gated at BACKTRACKING > 1 rather
```

```
* than just BACKTRACKING. In some cases this might generate code akin to:
```

```
* if (BACKTRACKING) if (BACKTRACKING > 1) memoize.
```

```
* However, I assume that the C compilers/optimizers are smart enough to work this one out
```

```
* these days -
```

```
Jim
```

```
*/
```

```
#undef MEMOIZE
```

```
#define MEMOIZE(ri,si) if (BACKTRACKING>1) { RECOGNIZER->memoize(RECOGNIZER, ri, si) }
```

```
#undef HAVEPARSEDRULE
```

```
#define HAVEPARSEDRULE(r) if (BACKTRACKING>1) { RECOGNIZER->alreadyParsedRule(RECOGNIZER,
```

```
r) }
```

```
<endif>
```

```

/* Forward declare the locally static matching functions we have generated and any predicate functions.
*/
<rules:{r | static ANTLR3_INLINE <headerReturnType(ruleDescriptor=r.ruleDescriptor)>
<if(!r.ruleDescriptor.isSynPred)>m<endif><r.ruleDescriptor.name> (p<name>
ctx<if(r.ruleDescriptor.parameterScope)>, <endif><r.ruleDescriptor.parameterScope:parameterScope()>});
separator="\n">
static void <name>Free(p<name> ctx);

/* =====
* Lexer matching rules end.
* =====
*/

<scopes:{it |<if(it.isDynamicGlobalScope)><globalAttributeScope(it)><endif>}>

<actions.lexer.members>

static void
<name>Free (p<name> ctx)
{
<if(memoize)>
if (RULEMEMO
!= NULL)
{
RULEMEMO->free(RULEMEMO);
RULEMEMO = NULL;
}
<endif>
<if(grammar.directDelegates)>
// Free the lexers that we delegated to
// functions to. NULL the state so we only free it once.
//
<grammar.directDelegates:
{g|ctx-><g:delegateName()>->pLexer->rec->state = NULL;
ctx-><g:delegateName()>->free(ctx-><g:delegateName()>);}; separator="\n">
<endif>
LEXER->free(LEXER);

ANTLR3_FREE(ctx);
}

static void
<name>Reset (p<name> ctx)
{
RECOGNIZER->reset(RECOGNIZER);
}

/** \brief Name of the grammar file that generated this code

```

```

*/
static const char fileName[] = "<fileName>";

/** \brief Return the name of the grammar file that generated this code.
*/
static const char * getGrammarFileName()
{
    return fileName;
}

<if(filterMode)>
    <filteringNextToken()>
<endif>

/** \brief Create a new lexer called <name>
*
* \param[in] instream Pointer to an initialized input stream
* \return
* - Success p<name> initialized
  for the lex start
* - Fail NULL
*/
ANTLR3_API p<name> <name>New
(<inputType()> instream<grammar.delegators:{g|, p<g.recognizerName> <g.delegateName()>}>)
{
    // See if we can create a new lexer with the standard constructor
    //
    return <name>NewSSD(instream, NULL<grammar.delegators:{g|, <g.delegateName()>}>);
}

/** \brief Create a new lexer called <name>
*
* \param[in] instream Pointer to an initialized input stream
* \param[state] state Previously created shared recognizer stat
* \return
* - Success p<name> initialized for the lex start
* - Fail NULL
*/
ANTLR3_API p<name> <name>NewSSD
(pANTLR3_INPUT_STREAM instream, pANTLR3_RECOGNIZER_SHARED_STATE
state<grammar.delegators:{g|, p<g.recognizerName> <g.delegateName()>}>)
{
    p<name> ctx; // Context structure we will build and return

    ctx = (p<name>) ANTLR3_CALLOC(1, sizeof(<name>));

    if (ctx == NULL)
    {

```

```

    // Failed to allocate memory for lexer context
    return NULL;
}

/*
-----
* Memory for basic structure is allocated, now to fill in
* in base ANTLR3 structures. We initialize the function pointers
* for the standard ANTLR3 lexer function set, but upon return
* from here, the programmer may set the pointers to provide custom
* implementations of each function.
*
* We don't use the macros defined in <name>.h here so you can get a sense
* of what goes where.
*/

/* Create a base lexer, using the supplied input stream
*/
ctx->pLexer = antlr3LexerNewStream(ANTLR3_SIZE_HINT, instream, state);

/* Check that we allocated the memory correctly
*/
if (ctx->pLexer == NULL)
{
    ANTLR3_FREE(ctx);
    return NULL;
}
<if(memoize)>
<if(grammar.grammarIsRoot)>
    // Create a LIST for recording rule memos.
    //
    ctx->pLexer->rec->ruleMemo = antlr3IntTrieNew(15); /* 16 bit depth is enough for 32768 rules! */
<endif>
<endif>

/* Install the implementation of our <name> interface
*/
<rules:{r | <if(!r.ruleDescriptor.isSynPred)>ctx->m<r.ruleDescriptor.name> =
m<r.ruleDescriptor.name>;<endif>} ; separator="\n">

/** When the nextToken() call is made to this lexer's pANTLR3_TOKEN_SOURCE
* it will call mTokens() in this generated code, and will pass it the ctx
* pointer of this lexer, not the context of the base lexer, so store that now.
*/
ctx->pLexer->ctx = ctx;

/**Install the token matching function
*/

```

```

ctx->pLexer->mTokens = (void (*)(void *))(mTokens);

ctx->getGrammarFileName = getGrammarFileName;
ctx->free = <name>Free;
ctx->reset = <name>Reset;

<if(grammar.directDelegates)>
// Initialize the lexers that we are going to delegate some
// functions to.
//
<grammar.directDelegates:
    {g|ctx-><g:delegateName()> = <g.recognizerName>NewSSD(instream, ctx->pLexer->rec->state,
ctx->grammar.delegates:{g|, <g:delegateName()>});};
    separator="\n">
<endif>
<if(grammar.delegates)>
// Install the pointers back to lexers that will delegate us to perform certain functions
// for them.
//
<grammar.delegates:
    {g|ctx-><g:delegateName()> = <g:delegateName()>;}; separator="\n">
<endif>
<if(filterMode)>
/* We have filter mode turned on, so install the filtering nextToken function
*/
    ctx->pLexer->rec->state->tokSource->nextToken = <name>NextToken;
<endif>
<actions.lexer.apifuncs>

/* Return the newly built lexer to the caller
*/
return ctx;
}
<if(cyclicDFAs)>

/* =====
* DFA tables for the lexer
*/
<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>
/* =====
* End of DFA tables for the lexer
*/
<endif>

/* =====
* Functions to match the lexer grammar defined tokens from
the input stream
*/

```

```

<rules; separator="\n\n">

/* =====
* Lexer matching rules end.
* =====
*/
<if(synpreds)>

/* =====
* Lexer syntactic predicates
*/
<synpreds:{p | <lexerSynpred(predname=p)>}>
/* =====
* Lexer syntactic predicates end.
* =====
*/
<endif>

/* End of Lexer code
* =====
* =====
*/

>>

```

```

filteringNextToken() ::= <<
/** An override of the lexer's nextToken() method that backtracks over mTokens() looking
* for matches in lexer filterMode. No error can be generated upon error; just rewind, consume
* a token and then try again. BACKTRACKING
needs to be set as well.
* Make rule memoization happen only at levels above 1 as we start mTokens
* at BACKTRACKING==1.
*/
static pANTLR3_COMMON_TOKEN
<name>NextToken(pANTLR3_TOKEN_SOURCE toksource)
{
    pANTLR3_LEXER lexer;
    pANTLR3_RECOGNIZER_SHARED_STATE state;

    lexer = (pANTLR3_LEXER)(toksource->super);
    state = lexer->rec->state;

    /* Get rid of any previous token (token factory takes care of
    * any deallocation when this token is finally used up.
    */
    state ->token = NULL;

```

```

state ->error = ANTLR3_FALSE; /* Start out without an exception */
state ->failed = ANTLR3_FALSE;

/* Record the start of the token in our input stream.
*/
state->tokenStartCharIndex = lexer->input->istream->index(lexer->input->istream);
state->tokenStartCharPositionInLine = lexer->input->getCharPositionInLine(lexer->input);
state->tokenStartLine = lexer->input->getLine(lexer->input);
state->text = NULL;

/*
Now call the matching rules and see if we can generate a new token
*/
for (;;)
{
if (lexer->input->istream->_LA(lexer->input->istream, 1) == ANTLR3_CHARSTREAM_EOF)
{
/* Reached the end of the stream, nothing more to do.
*/
pANTLR3_COMMON_TOKEN teof = &(toksource->eofToken);

teof->setStartIndex (teof, lexer->getCharIndex(lexer));
teof->setStopIndex (teof, lexer->getCharIndex(lexer));
teof->setLine (teof, lexer->getLine(lexer));
return teof;
}

state->token = NULL;
state->error = ANTLR3_FALSE; /* Start out without an exception */

{
ANTLR3_MARKER m;

m = lexer->input->istream->mark(lexer->input->istream);
state->backtracking = 1; /* No exceptions */
state->failed = ANTLR3_FALSE;

/* Call the generated lexer, see if it can get a new token together.
*/
lexer->mTokens(lexer->ctx);
state->backtracking = 0;

<! mTokens backtracks with synpred at BACKTRACKING==2
and we set the synpredgate
to allow actions at level 1. !>

if (state->failed == ANTLR3_TRUE)
{

```



```

lexer->input->istream->rewind(lexer->input->istream, m);
lexer->input->istream->consume(lexer->input->istream); <! advance one char and try again !>
}
else
{
lexer->emit(lexer); /* Assemble the token and emit it to the stream */
return state->token;
}
}
}
}
}
>>

```

```

actionGate() ::= "BACKTRACKING==0"

```

```

filteringActionGate() ::= "BACKTRACKING==1"

```

```

/** How to generate a parser */

```

```

genericParser( grammar,
    name,
        scopes,
        tokens,
        tokenNames,
        rules,
        numRules,
        bitsets,
        inputStreamType,
        superClass,
        labelType,
    members,
    rewriteElementType, filterMode,
        ASTLabelType="pANTLR3_BASE_TREE"
    ) ::= <<

```

```

<if(grammar.grammarIsRoot)>

```

```

/** \brief Table of all token names in symbolic order, mainly used for

```

```

*

```

```

error reporting.

```

```

*/

```

```

pANTLR3_UINT8 <name>TokenNames[<length(tokenNames)>+4]

```

```

= {

```

```

    (pANTLR3_UINT8) "\<invalid>", /* String to print to indicate an invalid token */

```

```

    (pANTLR3_UINT8) "\<EOR>",

```

```

    (pANTLR3_UINT8) "\<DOWN>",

```

```

    (pANTLR3_UINT8) "\<UP>",

```

```

    <tokenNames:{it |(pANTLR3_UINT8) <it>}; separator=",\n">

```

```

};

```

```

<endif>

<@members>

<@end>
<rules:{r |<ruleAttributeScopeFuncMacro(scope=r.ruleDescriptor.ruleScope)>}>
<scopes:{it |<if(it.isDynamicGlobalScope)><globalAttributeScopeFuncMacro(it)><endif>}>

// Forward declare the locally static matching functions we have generated.
//
<rules:{r | static <headerReturnType(ruleDescriptor=r.ruleDescriptor)> <r.ruleDescriptor.name> (p<name>
ctx<if(r.ruleDescriptor.parameterScope)>, <endif><r.ruleDescriptor.parameterScope:parameterScope()>);};
separator="\n">
static void <name>Free(p<name> ctx);
static void <name>Reset (p<name> ctx);

<if(!LEXER)>
<! generate rule/method definitions for
imported rules so they
appear to be defined in this recognizer. !>
<if(recognizer.grammar.delegatedRules)>
// Delegated rules
//
<recognizer.grammar.delegatedRules:{ruleDescriptor|static <headerReturnType(ruleDescriptor)>
<ruleDescriptor.name>(p<name> ctx<if(ruleDescriptor.parameterScope)>,
<endif><r.ruleDescriptor.parameterScope:parameterScope()>);}; separator="\n">

<endif>
<endif>

/* For use in tree output where we are accumulating rule labels via label += ruleRef
* we need a function that knows how to free a return scope when the list is destroyed.
* We cannot just use ANTLR3_FREE because in debug tracking mode, this is a macro.
*/
static void ANTLR3_CDECL freeScope(void * scope)
{
    ANTLR3_FREE(scope);
}

/** \brief Name of the grammar file that generated this code
*/
static const char fileName[] = "<fileName>";

/** \brief Return the name of the grammar file that generated this code.
*/
static const char * getGrammarFileName()
{
    return fileName;
}

```

```

}
/** \brief Create a
new <name> parser and return a context for it.
*
* \param[in] instream Pointer to an input stream interface.
*
* \return Pointer to new parser context upon success.
*/
ANTLR3_API p<name>
<name>New (<inputStreamType> instream<grammar.delegators:{g|, p<g.recognizerName>
<g.delegateName()>>>)
{
// See if we can create a new parser with the standard constructor
//
return <name>NewSSD(instream, NULL<grammar.delegators:{g|, <g.delegateName()>>>);
}

/** \brief Create a new <name> parser and return a context for it.
*
* \param[in] instream Pointer to an input stream interface.
*
* \return Pointer to new parser context upon success.
*/
ANTLR3_API p<name>
<name>NewSSD (<inputStreamType> instream, pANTLR3_RECOGNIZER_SHARED_STATE
state<grammar.delegators:{g|, p<g.recognizerName> <g.delegateName()>>>)
{
p<name> ctx; /* Context structure we will build and return */

ctx = (p<name>) ANTLR3_CALLOC(1, sizeof(<name>));

if (ctx == NULL)
{
// Failed to allocate memory
for parser context
//
return NULL;
}

/* -----
* Memory for basic structure is allocated, now to fill in
* the base ANTLR3 structures. We initialize the function pointers
* for the standard ANTLR3 parser function set, but upon return
* from here, the programmer may set the pointers to provide custom
* implementations of each function.
*
* We don't use the macros defined in <name>.h here, in order that you can get a sense
* of what goes where.

```

```

*/

<if(PARSER)>
  /* Create a base parser/recognizer, using the supplied token stream
  */
  ctx->pParser = antlr3ParserNewStream(ANTLR3_SIZE_HINT, instream->tstream, state);
<endif>
<if(TREE_PARSER)>
  /* Create a base Tree parser/recognizer, using the supplied tree node stream
  */
  ctx->pTreeParser = antlr3TreeParserNewStream(ANTLR3_SIZE_HINT, instream, state);
<endif>

  /* Install the implementation
of our <name> interface
  */
  <rules:{r | ctx-><r.ruleDescriptor.name> = <r.ruleDescriptor.name>;}; separator="\n">
<if(grammar.delegatedRules)>
  // Install the delegated methods so that they appear to be a part of this
  // parser
  //
  <grammar.delegatedRules:{ruleDescriptor | ctx-><ruleDescriptor.name> = <ruleDescriptor.name>;};
separator="\n">
<endif>

  ctx->free = <name>Free;
  ctx->reset = <name>Reset;
  ctx->getGrammarFileName = getGrammarFileName;

  /* Install the scope pushing methods.
  */
  <rules: {r |<if(r.ruleDescriptor.ruleScope)>
<ruleAttributeScope(scope=r.ruleDescriptor.ruleScope)><\n>
<endif>}>
  <recognizer.scopes:{it |<if(it.isDynamicGlobalScope)>
<globalAttributeScope(it)><\n>
<endif>}>
  <@apifuncs>

  <@end>
<if(grammar.directDelegates)>
  // Initialize the parsers that we are going to delegate some
  // functions to.
  //
  <grammar.directDelegates:
    {g|ctx-><g.delegateName()> = <g.recognizerName>NewSSD(instream, PSRSTATE,
  ctx<grammar.delegates:{g|, <g.delegateName()>}>});}; separator="\n">
<endif>

```

```

<if(grammar.delegators)>
// Install the pointers back to parsers that will delegate us to perform certain functions
// for them.
//
<grammar.delegators:
    {g|ctx-><g.delegateName()> = <g.delegateName()>; separator="\n">
<endif>
    <actions.parser.apifuncs>
    <actions.treeparser.apifuncs>
<if(memoize)>
<if(grammar.grammarIsRoot)>
    /* Create a LIST for recording rule memos.
    */
    RULEMEMO = antlr3IntTrieNew(15); /* 16 bit depth is enough for 32768 rules! */<\n>
<endif>
<endif>
    /* Install the token table
    */
    PSRSTATE->tokenNames = <grammar.composite.rootGrammar.recognizerName>TokenNames;

<@debugStuff()>

    /* Return the newly built parser to the caller
    */
    return ctx;
}

static void
<name>Reset (p<name> ctx)
{
    RECOGNIZER->reset(RECOGNIZER);
}

/** Free the parser resources
*/
static void
<name>Free(p<name> ctx)
{
    /* Free any scope memory
    */
    <rules: {r
|<if(r.ruleDescriptor.ruleScope)><ruleAttributeScopeFree(scope=r.ruleDescriptor.ruleScope)><\n><endif> }>
    <recognizer.scopes: {it |<if(it.isDynamicGlobalScope)><globalAttributeScopeFree(it)><\n><endif> }>

    <@cleanup>
    <@end>
<if(grammar.directDelegates)>
// Free the parsers that we delegated to

```

```

// functions to.NULL the state so we only free it once.
//
<grammar.directDelegates:
    {g| ctx-><g:delegateName()-><if(TREE_PARSER)>pTreeParser<else>pParser<endif->rec->state = NULL;
    ctx-><g:delegateName()->free(ctx-><g:delegateName()->);}; separator="\n">
<endif>
<if(memoize)>
<if(grammar.grammarIsRoot)>
if (RULEMEMO != NULL)
{
    RULEMEMO->free(RULEMEMO);
    RULEMEMO = NULL;
}
<endif>
<endif>
// Free this parser
//
<if(TREE_PARSER)>
    ctx->pTreeParser->free(ctx->pTreeParser);<\n>
<else>
    ctx->pParser->free(ctx->pParser);<\n>
<endif>

    ANTLR3_FREE(ctx);

    /* Everything is released, so we can return
    */
    return;
}

/**
Return token names used by this <grammarType()>
*
* The returned pointer is used as an index into the token names table (using the token
* number as the index).
*
* \return Pointer to first char * in the table.
*/
static pANTLR3_UINT8 *getTokenNames()
{
    return <grammar.composite.rootGrammar.recognizerName>TokenNames;
}

<members>

/* Declare the bitsets
*/
<bitsets:{it | <bitsetDeclare(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>},

```

```
words64=it.bits)>>
```

```
<if(cyclicDFAs)>
```

```
/* =====  
* DFA tables for the parser  
*/  
<cyclicDFAs:cyclicDFA() <! dump tables for all DFA !>  
/* =====  
* End of DFA tables for the parser  
*/  
<endif>
```

```
/* =====  
* Parsing rules  
*/  
<rules; separator="\n\n">  
<if(grammar.delegatedRules)>  
// Delegated methods that appear to be a part of this  
//  
parser  
//  
<grammar.delegatedRules:{ruleDescriptor|  
  <returnType()> <ruleDescriptor.name>(p<name> ctx<if(ruleDescriptor.parameterScope.attributes)>,  
<endif><ruleDescriptor.parameterScope:parameterScope()>  
  \{  
    <if(ruleDescriptor.hasReturnValue)>return <endif>ctx-><ruleDescriptor.grammar:delegateName()>-  
><ruleDescriptor.name>(ctx-  
><ruleDescriptor.grammar:delegateName()><if(ruleDescriptor.parameterScope.attributes)>,  
<endif><ruleDescriptor.parameterScope.attributes:{a|<a.name>} ; separator=" , ">;  
  \} } ; separator="\n\n">
```

```
<endif>
```

```
/* End of parsing rules
```

```
* =====  
*/
```

```
/* =====  
* Syntactic predicates  
*/  
<synpreds:{p | <synpred(predname=p)>>  
/* End of syntactic predicates  
* =====  
*/
```

>>

```
parser( grammar,
  name,
  scopes,
  tokens,
  tokenNames,
  rules,
  numRules,
  bitsets,
  ASTLabelType,
  superClass="Parser",
  labelType="pANTLR3_COMMON_TOKEN",
  members={<actions.parser.members>}
)
::= <<
<genericParser(inputStreamType="pANTLR3_COMMON_TOKEN_STREAM", rewriteElementType="TOKEN",
...)>
>>
```

```
/** How to generate a tree parser; same as parser except the input
 * stream is a different type.
 */
```

```
treeParser( grammar,
  name,
  scopes,
  tokens,
  tokenNames,
  globalAction,
  rules,
  numRules,
  bitsets,
  filterMode,
  labelType={<ASTLabelType>},
  ASTLabelType="pANTLR3_BASE_TREE",
  superClass="TreeParser",
  members={<actions.treeparser.members>}
) ::= <<
<genericParser(inputStreamType="pANTLR3_COMMON_TREE_NODE_STREAM",
rewriteElementType="NODE", ...)>
>>
```

```
/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
```



```

* As predicates cannot be inlined into the invoking rule,
they need to
* be in a rule by themselves.
*/
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
// $ANTLR start <ruleName>
static void <ruleName>_fragment(p<name> ctx <ruleDescriptor.parameterScope:parameterScope(>
{
<ruleLabelDefs(>
<ruleLabelInitializations(>
<if(trace)>
    ANTLR3_PRINTF("enter <ruleName> %d failed = %d, backtracking = %d\n",LT(1),failed,BACKTRACKING);
    <block>
    ANTLR3_PRINTF("exit <ruleName> %d, failed = %d, backtracking = %d\n",LT(1),failed,BACKTRACKING);

<else>
    <block>
<endif>
<ruleCleanUp(>
}
// $ANTLR end <ruleName>
>>

synpred(predname) ::= <<
static ANTLR3_BOOLEAN <predname>(p<name> ctx)
{
    ANTLR3_MARKER start;
    ANTLR3_BOOLEAN success;

    BACKTRACKING++;
    <@start(>
    start = MARK();
    <predname>_fragment(ctx); // can never throw exception
    success = !(FAILEDFLAG);
    REWIND(start);
    <@stop(>
    BACKTRACKING--;
    FAILEDFLAG = ANTLR3_FALSE;
    return success;
}<\n>
>>

lexerSynpred(predname)
::= <<
<synpred(predname)>
>>

```

```

ruleMemoization(rname) ::= <<
<if(memoize)>
if ( ( BACKTRACKING>0) && ( HAVEPARSEDRULE(<ruleDescriptor.index>)) )
{
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!ruleDescriptor.isSynPred)>
retval.start = 0;<\n>
<endif>
<endif>
<(ruleDescriptor.actions.after):execAfter(>
<finalCode(finalBlock=finally)>
<if(!ruleDescriptor.isSynPred)>
<scopeClean()><\n>
<endif>
return <ruleReturnValue(>;
}
<endif>
>>

```

/\*\* How to test for failure and return from rule \*/

```

checkRuleBacktrackFailure() ::= <<
if (HASEXCEPTION())
{
goto rule<ruleDescriptor.name>Ex;
}
<if(backtracking)>
if (HASFAILED())
{
<scopeClean()>
<@debugClean()>
return <ruleReturnValue(>;
}
<endif>
>>

```

/\*\* This rule has failed, exit indicating failure during backtrack \*/

```

ruleBacktrackFailure() ::= <<
<if(backtracking)>
if (BACKTRACKING>0)
{
FAILEDFLAG = <>true_value(>;
<scopeClean()>
return <ruleReturnValue(>;
}
<endif>
>>

```

/\*\* How to generate

```

code for a rule. This includes any return type
* data aggregates required for multiple return values.
*/
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
/**
* $ANTLR start <ruleName>
* <fileName>:<description>
*/
static <returnType>
<ruleName>(p<name> ctx<if(ruleDescriptor.parameterScope)>,
<endif><ruleDescriptor.parameterScope:parameterScope()>)
{
    <if(trace)>ANTLR3_PRINTF("enter <ruleName> %s failed=%d, backtracking=%d\n", LT(1),
BACKTRACKING);<endif>
    <ruleDeclarations()>
    <ruleDescriptor.actions.declarations>
    <ruleLabelDefs()>
    <ruleInitializations()>
    <ruleDescriptor.actions.init>
    <ruleMemoization(rname=ruleName)>
    <ruleLabelInitializations()>
    <@preamble()>
    {
        <block>
    }

    <ruleCleanUp()>
<if(exceptions)>
    if (HASEXCEPTION())
    {
<exceptions: {e|<catch(decl=e.decl,action=e.action)><\n>}>
    }
    else
    {
<(ruleDescriptor.actions.after):execAfter()>
    }
<else>
    <if(!emptyRule)>
        <if(actions.(actionScope).rulecatch)>
            <actions.(actionScope).rulecatch>
        <else>
            if (HASEXCEPTION())
            {
                PREPORTERROR();
                PRECOVER();
                <@setErrorReturnValue()>
            }
            <if(ruleDescriptor.actions.after)>

```

```

        else
        {
            <(ruleDescriptor.actions.after):execAfter(>
        }<\n>
        <endif>
    <endif>
<endif>
<endif>
<endif>

    <if(trace)>ANTLR3_PRINTF("exit <ruleName> %d failed=%s backtracking=%s\n", LT(1), failed,
BACKTRACKING);<endif>
    <memoize(>
<if(finally)>
    <finalCode(finalBlock=finally)>
<endif>
    <scopeClean(>
    <@postamble(>
    return <ruleReturnValue(>;
}
/* $ANTLR end <ruleName> */
>>

finalCode(finalBlock) ::= <<
{
    <finalBlock>
}

>>

catch(decl,action) ::= <<
/* catch(decl,action)
*/
{
    <e.action>
}

>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<returnType(>
    retval;<\n>
<else>
<ruleDescriptor.returnScope.attributes:{ a |
<a.type> <a.name>;
}>
<endif>
<if(memoize)>

```

```

ANTLR3_MARKER <ruleDescriptor.name>_startIndex;
<endif>
>>

ruleInitializations() ::= <<
/* Initialize rule variables
*/
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.returnScope.attributes: { a |
<if(a.initValue)>retval.<a.name> = <a.initValue>;<endif>
}>
<else>
<ruleDescriptor.returnScope.attributes: { a |
<if(a.initValue)><a.name> = <a.initValue>;<endif>
}>
<endif>
<if(memoize)>
<ruleDescriptor.name>_startIndex = INDEX();<\n>
<endif>
<ruleDescriptor.useScopes: {it |<scopeTop(it)> = <scopePush(it)>;} separator="\n">
<ruleDescriptor.ruleScope: {it |<scopeTop(it.name)> = <scopePush(it.name)>;} separator="\n">
>>

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels]
: {it |<labelType> <it.label.text>;} separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels]
: {it |pANTLR3_VECTOR list_<it.label.text>;}
separator="\n"
>
<[ruleDescriptor.ruleLabels,ruleDescriptor.ruleListLabels]
: ruleLabelDef(); separator="\n"
>
>>

ruleLabelInitializations() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels]
: {it |<it.label.text> = NULL;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels]
: {it |list_<it.label.text> = NULL;}; separator="\n"
>
<[ruleDescriptor.ruleLabels,ruleDescriptor.ruleListLabels]
: ruleLabelInitVal(); separator="\n"
>
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!ruleDescriptor.isSynPred)>

```

```
retval.start = LT(1); retval.stop = retval.start;<\n>
<endif>
<endif>
>>
```

```
lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it |<labelType> <it.label.text>;}; separator="\n"
>
<ruleDescriptor.charLabels: {it |ANTLR3_UINT32 <it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
: {it |pANTLR3_INT_TRIE list_<it.label.text>;}; separator="\n"
>
>>
```

```
lexerRuleLabelInit() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it |<it.label.text> = NULL;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
: {it |list_<it.label.text> = antlr3IntTrieNew(31);}; separator="\n"
>
>>
```

```
lexerRuleLabelFree() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it |<it.label.text> = NULL;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
: {it |list_<it.label.text>->free(list_<it.label.text>;);}; separator="\n"
>
>>
```

```
ruleReturnValue() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
```

```

<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
%>

memoize()
::= <<
<if(memoize)>
<if(backtracking)>
if ( BACKTRACKING>0 ) { MEMOIZE(<ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>

ruleCleanUp() ::= <<

// This is where rules clean up and exit
//
goto rule<ruleDescriptor.name>Ex; /* Prevent compiler warnings */
rule<ruleDescriptor.name>Ex: ;
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
<if(!ruleDescriptor.isSynPred)>
retval.stop = LT(-1);<\n>
<endif>
<endif>
<endif>
>>

scopeClean() ::= <<
<ruleDescriptor.useScopes:{ it |<scopePop(it)>}; separator="\n">
<ruleDescriptor.ruleScope:{ it |<scopePop(it.name)>}; separator="\n">

>>
/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules, which do not produce tokens.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
// Comes from: <block.description>
/** \brief Lexer rule generated by ANTLR3
 *
 * $ANTLR start <ruleName>
 *
 * Looks to match the characters the constitute the

```

```

token <ruleName>
* from the attached input stream.
*
*
* \remark
* - lexer->error == ANTLR3_TRUE if an exception was thrown.
*/

static ANTLR3_INLINE
void m<ruleName>(p<name> ctx<if(ruleDescriptor.parameterScope)>,
<endif><ruleDescriptor.parameterScope:parameterScope()>)
{
    ANTLR3_UINT32 _type;
    <ruleDeclarations()>
    <ruleDescriptor.actions.declarations>
    <lexerRuleLabelDefs()>
    <if(trace)>System.out.println("enter <ruleName> "+(char)LA(1)+"
line="+GETLINE()+": "+GETCHARPOSITIONINLINE()+" failed="+failed+"
backtracking="+BACKTRACKING);<endif>

    <if(nakedBlock)>
        <ruleMemoization(rname=ruleName)>
        <lexerRuleLabelInit()>
        <ruleDescriptor.actions.init>

        <block><\n>
    <else>
        <ruleMemoization(rname=ruleName)>
        <lexerRuleLabelInit()>
        _type = <ruleName>;

        <ruleDescriptor.actions.init>

        <block>
        LEXSTATE->type = _type;
    <endif>
    <if(trace)> ANTLR3_FPRINTF(stderr, "exit <ruleName> '%c' line=%d:%d failed = %d, backtracking
=%d\n",LA(1),GETLINE(),GETCHARPOSITIONINLINE(),failed,BACKTRACKING);<endif>
    <ruleCleanUp()>
    <lexerRuleLabelFree()>
    <(ruleDescriptor.actions.after):execAfter()>
    <memoize>
}
// $ANTLR end <ruleName>
>>

/** How to generate code for the implicitly-defined lexer grammar rule
* that chooses between lexer rules.
*/

```



```

tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
/** This is the entry point in to the lexer from an object that
 * wants to generate the next token, such as a pCOMMON_TOKEN_STREAM
 */
static void
mTokens(p<name> ctx)
{
    <block><\n>

    goto ruleTokensEx; /* Prevent compiler warnings */
ruleTokensEx: ;
}
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<

// <fileName>:<description>
{
    int alt<decisionNumber>=<maxAlt>;
    <decls>
    <@predecision()>
    <decision>
    <@postdecision()>
    <@prebranch()>
    switch (alt<decisionNumber>)
    {
    <alts:{a | <altSwitchCase(i,a)>}>
    }
    <@postbranch()>
}
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
{
    // <fileName>:<description>

    ANTLR3_UINT32 alt<decisionNumber>;

    alt<decisionNumber>=<maxAlt>;

    <decls>
    <@predecision()>
    <decision>
    <@postdecision()>
}

```

```

    switch (alt<decisionNumber>)
    {
    <alts:{ a | <altSwitchCase(i,a)> }>
    }
}
>>

```

```

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

```

```

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

```

```

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
{
    int cnt<decisionNumber>=0;
    <decls>
    <@preloop()>

    for (;;)
    {
        int alt<decisionNumber>=<maxAlt>;
    <@predecision()>
    <decision>
    <@postdecision()>
    switch (alt<decisionNumber>)
    {
        <alts:{ a | <altSwitchCase(i,a)> }>
        default:

    if ( cnt<decisionNumber> >= 1 )
    {
        goto loop<decisionNumber>;

```

```

    }
    <ruleBacktrackFailure()>
    <earlyExitEx()>
    <@earlyExitException()>
    goto rule<ruleDescriptor.name>Ex;
    }
    cnt<decisionNumber>++;
    }
    loop<decisionNumber>; /* Jump to here if this rule does not match */
    <@postloop()>
    }
>>

earlyExitEx() ::= <<
/* mismatchedSetEx()
*/
CONSTRUCTEX();
EXCEPTION->type = ANTLR3_EARLY_EXIT_EXCEPTION;
EXCEPTION->name = (void *)ANTLR3_EARLY_EXIT_NAME;
<\n>
>>
positiveClosureBlockSingleAlt ::= positiveClosureBlock

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
::= <<

// <fileName>:<description>
<decls>

<@preloop()>
for (;;)
{
    int alt<decisionNumber>=<maxAlt>;
    <@predecision()>
    <decision>
    <@postdecision()>
    switch (alt<decisionNumber>)
    {
    <alts:{ a | <altSwitchCase(i,a)> }>
    default:
        goto loop<decisionNumber>; /* break out of the loop */
        break;
    }
}
loop<decisionNumber>; /* Jump out to here if this rule does not match */
<@postloop()>
>>

```

```

closureBlockSingleAlt ::= closureBlock

/** Optional blocks (x)? are translated to (x|) by antlr before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase(altNum,alt) ::= <<
case <altNum>:
  <@prealt()>
  <alt>
  break;<\n>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<
// <fileName>:<description>
{
  <@declarations()>
  <@initializations()>
  <elements:element()>
  <rew>
  <@cleanup()>
}
>>

// E L E M E N T S
/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

/** Dump the elements one per line */
element(e) ::= <<
<@prematch()>
<e.el><\n>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(label)><label> = (<labelType>)<endif> MATCHT(<token>,

```

```

&FOLLOW_<token>_in_<ruleName><elementIndex>;
<checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

listLabel(label,elem) ::= <<
if (list_<label> == NULL)
{
list_<label>=ctx->vectors->newVector(ctx->vectors);
}
list_<label>->add(list_<label>,
<elem>, NULL);
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = LA(1);<\n>
<endif>
MATCHC(<char>);
<checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = LA(1);<\n>
<endif>
MATCHRANGE(<a>, <b>);
<checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,terminalOptions,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label>= LA(1);<\n>
<else>
<label>=(<labelType>)LT(1);<\n>
<endif>
<endif>
if ( <s> )

```

```

{
    CONSUME();
    <postmatchCode>
<if(!LEXER)>
    PERRORRECOVERY=ANTLR3_FALSE;
<endif>
    <if(backtracking)>FAILEDFLAG=ANTLR3_FALSE;<\n><endif>
}
else
{
    <ruleBacktrackFailure()>
    <mismatchedSetEx()>
    <@mismatchedSetException()>
<if(LEXER)>
    LRECOVER();
<else>
    RECOVERFROMMISMATCHEDSET(&FOLLOW_set_in_<ruleName><elementIndex>);
<endif>

    goto rule<ruleDescriptor.name>Ex;
}<\n>
>>

mismatchedSetEx() ::= <<
CONSTRUCTEX();
EXCEPTION->type      = ANTLR3_MISMATCHED_SET_EXCEPTION;
EXCEPTION->name      = (void *)ANTLR3_MISMATCHED_SET_NAME;
<if(PARSER)>
EXCEPTION->expectingSet = &FOLLOW_set_in_<ruleName><elementIndex>;
<endif>
>>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(elem=label,...)>
>>

/** Match a string literal */
lexerStringRef(string,label,elementIndex) ::= <<
<if(label)>
<label>Start = GETCHARINDEX();
MATCHS(<string>);
<checkRuleBacktrackFailure()>
<label> = LEXSTATE->tokFactory->newToken(LEXSTATE->tokFactory);
<label>->setType(<label>, ANTLR3_TOKEN_INVALID);
<label>->setStartIndex(<label>, <label>Start);

```

```

<label>->setStopIndex(<label>, GETCHARINDEX()-1);
<label>->input = INPUT->tstream->istream;
<else>
MATCHS(<string>);
<checkRuleBacktrackFailure()><\n>
<endif>
>>

```

```

wildcard(token,label,elementIndex,terminalOptions) ::= <<
<if(label)>
<label>=(<labelType>)LT(1);<\n>
<endif>
MATCHANYT();
<checkRuleBacktrackFailure()>
>>

```

```

wildcardAndListLabel(token,label,elementIndex,terminalOptions)
::= <<
<wildcard(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = LA(1);<\n>
<endif>
MATCHANY();
<checkRuleBacktrackFailure()>
>>

```

```

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
FOLLOWPUSH(FOLLOW_<rule.name>_in_<ruleName><elementIndex>);
<if(label)><label>=<endif><if(scope)>ctx-><scope:delegateName()>-><endif><rule.name>(ctx<if(scope)>->
<scope:delegateName()><endif><if(args)>,
<args; separator=", "><endif>);<\n>
FOLLOWPOP();

```

```

<checkRuleBacktrackFailure()>
>>

/** ids+=r */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(elem=label,...)>
>>

/** A lexer rule reference
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
/* <description> */
<if(label)>
{
    ANTLR3_MARKER <label>Start<elementIndex> = GETCHARINDEX();
    <if(scope)>ctx-><scope.delegateName()-><endif>m<rule.name>(ctx<if(scope)>-
><scope.delegateName()-><endif> <if(args)>, <endif><args; separator=", ">;
    <checkRuleBacktrackFailure()>
    <label> = LEXSTATE->tokFactory->newToken(LEXSTATE->tokFactory);
    <label>->setType(<label>, ANTLR3_TOKEN_INVALID);
    <label>->setStartIndex(<label>, <label>Start<elementIndex>);
    <label>->setStopIndex(<label>, GETCHARINDEX()-1);

    <label>->input = INPUT;
}
<else>
<if(scope)>ctx-><scope.delegateName()-><endif>m<rule.name>(ctx<if(scope)>-
><scope.delegateName()-><endif> <if(args)>, <endif><args; separator=", ">;
<checkRuleBacktrackFailure()>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabel(elem=label,...)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
{
    ANTLR3_UINT32 <label>Start<elementIndex>;
    <labelType> <label>;
}

```



```

<label>Start<elementIndex> = GETCHARINDEX();
MATCHC(ANTLR3_CHARSTREAM_EOF);
<checkRuleBacktrackFailure()>
<label> = LEXSTATE->tokFactory->newToken(LEXSTATE->tokFactory);
<label>->setType(<label>, ANTLR3_TOKEN_EOF);
<label>->setStartIndex(<label>, <label>Start<elementIndex>);
<label>->setStopIndex(<label>, GETCHARINDEX()-1);
<label>->input = INPUT->tstream->istream;
}
<else>
MATCHC(ANTLR3_CHARSTREAM_EOF);
<checkRuleBacktrackFailure()>
<endif>
>>

// used for left-recursive rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()             ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> |<= <opPrec>"
recRuleSetResultAction() ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name)    ::= "$<name>=$<src>.<name>;"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList, enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( LA(1)==ANTLR3_TOKEN_DOWN ) {
MATCHT(ANTLR3_TOKEN_DOWN, NULL);
<checkRuleBacktrackFailure()>
<children:element()>
MATCHT(ANTLR3_TOKEN_UP, NULL);
<checkRuleBacktrackFailure()>
}
<else>
MATCHT(ANTLR3_TOKEN_DOWN, NULL);
<checkRuleBacktrackFailure()>
<children:element()>
MATCHT(ANTLR3_TOKEN_UP, NULL);
<checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate
(even when it is
* also hoisted into a prediction expression).
*/
validateSemanticPredicate(pred,description) ::= <<

```

```

if ( !(<evalPredicate(...)> )
{
    <ruleBacktrackFailure()>
    <newFPE(...)>
}
>>

newFPE() ::= <<
    CONSTRUCTEX();
    EXCEPTION->type      = ANTLR3_FAILED_PREDICATE_EXCEPTION;
    EXCEPTION->message   = (void *)"<description>";
    EXCEPTION->ruleName = (void *)"<ruleName>";
    <\n>
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<

{
    int LA<decisionNumber>_<stateNumber> = LA(<k>);
    <edges; separator="\nelse ">
    else
    {
<if(eotPredictsAlt)>
        alt<decisionNumber>=<eotPredictsAlt>;
<else>
        <ruleBacktrackFailure()>

        <newNVException()>
        goto rule<ruleDescriptor.name>Ex;

<endif>
    }
}
>>

newNVException() ::= <<
    CONSTRUCTEX();
    EXCEPTION->type      = ANTLR3_NO_VIABLE_ALT_EXCEPTION;
    EXCEPTION->message   = (void *)"<description>";
    EXCEPTION->decisionNum
        = <decisionNumber>;
    EXCEPTION->state     = <stateNumber>;
    <@noViableAltException()>
    <\n>
>>

```

```

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
{
  int LA<decisionNumber>_<stateNumber> = LA(<k>);
  <edges; separator="\nelse ">
}
>>

```

```

/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */

```

```

dfaLoopbackStateDecls() ::= <<
ANTLR3_UINT32 LA<decisionNumber>_<stateNumber>;
>>
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState)
::= <<
{
  /* dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState)
  */
  int LA<decisionNumber>_<stateNumber> = LA(<k>);
  <edges; separator="\nelse "><\n>
  <if(eotPredictsAlt)>
  <if(!edges)>
  alt<decisionNumber>=<eotPredictsAlt>; <! if no edges, don't gen ELSE !>
  <else>
  else
  {
  alt<decisionNumber>=<eotPredictsAlt>;
  }<\n>
  <endif>
  <endif>
}
>>

```

```

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber>=<alt>,"

```

```

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.

```

```

*/
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ( <if(predicates)><predicates> && <endif><labelExpr>))
{
    <targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated.
    The code generator
    * decides if this is possible: CodeGenerator.canGenerateSwitch().
    */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( LA(<k>))
{
    <edges; separator="\n">

default:
<if(eotPredictsAlt)>
    alt<decisionNumber>=<eotPredictsAlt>;
<else>
    <ruleBacktrackFailure()>
    <newNVException()>
    goto rule<ruleDescriptor.name>Ex;<\n>
<endif>
}<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( LA(<k>))
{
    <edges; separator="\n">
}<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( LA(<k>))
{
    <edges; separator="\n"><\n>
    <if(eotPredictsAlt)>
default:
    alt<decisionNumber>=<eotPredictsAlt>;
    break;<\n>
<endif>
}<\n>
>>

```

```

dfaEdgeSwitch(labels, targetState) ::= <<
<labels:{it |case <it>:}; separator="\n">
{
  <targetState>
}
  break;
>>

// C y c l i c D F A

/** The code to initiate execution of
a cyclic DFA; this is used
* in the rule to predict an alt just like the fixed DFA case.
* The <name> attribute is inherited via the parser, lexer, ...
*/
dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = cdfa<decisionNumber>.predict(ctx, RECOGNIZER, ISTREAM,
&cdfa<decisionNumber>);
<checkRuleBacktrackFailure()>
>>

/* Dump DFA tables as static initialized arrays of shorts(16 bits)/characters(8 bits)
* which are then used to statically initialize the dfa structure, which means that there
* is no runtime initialization whatsoever, other than anything the C compiler might
* need to generate. In general the C compiler will lay out memory such that there is no
* runtime code required.
*/
cyclicDFA(dfa) ::= <<
/** Static dfa state tables for Cyclic dfa:
* <dfa.description>
*/
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_eot[<dfa.numberOfStates>] =
{
  <dfa.eot; wrap="\n", separator=", ", null="-1">
};
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_eof[<dfa.numberOfStates>]
=
{
  <dfa.eof; wrap="\n", separator=", ", null="-1">
};
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_min[<dfa.numberOfStates>] =
{
  <dfa.min; wrap="\n", separator=", ", null="-1">
};
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_max[<dfa.numberOfStates>] =
{
  <dfa.max; wrap="\n", separator=", ", null="-1">

```

```

};
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_accept[<dfa.numberofStates>] =
{
<dfa.accept; wrap="\n", separator=", ", null="-1">
};
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_special[<dfa.numberofStates>] =
{
<dfa.special; wrap="\n", separator=", ", null="-1">
};

/** Used when there is no transition table entry for a particular state */
#define dfa<dfa.decisionNumber>_T_empty NULL

<dfa.edgeTransitionClassMap.keys:{ table |
static const ANTLR3_INT32 dfa<dfa.decisionNumber>_T<i0>[] =
{
<table; separator=", ", wrap="\n", null="-1">
\};}; null = "">

/* Transition tables are
a table of sub tables, with some tables
* reused for efficiency.
*/
static const ANTLR3_INT32 * const dfa<dfa.decisionNumber>_transitions[] =
{
<dfa.transitionEdgeTables:{ xref[dfa<dfa.decisionNumber>_T<xref>]; separator=", ", wrap="\n", null="_empty">
};

<if(dfa.specialStateSTs)>
static ANTLR3_INT32 dfa<dfa.decisionNumber>_sst(p<name> ctx, pANTLR3_BASE_RECOGNIZER recognizer,
pANTLR3_INT_STREAM is, pANTLR3_CYCLIC_DFA dfa, ANTLR3_INT32 s)
{
ANTLR3_INT32 _s;

_s = s;
switch (s)
{
<dfa.specialStateSTs:{ state |
case <i0>:

<state>}; separator="\n">
}
<if(backtracking)>
if (BACKTRACKING > 0)
{
FAILEDFLAG = ANTLR3_TRUE;
return -1;
}

```

```

<endif>

CONSTRUCTEX();
EXCEPTION->type      = ANTLR3_NO_VIABLE_ALT_EXCEPTION;
EXCEPTION->message    = (void *)"<dfa.description>";
EXCEPTION->decisionNum = <dfa.decisionNumber>;
EXCEPTION->state      = _s;
<@noViableAltException()>
return -1;
}
<endif>

<@errorMethod()>

/*
Declare tracking structure for Cyclic DFA <dfa.decisionNumber>
*/
static
ANTLR3_CYCLIC_DFA cdfa<dfa.decisionNumber>
= {
    <dfa.decisionNumber>, /* Decision number of this dfa */
    /* Which decision this represents: */
    (const pANTLR3_UCHAR)"<dfa.description>",
<if(dfa.specialStateSTs)>
    (CDFA_SPECIAL_FUNC) dfa<dfa.decisionNumber>_sst,
<else>
    (CDFA_SPECIAL_FUNC) antlr3dfaspecialStateTransition, /* Default special state transition function */
<endif>

    antlr3dfaspecialTransition, /* DFA specialTransition is currently just a default function in the runtime */
    antlr3dfapredict, /* DFA simulator function is in the runtime */
    dfa<dfa.decisionNumber>_eot, /* EOT table */
    dfa<dfa.decisionNumber>_eof, /* EOF table */
    dfa<dfa.decisionNumber>_min, /* Minimum tokens for each state */
    dfa<dfa.decisionNumber>_max, /* Maximum tokens for each state */
    dfa<dfa.decisionNumber>_accept, /* Accept
table */
    dfa<dfa.decisionNumber>_special, /* Special transition states */
    dfa<dfa.decisionNumber>_transitions /* Table of transition tables */

};
/* End of Cyclic DFA <dfa.decisionNumber>
* -----
*/
>>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
* state.

```

```

*/
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
{
  ANTLR3_UINT32 LA<decisionNumber>_<stateNumber>;<\n>
  ANTLR3_MARKER index<decisionNumber>_<stateNumber>;<\n>

  LA<decisionNumber>_<stateNumber> = LA(1);<\n>
  <if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
  index<decisionNumber>_<stateNumber> = INDEX();<\n>
  REWINDLAST();<\n>
  <endif>
  s = -1;
  <edges; separator="\nelse ">
  <if(semPredState)> <! return input cursor to state before we rewound !>
  SEEK(index<decisionNumber>_<stateNumber>);<\n>
  <endif>
  if ( s>=0 )
  {
  return s;
  }
}
break;
>>

```

/\*\* Just like

a fixed DFA edge, test the lookahead and indicate what

\* state to jump to next if successful.

\*/

```

cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ( <if(predicates)><predicates> ) && <endif><(<labelExpr> )
{
  s = <targetStateNumber>;
}<\n>
>>

```

/\*\* An edge pointing at end-of-token; essentially matches any char;

\* always jump to the target.

\*/

```

eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n>
>>

```

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "( (<left> ) && (<right> ) )"

orPredicates(operands) ::= "(<operands:{o|(<o>)}; separator=\"||\">)"



```

notPredicate(pred) ::= "!( <evalPredicate(pred,{ })> )"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "<pred>(ctx)"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber> == <atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead
 * directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "LA(<k>) == <atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
((LA<decisionNumber>_<stateNumber> >= <lower>) && (LA<decisionNumber>_<stateNumber> \<= <upper>))
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "((LA(<k>) >= <lower>) &&
(LA(<k>) \<= <upper>))"

setTest(ranges) ::= "<ranges; separator=\" || \">"

// A T T R I B U T E S

makeScopeSet() ::= <<
/* makeScopeSet()
 */
/** Definition of the <scope.name> scope variable tracking
 * structure. An instance of this structure is created by calling
 * <name>_<scope.name>Push().
 */
typedef struct <scopeStruct(sname=scope.name,...)>_struct
{
    /** Function that the user may provide to be called when the
     * scope is destroyed (so you can free pANTLR3_HASH_TABLES and so on)
     *
     * \param POinter to an instance of this typedef/struct
     */
    void (ANTLR3_CDECL *free) (struct <scopeStruct(sname=scope.name,...)>_struct
    * frame);

    /** =====
     * Programmer defined variables...
     */
    <scope.attributes:{it |<it.decl>;}; separator="\n">

```

```

/* End of programmer defined variables
 * =====
 */
}
<scopeStruct(sname=scope.name,...)>, * <scopeType(sname=scope.name,...)>;

>>

globalAttributeScopeDecl(scope) ::= <<
<if(scope.attributes)>
/* globalAttributeScopeDecl(scope)
*/
<makeScopeSet(...)>
<endif>
>>

ruleAttributeScopeDecl(scope) ::= <<
<if(scope.attributes)>
/* ruleAttributeScopeDecl(scope)
*/
<makeScopeSet(...)>
<endif>
>>

globalAttributeScopeFuncDecl(scope) ::=
<<
/* globalAttributeScopeFuncDecl(scope)
*/
<if(scope.attributes)>
/* -----
 * Function declaration for creating a <name>_<scope.name> scope set
 */
static <scopeType(sname=scope.name,...)>
    <scopePushName(sname=scope.name,...)>(p<name> ctx);
static void ANTLR3_CDECL <scope.name>Free(<scopeType(sname=scope.name)> scope);
/* ----- */

<endif>
>>

globalAttributeScopeFuncMacro(scope) ::= <<
<if(scope.attributes)>
/* globalAttributeScopeFuncMacro(scope)
*/
/** Function for popping the top value from a <scopeStack(sname=scope.name)>
*/
void
<scopePopName(sname=scope.name,...)>(p<name> ctx)

```

```

{
    // First see if the user defined a function they want to be called when a
    // scope is popped/freed.
    //
    // If the user supplied the scope entries with a free function, then call it first
    //
    if (SCOPE_TOP(<scope.name>)->free != NULL)
    {
        SCOPE_TOP(<scope.name>)->free(SCOPE_TOP(<scope.name>));
    }

    // Now we decrement the scope's upper limit bound. We do not actually pop the scope as
    // we want to reuse scope entries if we do continuous push and pops. Most scopes don't
    // next too far so we don't want to keep freeing and allocating them
    //
    ctx-><scopeStack(sname=scope.name,...)>_limit--;
    SCOPE_TOP(<scope.name>) = (<scopeType(sname=scope.name)>)(ctx-><scopeStack(sname=scope.name,...)>-
    >get(ctx-><scopeStack(sname=scope.name,...)>, ctx-><scopeStack(sname=scope.name,...)>_limit - 1));
}
<endif>
>>

ruleAttributeScopeFuncDecl(scope) ::= <<
<if(scope.attributes)>
/* ruleAttributeScopeFuncDecl(scope)
*/
/* -----
* Function declarations for creating a <name>_<scope.name> scope set
*/
static <scopeType(sname=scope.name,...)> <scopePushName(sname=scope.name,...)>(p<name> ctx);
static void ANTLR3_CDECL <scope.name>Free(<scopeType(sname=scope.name)> scope);
/* ----- */

<endif>
>>

ruleAttributeScopeFuncMacro(scope) ::= <<
<if(scope.attributes)>
/* ruleAttributeScopeFuncMacro(scope)
*/
/** Function
for popping the top value from a <scopeStack(sname=scope.name,...)>
*/
void
<scopePopName(sname=scope.name,...)>(p<name> ctx)
{
    // First see if the user defined a function they want to be called when a
    // scope is popped/freed.

```

```

//
// If the user supplied the scope entries with a free function, then call it first
//
if (SCOPE_TOP(<scope.name>)->free != NULL)
{
    SCOPE_TOP(<scope.name>)->free(SCOPE_TOP(<scope.name>));
}

// Now we decrement the scope's upper limit bound. We do not actually pop the scope as
// we want to reuse scope entries if we do continuous push and pops. Most scopes don't
// next too far so we don't want to keep freeing and allocating them
//
ctx-><scopeStack(sname=scope.name,...)>_limit--;
SCOPE_TOP(<scope.name>) = (<scopeType(sname=scope.name)>)(ctx-><scopeStack(sname=scope.name,...)>-
>get(ctx-><scopeStack(sname=scope.name,...)>, ctx-><scopeStack(sname=scope.name,...)>_limit - 1));
}

<endif>
>>

globalAttributeScopeDef(scope)
::=
<<
/* globalAttributeScopeDef(scope)
*/
<if(scope.attributes)>
/** Pointer to the <scope.name> stack for use by <scopePushName(sname=scope.name)>()
* and <scopePopName(sname=scope.name,...)>()
*/
pANTLR3_STACK <scopeStack(sname=scope.name)>;
ANTLR3_UINT32 <scopeStack(sname=scope.name)>_limit;
/** Pointer to the top of the stack for the global scope <scopeStack(sname=scope.name)>
*/
<scopeType(sname=scope.name,...)> (*<scopePushName(sname=scope.name,...)>)(struct <name>_Ctx_struct *
ctx);
<scopeType(sname=scope.name,...)> <scopeTopDecl(sname=scope.name,...)>;

<endif>
>>

ruleAttributeScopeDef(scope) ::= <<
<if(scope.attributes)>
/* ruleAttributeScopeDef(scope)
*/
/** Pointer to the <scope.name> stack for use by <scopePushName(sname=scope.name)>()
* and <scopePopName(sname=scope.name,...)>()
*/
pANTLR3_STACK <scopeStack(sname=scope.name,...)>;

```

```

ANTLR3_UINT32 <scopeStack(sname=scope.name,...)>_limit;
<scopeType(sname=scope.name,...)> (*<scopePushName(sname=scope.name,...)>)(struct
<name>_Ctx_struct * ctx);
<scopeType(sname=scope.name,...)> <scopeTopDecl(sname=scope.name,...)>;

<endif>
>>

globalAttributeScopeFuncs(scope) ::= <<
<if(scope.attributes)>
/* globalAttributeScopeFuncs(scope)
*/
<attributeFuncs(scope)>
<endif>
>>

ruleAttributeScopeFuncs(scope) ::= <<
<if(scope.attributes)>
/* ruleAttributeScopeFuncs(scope)
*/
<attributeFuncs(scope)>
<endif>
>>

globalAttributeScope(scope) ::= <<
<if(scope.attributes)>
/* globalAttributeScope(scope)
*/
ctx-><scopePushName(sname=scope.name,...)> = <scopePushName(sname=scope.name,...)>;
ctx-><scopeStack(sname=scope.name,...)> = antlr3StackNew(0);
ctx-><scopeStack(sname=scope.name,...)>_limit = 0;
<scopeTop(sname=scope.name,...)> = NULL;
<endif>
>>

ruleAttributeScope(scope) ::=
<<
<if(scope.attributes)>
/* ruleAttributeScope(scope)
*/
ctx-><scopePushName(sname=scope.name,...)> = <scopePushName(sname=scope.name,...)>;
ctx-><scopeStack(sname=scope.name,...)> = antlr3StackNew(0);
ctx-><scopeStack(sname=scope.name,...)>_limit
= 0;
<scopeTop(sname=scope.name,...)> = NULL;
<endif>
>>
globalAttributeScopeFree(scope) ::= <<

```

```
<if(scope.attributes)>
/* globalAttributeScope(scope)
*/
ctx-><scopeStack(sname=scope.name,...)>->free(ctx-><scopeStack(sname=scope.name,...)>);
<endif>
>>
```

```
ruleAttributeScopeFree(scope) ::=
<<
<if(scope.attributes)>
/* ruleAttributeScope(scope)
*/
ctx-><scopeStack(sname=scope.name,...)>->free(ctx-><scopeStack(sname=scope.name,...)>);
<endif>
>>
```

```
scopeTopDecl(sname) ::= <<
p<name>_<sname>Top
>>
```

```
scopeTop(sname) ::= <<
ctx-><scopeTopDecl(sname=sname,...)>
>>
```

```
scopePop(sname) ::= <<
<scopePopName(sname=sname,...)>(ctx);
>>
```

```
scopePush(sname) ::= <<
p<name>_<sname>Push(ctx)
>>
```

```
scopePopName(sname) ::= <<
p<name>_<sname>Pop
>>
```

```
scopePushName(sname) ::= <<
p<name>_<sname>Push
>>
```

```
scopeType(sname) ::= <<
p<name>_<sname>_SCOPE
>>
```

```
scopeStruct(sname) ::= <<
<name>_<sname>_SCOPE
>>
```

```

scopeStack(sname) ::= <<
p<name>_<sname>Stack
>>

attributeFuncs(scope)
::= <<
<if(scope.attributes)>
/* attributeFuncs(scope)
*/

static void ANTLR3_CDECL <scope.name>Free(<scopeType(sname=scope.name)> scope)
{
    ANTLR3_FREE(scope);
}

/** \brief Allocate initial memory for a <name> <scope.name> scope variable stack entry and
*     add it to the top of the stack.
*
* \remark
* By default the structure is freed with ANTLR_FREE(), but you can use the
* the \@init action to install a pointer to a custom free() routine by
* adding the code:
* \code
* <scopeTop(sname=scope.name)>->free = myroutine;
* \endcode
*
* With lots of comments of course! The routine should be declared in
* \@members { } as:
* \code
* void ANTLR3_CDECL myfunc( <scopeType(sname=scope.name)> ptr).
* \endcode
*
* It should perform any custom freeing stuff that you need (call ANTLR_FREE3, not free())
* NB: It should not free the pointer it is given, which is the scope stack entry itself
* and will be freed by the function that calls your custom
    free routine.
*
*/

static <scopeType(sname=scope.name)>
<scopePushName(sname=scope.name)>(p<name> ctx)
{
    /* Pointer used to create a new set of attributes
    */
    <scopeType(sname=scope.name)>    newAttributes;

    /* Allocate the memory for a new structure if we need one.
    */
    if (ctx-><scopeStack(sname=scope.name)>->size(ctx-><scopeStack(sname=scope.name)>) > ctx-

```

```

<<scopeStack(sname=scope.name)>>_limit)
{
    // The current limit value was less than the number of scopes available on the stack so
    // we can just reuse one. Our limit tracks the stack count, so the index of the entry we want
    // is one less than that, or conveniently, the current value of limit.
    //
    newAttributes = (<scopeType(sname=scope.name)>)ctx-><scopeStack(sname=scope.name)>->get(ctx->
<<scopeStack(sname=scope.name)>>, ctx-><scopeStack(sname=scope.name)>>_limit);
}
else
{
    // Need a new allocation
    //
    newAttributes = (<scopeType(sname=scope.name)>)
ANTLR3_MALLOC(sizeof(<scopeStruct(sname=scope.name)>));
    if (newAttributes != NULL)
    {
        /* Standard ANTLR3 library implementation
        */
        ctx-><scopeStack(sname=scope.name)>->push(ctx-><scopeStack(sname=scope.name)>>, newAttributes,
(void (*)(void *))<scope.name>Free);
    }
}

// Blank out any previous free pointer, the user might or might install a new one.
//
newAttributes->free = NULL;

// Indicate the position in the available stack that the current level is at
//
ctx-><scopeStack(sname=scope.name)>>_limit++;

/* Return value is the pointer to the new entry, which may be used locally
* without de-referencing via the context.
*/
return newAttributes;
}<\n>

<endif>
>>
returnStructName(r) ::= "<r.name>_return"

returnType() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.grammar.recognizerName>_<ruleDescriptor:returnStructName()>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>

```



```

<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
<endif>
<else>
ANTLR3_BOOLEAN
<endif>
%>

/**
Generate the C type associated with a single or multiple return
* value(s).
*/
ruleLabelType(referencedRule) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
<referencedRule.grammar.recognizerName>_<referencedRule.name>_return
<else>
<if(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
<endif>
%>

delegateName(d) ::= <<
<if(d.label)><d.label><else>g<it.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
* must be an object, default value is "0".
*/
initValue(typeName) ::= <<
= <cTypeInitMap.(typeName)>
>>

/** Define a rule label */
ruleLabelDef(label) ::= <<
<ruleLabelType(referencedRule=label.referencedRule)> <label.label.text>;
#undef RETURN_TYPE_<label.label.text>
#define RETURN_TYPE_<label.label.text> <ruleLabelType(referencedRule=label.referencedRule)><\n>
>>
/**
Rule label default value */
ruleLabelInitVal(label) ::= <<
>>

```

```

ASTLabelType() ::=
"<if(recognizer.ASTLabelType)><recognizer.ASTLabelType><else>pANTLR3_BASE_TREE<endif>"

/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasMultipleReturnValues)>
typedef struct <ruleDescriptor.grammar.recognizerName>_<ruleDescriptor:returnStructName()>_struct
{
<if(!TREE_PARSER)>
/** Generic return elements for ANTLR3 rules that are not in tree parsers or returning trees
 */
pANTLR3_COMMON_TOKEN start;
pANTLR3_COMMON_TOKEN stop;
<else>
<recognizer.ASTLabelType> start;
<recognizer.ASTLabelType> stop;
<endif>
<@ruleReturnMembers()>
<ruleDescriptor.returnScope.attributes:{it |<it.type> <it.name>;}; separator="\n">
}
<ruleDescriptor.grammar.recognizerName>_<ruleDescriptor:returnStructName()>;<\n><\n>
<endif>
<endif>
>>

parameterScope(scope) ::= <<
<scope.attributes:{it |<it.decl>}; separator=", ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name>=<expr>";

/** Note that the scopeAttributeRef does not have access to the
 * grammar name directly
 */
scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
((SCOPE_TYPE(<scope>))(ctx->SCOPE_STACK(<scope>)->get( ctx->SCOPE_STACK(<scope>), ctx-
>SCOPE_STACK(<scope>)->size(ctx->SCOPE_STACK(<scope>)) - <negIndex> - 1 ))-><attr.name>
<else>
<if(index)>
((SCOPE_TYPE(<scope>))(ctx->SCOPE_STACK(<scope>)->get(ctx->SCOPE_STACK(<scope>),
(ANTLR3_UINT32)<index> ) ))-><attr.name>
<else>

```

```

(SCOPE_TOP(<scope>))-><attr.name>
<endif>
<endif>
%>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
<if(negIndex)>
((SCOPE_TYPE(<scope>))(ctx->SCOPE_STACK(<scope>))->get( ctx->SCOPE_STACK(<scope>),
ctx->SCOPE_STACK(<scope>)->size(ctx->SCOPE_STACK(<scope>)) - <negIndex> - 1 ))-><attr.name> =
<expr>;
<else>
<if(index)>
((SCOPE_TYPE(<scope>))(ctx->SCOPE_STACK(<scope>))->get(ctx->SCOPE_STACK(<scope>),
(ANTLR3_UINT32)<index> ) )-><attr.name> = <expr>;
<else>
(SCOPE_TOP(<scope>))-><attr.name>=<expr>;
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.size()>0 && $function::name.equals("foo")}?
 */
isolatedDynamicScopeRef(scope) ::= "ctx->SCOPE_STACK(<scope>)"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
<scope>.<attr.name>
<else>
<scope>
<endif>
>>

returnAttributeRef(ruleDescriptor,attr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
<attr.name>
<endif>
>>

returnSetAttributeRef(ruleDescriptor,attr,expr)
::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>=<expr>;
<else>

```

```

<attr.name>=<expr>;
<endif>
>>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach
//
tokenLabelPropertyRef_text(scope,attr) ::= "(<scope>->getText(<scope>))"
tokenLabelPropertyRef_type(scope,attr) ::= "(<scope>->getType(<scope>))"
tokenLabelPropertyRef_line(scope,attr) ::= "(<scope>->getLine(<scope>))"
tokenLabelPropertyRef_pos(scope,attr) ::= "(<scope>->getCharPositionInLine(<scope>))"
tokenLabelPropertyRef_channel(scope,attr) ::= "(<scope>->getChannel(<scope>))"
tokenLabelPropertyRef_index(scope,attr) ::= "(<scope>->getTokenIndex(<scope>))"
tokenLabelPropertyRef_tree(scope,attr) ::= "(<scope>->tree)"
tokenLabelPropertyRef_int(scope,attr) ::= "(<scope>->getText(<scope>->toInt32(<scope>->getText(<scope>)))"

ruleLabelPropertyRef_start(scope,attr) ::= "(<scope>.start)"
ruleLabelPropertyRef_stop(scope,attr)
::= "(<scope>.stop)"
ruleLabelPropertyRef_tree(scope,attr) ::= "(<scope>.tree)"
ruleLabelPropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
(STRSTREAM->toStringSS(STRSTREAM, <scope>.start, <scope>.start))
<else>
(STRSTREAM->toStringTT(STRSTREAM, <scope>.start, <scope>.stop))
<endif>
>>

ruleLabelPropertyRef_st(scope,attr) ::= "<scope>.st"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "(<scope>->getType(<scope>))"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "(<scope>->getLine(<scope>))"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "(<scope>->getCharPositionInLine(<scope>))"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "(<scope>->getChannel(<scope>))"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "(<scope>->getTokenIndex(<scope>))"
lexerRuleLabelPropertyRef_text(scope,attr) ::= "(<scope>->getText(<scope>))"

// Somebody may ref $template

```

```

or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "retval.start"
rulePropertyRef_stop(scope,attr) ::= "retval.stop"
rulePropertyRef_tree(scope,attr) ::= "retval.tree"
rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
INPUT->toStringSS(INPUT, ADAPTOR->getTokenStartIndex(ADAPTOR, retval.start), ADAPTOR-
>getTokenStopIndex(ADAPTOR, retval.start))
<else>
STRSTREAM->toStringTT(STRSTREAM, retval.start, LT(-1))
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "LEXER->getText(LEXER)"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "LEXSTATE->tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "LEXSTATE->tokenStartCharPositionInLine"
lexerRulePropertyRef_channel(scope,attr) ::= "LEXSTATE->channel"
lexerRulePropertyRef_start(scope,attr) ::= "LEXSTATE->tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(LEXER->getCharIndex(LEXER)-1)"
lexerRulePropertyRef_index(scope,attr)
::= "-1" // undefined token index in lexer
lexerRulePropertyRef_int(scope,attr) ::= "LEXER->getText(LEXER)->toInt32(LEXER->getText(LEXER))"

// setting $st and $tree is allowed in local rule. everything else is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree=<expr>;"
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st=<expr>;"

/** How to deal with an @after for C targets. Because we cannot rely on
* any garbage collection, after code is executed even in backtracking
* mode. Must be documented clearly.
*/
execAfter(action) ::= <<
{
  <action>
}
>>

/** How to execute an action (when not backtracking) */
execAction(action) ::= <<
<if(backtracking)>
<if(actions.(actionScope).synpredgate)>
if ( <actions.(actionScope).synpredgate> )
{
  <action>
}
}

```

```

}
<else>
if ( BACKTRACKING == 0 )
{
    <action>
}
<endif>
<else>
{
    <action>
}
<endif>
>>

// M I S C (properties, etc...)

bitsetDeclare(name, words64) ::= <<

/** Bitset defining follow
    set for error recovery in rule state: <name> */
static ANTLR3_BITWORD <name>_bits[] = { <words64:{it |ANTLR3_UINT64_LIT(<it>)}; separator=", "> };
static ANTLR3_BITSET_LIST <name> = { <name>_bits, <length(words64)> };
>>

bitset(name, words64) ::= <<
antlr3BitsetSetAPI(&<name>);<\n>
>>

codeFileExtension() ::= ".c"

true_value() ::= "ANTLR3_TRUE"
false_value() ::= "ANTLR3_FALSE"

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/C/C.stg
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- \*/

```
dfa(decisionRanks,states,edges,rankdir,startState,useBox) ::= <<
digraph NFA {
<if(rankdir)>rankdir=<rankdir>;<endif>
<decisionRanks; separator="\n">
<states; separator="\n">
<edges; separator="\n">
}
>>
```

```
nfa(decisionRanks,states,edges,rankdir,startState) ::= <<
digraph NFA {
rankdir=LR;
<decisionRanks; separator="\n">
<states;
separator="\n">
<edges; separator="\n">
}
>>
```

```
decision-rank(states) ::= <<
{rank=same; rankdir=TB; <states; separator=" "; >}
>>
```

```
edge(src,target,label,arrowhead) ::= <<
<src> -> <target> [fontsize=11, fontname="Courier", arrowsize=.7, label = "<label>"<if(arrowhead)>, arrowhead =
<arrowhead><endif>];
```

>>

```
action-edge(src,target,label,arrowhead) ::= <<  
<src> -> <target> [fontsize=11, fontname="Courier", arrowsize=.7, label = "<label>"<if(arrowhead)>, arrowhead =  
<arrowhead><endif>];  
>>
```

```
epsilon-edge(src,target,label,arrowhead) ::= <<  
<src> -> <target> [fontname="Times-Italic", label = "e"];  
>>
```

```
state(name,useBox) ::= <<  
node [fontsize=11, shape = <if(useBox)>box<else>circle, fixedsize=true, width=.4<endif>]; <name>  
>>
```

```
stopstate(name,useBox) ::= <<  
node [fontsize=11, shape = <if(useBox)>polygon,sides=4,peripheries=2<else>doublecircle, fixedsize=true,  
width=.6<endif>]; <name>  
>>
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/tool/templates/dot/dot.stg

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\*/

```
@outputFile.imports() ::= <<
<@super.imports()>
<if(!TREE_PARSER)><<! tree parser would already have imported !>
import org.antlr.runtime.tree.*;<\n>
<endif>
>>
```

```
@genericParser.members() ::= <<
<@super.members()>
<parserMembers()>
>>
```

```
/** Add an adaptor property that knows how to build trees */
parserMembers() ::= <<
protected TreeAdaptor adaptor = new CommonTreeAdaptor();
```

```
public void setTreeAdaptor(TreeAdaptor adaptor) {
    this.adaptor = adaptor;
    <grammar.directDelegates: {g|<g:delegateName()>.setTreeAdaptor(this.adaptor);}>
}
public
TreeAdaptor getTreeAdaptor() {
    return adaptor;
}
>>
```

```
@returnScope.ruleReturnMembers() ::= <<
<ASTLabelType> tree;
@Override
public <ASTLabelType> getTree() { return tree; }
>>
```

```
/** Add a variable to track rule's return AST */
ruleDeclarations() ::= <<
<super.ruleDeclarations()>
<ASTLabelType> root_0 = null;<\n>
>>
```

```
ruleLabelDefs() ::= <<
<super.ruleLabelDefs()>
<if(!ruleDescriptor.isSynPred)>
<[ruleDescriptor.tokenLabels,ruleDescriptor.wildcardTreeLabels,
ruleDescriptor.wildcardTreeListLabels]:{it | <ASTLabelType> <it.label.text>_tree=null;}; separator="\n">
```

```

<ruleDescriptor.tokenListLabels:{it | <ASTLabelType> <it.label.text>_tree=null;}; separator="\n">
<if(ruleDescriptor.supportsLabelOptimization)>
<ruleDescriptor.allTokenRefsInRewrites
: {it | RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>");}; separator="\n">
<ruleDescriptor.allRuleRefsInRewrites
: {it | RewriteRuleSubtreeStream
stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule <it>");}; separator="\n">
<else>
<ruleDescriptor.allTokenRefsInAltsWithRewrites
: {it | RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it>");}; separator="\n">
<ruleDescriptor.allRuleRefsInAltsWithRewrites
: {it | RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule <it>");};
separator="\n">
<endif>
<endif>
>>

```

```

/** When doing auto AST construction, we must define some variables;
 * These should be turned off if doing rewrites. This must be a "mode"
 * as a rule could have both rewrite and AST within the same alternative
 * block.
 */

```

```

@alt.declarations() ::= <<
<if(autoAST)>
<if(outerAlt)>
<if(!rewriteMode && !ruleDescriptor.isSynPred)>
root_0 = (<ASTLabelType>)adaptor.nil();<\n>
<endif>
<endif>
<endif>
>>

```

```

// Tracking Rule Elements

```

```

/** ID and track it for use in a rewrite rule */
tokenRefTrack(token,label,elementIndex,terminalOptions={})
::= <<
<tokenRefBang(...)> <! Track implies no auto AST construction!>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<token>.add(<label>);<\n>
>>

```

```

/** ids+=ID and track it for use in a rewrite rule; adds to ids *and*
 * to the tracking list stream_ID for use in the rewrite.
 */
tokenRefTrackAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRefTrack(...)>

```

```

<listLabel(elem=label, ...)>
>>

/** ^(ID ...) track for rewrite */
tokenRefRuleRootTrack(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRefBang(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<token>.add(<label>);<\n>
>>

/** Match ^(label+=TOKEN ...) track for rewrite */
tokenRefRuleRootTrackAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRefRuleRootTrack(...)>
<listLabel(elem=label, ...)>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope)
::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<rule.name>.add(<label>.getTree());
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefTrack(...)>
<listLabel(label, {<label>.getTree()})>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRoot(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>stream_<rule>.add(<label>.getTree());
>>

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefRuleRootTrack(...)>
<listLabel(label, {<label>.getTree()})>
>>

// R e w r i t e

rewriteCode(
  alts, description,
  referencedElementsDeep, // ALL referenced elements to right of ->
  referencedTokenLabels,
  referencedTokenListLabels,
  referencedRuleLabels,

```

```
referencedRuleListLabels,  
referencedWildcardLabels,  
referencedWildcardListLabels,  
rewriteBlockLevel,  
enclosingTreeLevel, treeLevel) ::=
```

```
<<
```

```
// AST REWRITE
```

```
// elements: <referencedElementsDeep; separator=", ">
```

```
// token labels: <referencedTokenLabels; separator=", ">
```

```
// rule labels: <referencedRuleLabels; separator=", ">
```

```
// token list labels: <referencedTokenListLabels; separator=", ">
```

```
// rule list labels: <referencedRuleListLabels; separator=", ">
```

```
// wildcard labels: <[referencedWildcardLabels, referencedWildcardListLabels]; separator=", ">
```

```
<if(backtracking)>
```

```
if ( <actions.(actionScope).synpredgate> ) {
```

```
<endif>
```

```
<prevRuleRootRef(>).tree = root_0;
```

```
<rewriteCodeLabels(>
```

```
root_0 = (<ASTLabelType>)adaptor.nil();
```

```
<alts:rewriteAlt(> separator="else ">
```

```
<! if tree parser and rewrite=true !>
```

```
<if(TREE_PARSER)>
```

```
<if(rewriteMode)>
```

```
<prevRuleRootRef(>).tree = (<ASTLabelType>)adaptor.rulePostProcessing(root_0);
```

```
input.replaceChildren(adaptor.getParent(retval.start),
```

```
    adaptor.getChildIndex(retval.start),
```

```
    adaptor.getChildIndex(_last),
```

```
    retval.tree);
```

```
<endif>
```

```
<endif>
```

```
<!>
```

```
if parser or tree-parser && rewrite!=true, we need to set result !>
```

```
<if(!TREE_PARSER)>
```

```
<prevRuleRootRef(>).tree = root_0;
```

```
<else>
```

```
<if(!rewriteMode)>
```

```
<prevRuleRootRef(>).tree = root_0;
```

```
<endif>
```

```
<endif>
```

```
<if(backtracking)>
```

```
}
```

```
<endif>
```

```
>>
```

```
rewriteCodeLabels() ::= <<
```

```
<referencedTokenLabels
```

```
: {it | RewriteRule<rewriteElementType>Stream stream_<it>=new
```

```

RewriteRule<rewriteElementType>Stream(adaptor,"token <it>",<it>));
separator="\n"
>
<referencedTokenListLabels
:{it | RewriteRule<rewriteElementType>Stream stream_<it>=new
RewriteRule<rewriteElementType>Stream(adaptor,"token <it> ", list_<it>));
separator="\n"
>
<referencedWildcardLabels
:{it | RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"wildcard <it>",<it>));
separator="\n"
>
<referencedWildcardListLabels
:{it | RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"wildcard <it> ",list_<it>));
separator="\n"
>
<referencedRuleLabels
:{it | RewriteRuleSubtreeStream
stream_<it>=new RewriteRuleSubtreeStream(adaptor,"rule <it>",<it>!=null?<it>.getTree():null));
separator="\n"
>
<referencedRuleListLabels
:{it | RewriteRuleSubtreeStream stream_<it>=new RewriteRuleSubtreeStream(adaptor,"token <it> ",list_<it>));
separator="\n"
>
>>

/** Generate code for an optional rewrite block; note it uses the deep ref'd element
 * list rather shallow like other blocks.
 */
rewriteOptionalBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
// <fileName>:<description>
if ( <referencedElementsDeep:{el | stream_<el>.hasNext()}; separator="||"> ) {
<alt>
}
<referencedElementsDeep:{el | stream_<el>.reset();<\n>}>
>>

rewriteClosureBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=

```

```

<<
// <fileName>:<description>
while ( <referencedElements:{el
| stream_<el>.hasNext()}; separator="||"> ) {
<alt>
}
<referencedElements:{el | stream_<el>.reset();<\n>}>
>>

rewritePositiveClosureBlock(
alt,rewriteBlockLevel,
referencedElementsDeep, // all nested refs
referencedElements, // elements in immediately block; no nested blocks
description) ::=
<<
if ( !(<referencedElements:{el | stream_<el>.hasNext()}; separator="||">) ) {
throw new RewriteEarlyExitException();
}
while ( <referencedElements:{el | stream_<el>.hasNext()}; separator="||"> ) {
<alt>
}
<referencedElements:{el | stream_<el>.reset();<\n>}>
>>

rewriteAlt(a) ::= <<
// <a.description>
<if(a.pred)>
if (<a.pred>) {
<a.alt>
}<\n>
<else>
{
<a.alt>
}<\n>
<endif>
>>

/** For empty rewrites: "r : ... -> ;" */
rewriteEmptyAlt() ::= "root_0 = null;"

rewriteTree(root,children,description,enclosingTreeLevel,treeLevel) ::= <<
// <fileName>:<description>
{
<ASTLabelType> root_<treeLevel> = (<ASTLabelType>)adaptor.nil();
<root:rewriteElement()>
<children:rewriteElement()>
adaptor.addChild(root_<enclosingTreeLevel>,

```

```

root_<treeLevel>;
}<\n>
>>

rewriteElementList(elements) ::= "<elements:rewriteElement()>"

rewriteElement(e) ::= <<
<@pregen()>
<e.el>
>>

/** Gen ID or ID[args] */
rewriteTokenRef(token,elementIndex,args,terminalOptions={}) ::= <<
adaptor.addChild(root_<treeLevel>, <createRewriteNodeFromElement(...)>);
>>

/** Gen $label ... where defined via label=ID */
rewriteTokenLabelRef(label,elementIndex) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextNode());
>>

/** Gen $label ... where defined via label+=ID */
rewriteTokenListLabelRef(label,elementIndex) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextNode());
>>

/** Gen ^($label ...) */
rewriteTokenLabelRefRoot(label,elementIndex) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>);
>>

/** Gen ^($label ...) where label+=... */
rewriteTokenListLabelRefRoot ::= rewriteTokenLabelRefRoot

/** Gen ^(ID ...) or ^(ID[args]
...) */
rewriteTokenRefRoot(token,elementIndex,args,terminalOptions={}) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<createRewriteNodeFromElement(...)>,
root_<treeLevel>);
>>

rewriteImaginaryTokenRef(args,token,elementIndex,terminalOptions={}) ::= <<
adaptor.addChild(root_<treeLevel>, <createImaginaryNode(token,args,terminalOptions)>);
>>

rewriteImaginaryTokenRefRoot(args,token,elementIndex,terminalOptions={}) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<createImaginaryNode(token,args,terminalOptions)>,
root_<treeLevel>);

```

```

>>

/** plain -> {foo} action */
rewriteAction(action) ::= <<
root_0 = <action>;
>>

/** What is the name of the previous value of this rule's root tree? This
 * let's us refer to $rule to mean previous value. I am reusing the
 * variable 'tree' sitting in retval struct to hold the value of root_0 right
 * before I set it during rewrites. The assign will be to retval.tree.
 */
prevRuleRootRef() ::= "retval"

rewriteRuleRef(rule)
 ::= <<
adaptor.addChild(root_<treeLevel>, stream_<rule>.nextTree());
>>

rewriteRuleRefRoot(rule) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(stream_<rule>.nextNode(), root_<treeLevel>);
>>

rewriteNodeAction(action) ::= <<
adaptor.addChild(root_<treeLevel>, <action>);
>>

rewriteNodeActionRoot(action) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<action>, root_<treeLevel>);
>>

/** Gen $ruleLabel ... where defined via ruleLabel=rule */
rewriteRuleLabelRef(label) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());
>>

/** Gen $ruleLabel ... where defined via ruleLabel+=rule */
rewriteRuleListLabelRef(label) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());
>>

/** Gen ^($ruleLabel ...) where ruleLabel=rule */
rewriteRuleLabelRefRoot(label) ::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>);
>>

/** Gen ^($ruleLabel ...) where ruleLabel+=rule */
rewriteRuleListLabelRefRoot(label)

```



```
::= <<
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(stream_<label>.nextNode(), root_<treeLevel>);
>>
```

```
rewriteWildcardLabelRef(label) ::= <<
adaptor.addChild(root_<treeLevel>, stream_<label>.nextTree());
>>
```

```
createImaginaryNode(tokenType,args,terminalOptions={}) ::= <%
<if(terminalOptions.node)>
<! new MethodNode(IDLabel, args) !>
new <terminalOptions.node>(<tokenType><if(args)>, <args; separator=", "><endif>)
<else>
(<ASTLabelType>)adaptor.create(<tokenType>, <args; separator=", "><if(!args)>"<tokenType>"<endif>)
<endif>
%>
```

```
createRewriteNodeFromElement(token,args,terminalOptions={}) ::= <%
<if(terminalOptions.node)>
new <terminalOptions.node>(stream_<token>.nextToken(<if(args)>, <args; separator=", "><endif>)
<else>
<if(args)> <! must create new node from old !>
adaptor.create(<token>, <args; separator=", ">)
<else>
stream_<token>.nextNode()
<endif>
<endif>
%>
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Java/AST.stg  
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\*/

/\*\* Template overrides to add debugging to AST stuff. Dynamic inheritance

\* hierarchy is set up as ASTDbg : AST : Dbg : Java by code generator.

\*/

```
parserMembers() ::= <<
protected DebugTreeAdaptor adaptor =
    new DebugTreeAdaptor(null,new CommonTreeAdaptor());
public void setTreeAdaptor(TreeAdaptor adaptor) {
    this.adaptor = new DebugTreeAdaptor(dbg,adaptor);
}
public TreeAdaptor getTreeAdaptor()
{
    return adaptor;
}<\n>
>>
```

```
parserCtorBody() ::= <<
```

```
>>
```

```
createListenerAndHandshake() ::= <<
<super.createListenerAndHandshake(>
>>
```

```
ctorForPredefinedListener() ::= <<
```

```
>>
```

```
@rewriteElement.pregen() ::= ""
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/C/ASTDbg.stg

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```
*/
```

```
group Delphi;
```

```
csharpTypeInitMap ::= [  
  "int": "0",  
  "uint": "0",  
  "long": "0",  
  "ulong": "0",  
  "float": "0.0",  
  "double": "0.0",  
  "bool": "False",  
  "byte": "0",  
  "sbyte": "0",  
  "short": "0",  
  "ushort": "0",  
  "char": "#0",  
  "string": "",
```

```

"String": "",
default: "nil" // anything other than an atomic type
]

/** The overall file structure of a recognizer; stores methods
for rules
* and cyclic DFAs plus support code.
* LEXER (Boolean): should we generate lexer code?
* PARSER (Boolean): should we generate parser code?
* TREE_PARSER (Boolean): should we generate tree parser code?
* actionScope (String): 'lexer', 'parser', 'tree_parser' or custom scope
* actions (HashMap):
* docComment (String): document comment
* recognizer (Object): recognizer class generator
* name (String): name of grammar
* tokens (HashMap<name: String, type: Integer>):
* tokenNames:
* rules:
* cyclicDFAs:
* bitsets:
* buildTemplate (Boolean): should we generate a string template?
* buildAST (Boolean): should we generate an AST?
* rewriteMode (Boolean): are we rewriting nodes?
* profile (Boolean):
* backtracking (Boolean): backtracking mode?
* synpreds (): syntactic predicates
* memoize (Boolean): should we memoize?
* numRules (Integer): number of rules
* fileName (String): fully qualified name of original .g file
* ANTLRVersion
(String): ANTLR version in Major.Minor.Build format
* generatedTimestamp (String): date/time when the file is generated
* trace (Boolean): should we trace input/output?
* scopes:
* superClass (String): name of base class, or empty string
* literals:
*/
outputFile(LEXER,PARSER,TREE_PARSER, actionScope, actions,
docComment, recognizer,
name, tokens, tokenNames, rules, cyclicDFAs,
bitsets, buildTemplate, buildAST, rewriteMode, profile,
backtracking, synpreds, memoize, numRules,
fileName, ANTLRVersion, generatedTimestamp, trace,
scopes, superClass, literals) ::=
<<
unit <name>;

{$HINTS OFF}

```

```

// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>

<actions.(actionScope).header>

interface

<@imports>
uses<\n>
<@end>
<actions.(actionScope).usesInterface>
<if(TREE_PARSER)>
  Antlr.Runtime.Tree,<\n>
<endif>
  Antlr.Runtime,
  Antlr.Runtime.Collections,
  Antlr.Runtime.Tools;

<docComment>
<recognizer>
>>

/** Generates source code for the
  lexer class
  * grammar (Grammar object)
  */
lexer(grammar, name, tokens, scopes, rules, numRules, labelType="Token",
  filterMode, superClass="Lexer") ::= <<
type
I<grammar.recognizerName> = interface(I<@superClassName><superClass><@end>)
end;

T<grammar.recognizerName> = class(T<@superClassName><superClass><@end>,
I<grammar.recognizerName>)
strict private
  FCnt: array [0..<grammar.numberOfDecisions>] of Byte;
  FLA: array [0..<grammar.numberOfDecisions>, 0..255] of Integer;
  FException: ERecognitionException;
  procedure InitializeCyclicDFAs;
<cyclicDFAs:cyclicDFADeclaration()>
public
  const
    <tokens:{<it.name> = <it.type>;}; separator="\n">
    <scopes:{<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>
strict private
  <actions.(actionScope).memberDeclarations>
public
  // delegates

```

```

    <grammar.delegates: {g|<g.delegateName(): I<superClass>; {<g.recognizerName>}}; separator="\n">
public
    // delegators
    <grammar.delegators:
    {g|<g.delegateName(): Pointer; {<g.recognizerName>}}; separator="\n">
    <last(grammar.delegators):{g|gParent: Pointer; {<g.recognizerName>}}>
protected
    { IBaseRecognizer }
    function GetGrammarFileName: String; override;
<if(filterMode)>
    function AlreadyParsedRule(const Input: IIntStream;
        const RuleIndex: Integer): Boolean; override;
    procedure Memoize(const Input: IIntStream; const RuleIndex,
        RuleStartIndex: Integer); override;
protected
    { ILexer }
    function NextToken: IToken; override;<\n>
<endif>
protected
    { ILexer }
    procedure DoTokens; override;
public
    constructor Create; overload;
    constructor Create(const AInput: ICharStream<grammar.delegates:{g}; const A<g.delegateName():
IBaseRecognizer{<g.recognizerName>}}>); overload;
    constructor Create(const AInput: ICharStream; const AState: IRecognizerSharedState<grammar.delegates:{g};
const A<g.delegateName(): IBaseRecognizer{<g.recognizerName>}}>); overload;

    <rules: {r | <if(!r.ruleDescriptor.isSynPred)><lexerRuleDeclaration(r)><endif>}>
    <synpreds: {p | <lexerSynpredDeclaration(p)>}; separator="\n">
end;

```

implementation

uses

```

<grammar.delegates: {g|<g.recognizerName>;}; separator="\n">
<grammar.delegators: {g|<g.recognizerName>;}; separator="\n">
<actions.(actionScope).usesImplementation>
SysUtils,
StrUtils,
Math;

```

```
{ T<grammar.recognizerName> }
```

```
constructor T<grammar.recognizerName>.Create;
```

```
begin
```

```
    InitializeCyclicDFAs;
```

```
end;
```

```

constructor T<grammar.recognizerName>.Create(const AInput: ICharStream<grammar.delegators:{g}; const
A<g:delegateName(): IBaseRecognizer{<g.recognizerName>}>>);
begin
  Create(AInput, nil<grammar.delegators:{g}, A<g:delegateName()>>);
end;

```

```

constructor T<grammar.recognizerName>.Create(const AInput: ICharStream; const AState:
IRRecognizerSharedState<grammar.delegators:{g}; const A<g:delegateName():
IBaseRecognizer{<g.recognizerName>}>>);
begin
  inherited Create(AInput, AState);
  InitializeCyclicDFAs;
  { TODO: Necessary in Delphi??? Not removed yet. }
  <if(memoize)>
  <if(grammar.grammarIsRoot)>
    State.RuleMemoCount := <numRules>+1;<\n><! index from 1..n !>
  <endif>
  <endif>
  <grammar.directDelegates:
    {g|<g:delegateName()> := T<g.recognizerName>.Create(AInput, State<trunc(g.delegators):{p|,
<p:delegateName()>>, Self);}; separator="\n">
  <grammar.delegators:
    {g|<g:delegateName()> := Pointer(A<g:delegateName()>);}; separator="\n">
  <last(grammar.delegators):{g|gParent := Pointer(A<g:delegateName()>);}>
  <actions.(actionScope).memberInitializations>
end;
  <actions.(actionScope).memberImplementations>
function T<grammar.recognizerName>.GetGrammarFileName: String;
begin
  Result := '<fileName>';
end;

```

```

  <if(filterMode)>
  <filteringNextToken()>
  <endif>

  <rules; separator="\n\n">
  <synpreds:{p | <lexerSynpred(p)>>

```

```

procedure T<grammar.recognizerName>.InitializeCyclicDFAs;
begin
  <cyclicDFAs:{dfa | FDFA<dfa.decisionNumber> :=
TDFA<dfa.decisionNumber>.Create(Self<@debugAddition()>);};
  separator="\n">
  <cyclicDFAs:{dfa | <if(dfa.specialStateSTs)>FDFA<dfa.decisionNumber>.SpecialStateTransitionHandler :=
DFA<dfa.decisionNumber>_SpecialStateTransition;<endif>}; separator="\n">
end;

```

```

<cyclicDFAs:cyclicDFA(>> <! dump tables for all DFA !>
end.>>

lexerRuleDeclaration(rule) ::= <<
procedure m<rule.ruleName>(<rule.ruleDescriptor.parameterScope:parameterScope(scope=rule)>);<\n>
>>

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 *
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
function T<grammar.recognizerName>.NextToken: IToken;
var
M: Integer;
begin
while (True) do
begin
if (Input.LA(1) = Integer(cscEOF)) then
Exit(TToken.EOF_TOKEN);

State.Token := nil;
State.Channel := TToken.DEFAULT_CHANNEL;
State.TokenStartCharIndex := Input.Index;
State.TokenStartCharPositionInLine := Input.CharPositionInLine;
State.TokenStartLine := Input.Line;
State.Text := "";
try
M := Input.Mark();
State.Backtracking := 1; <! means we won't throw slow exception !>
State.Failed := False;
mTokens();
State.Backtracking := 0;
<!
mTokens backtracks with synpred at backtracking==2
and we set the synpredgate to allow actions at level 1.
!>
if (State.Failed) then
begin
Input.Rewind(M);
Input.Consume; <! // advance one char and try again !>
end
else
begin

```



```

    Emit;
    Exit(State.Token);
end;
except
on RE: ERecognitionException do
begin
    // shouldn't happen in backtracking mode, but...
    ReportError(RE);
    Recover(RE);
end;
end;
end;
end;

function T<grammar.recognizerName>.AlreadyParsedRule(const Input: IIntStream;
const
RuleIndex: Integer): Boolean;
begin
if (State.Backtracking > 1) then
    Result := inherited AlreadyParsedRule(Input, RuleIndex)
else
    Result := False;
end;

procedure T<grammar.recognizerName>.Memoize(const Input: IIntStream; const RuleIndex,
RuleStartIndex: Integer);
begin
if (State.Backtracking > 1) then
    inherited Memoize(Input, RuleIndex, RuleStartIndex);
end;

>>

filteringActionGate() ::= "(State.Backtracking = 1)"

/** How to generate a parser */
genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, inputStreamType, superClass, filterMode,
    ASTLabelType="ANTLRInterface", labelType, members, rewriteElementType) ::= <<
type
<rules: {r | <genericParserRuleReturnType(rule=r, ruleDescriptor=r.ruleDescriptor)>>>
I<grammar.recognizerName> = interface(I<@superClassName><superClass><@end>)
    <rules: {r | <genericParserRuleInterface(rule=r, ruleDescriptor=r.ruleDescriptor)>>>
end;

T<grammar.recognizerName>
= class(T<@superClassName><superClass><@end>, I<grammar.recognizerName>)
<if(grammar.grammarIsRoot)>

```

```

public
  const
    TOKEN_NAMES: array [0..<length(tokenNames)>+3] of String = (
      '\<invalid>',
      '\<EOR>',
      '\<DOWN>',
      '\<UP>',
      <tokenNames; separator=",\n">;<\n>
<endif>
public
  const
    <tokens:{<it.name> = <it.type>;}; separator="\n">
public
  // delegates
  <grammar.delegates: {g|<g.delegateName(): I<superClass>; {<g.recognizerName>}}; separator="\n">
public
  // delegators
  <grammar.delegators: {g|<g.delegateName(): Pointer; {<g.recognizerName>}}; separator="\n">
  <last(grammar.delegators):{g|gParent: Pointer; {<g.recognizerName>}}>

  <scopes:{<if(it.isDynamicGlobalScope)><globalAttributeScopeDeclaration(scope=it)><endif>}>
<@members>
  <! WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>
public
  constructor Create(const AInput: <inputStreamType><grammar.delegators:{g}; const A<g.delegateName():
IBaseRecognizer{<g.recognizerName>}}>); overload;
  constructor Create(const AInput: <inputStreamType>; const AState:
IRecognizerSharedState<grammar.delegators:{g}; const A<g.delegateName():
IBaseRecognizer{<g.recognizerName>}}>); overload;
<@end>
protected
  { IBaseRecognizer }
  function GetTokenNames: TStringArray; override;
  function GetGrammarFileName: String; override;
strict private
  <actions.(actionScope).memberDeclarations>
  <rules: {r | <genericParserRuleDeclaration(rule=r, ruleDescriptor=r.ruleDescriptor)>}>

  <! generate rule/method definitions for imported rules so they
  appear to be defined in this recognizer. !>
  // Delegated rules
  <grammar.delegatedRules:{ruleDescriptor| <delegatedRuleDeclaration(ruleDescriptor)>}>

  <synpreds:{p | <synpredDeclaration(p)>}; separator="\n">
  <cyclicDFAs:cyclicDFADeclaration()>
strict private
  FException: ERecognitionException;
  FLA: array [0..<grammar.numberofDecisions>, 0..255] of Integer;

```

```

    FCnt:
    array [0..<grammar.numberofDecisions>] of Byte;
    procedure InitializeCyclicDFAs;
<if(bitsets)>
    public
    class var
    <bitsets.bitsetDecl(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>})>
    public
    class procedure InitializeBitsets; static;<\n>
<endif>
end;

implementation

uses
    <grammar.delegates: {g|<g.recognizerName>,}; separator="\n">
    <grammar.delegates: {g|<g.recognizerName>,}; separator="\n">
    <actions.(actionScope).usesImplementation>
    SysUtils,
    StrUtils,
    Math;

{ T<grammar.recognizerName> }

constructor T<grammar.recognizerName>.Create(const AInput: <inputStreamType><grammar.delegates:{g|; const
A<g:delegateName>(): IBaseRecognizer{<g.recognizerName>} }>);
begin
    Create(AInput, TRecognizerSharedState.Create<grammar.delegates: {g|, A<g:delegateName>}>);
end;

constructor T<grammar.recognizerName>.Create(const AInput: <inputStreamType>;
const AState: IRecognizerSharedState<grammar.delegates:{g|; const A<g:delegateName>():
IBaseRecognizer{<g.recognizerName>} }>);
begin
    inherited Create(AInput, AState);
    <@membersConstructor>
    <@end>
    <parserCtorBody()>
    <grammar.directDelegates: {g|<g:delegateName> := T<g.recognizerName>.Create(Input,
State<trunc(g.delegates):{p|, <p:delegateName>}>, Self);}; separator="\n">
    <grammar.indirectDelegates: {g | <g:delegateName> := <g.delegate:delegateName>.<g:delegateName>};};
separator="\n">
    <last(grammar.delegates): {g|gParent := Pointer(A<g:delegateName>)}>);
    <rules: {r | <ruleAttributeScopeInit(scope=r.ruleDescriptor.ruleScope)>}>
    <scopes: {<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>
    <actions.(actionScope).memberInitializations>
end;
<actions.(actionScope).memberImplementations>

```

```

<grammar.delegatedRules:{ruleDescriptor| <delegatedRuleImplementation(ruleDescriptor)>}; separator="\n">
procedure T<grammar.recognizerName>.InitializeCyclicDFAs;
begin
  <cyclicDFAs:{ dfa | FDFA<dfa.decisionNumber> := TDFA<dfa.decisionNumber>.Create(Self);}; separator="\n">
  <cyclicDFAs:{ dfa | <if(dfa.specialStateSTs)>FDFA<dfa.decisionNumber>.SpecialStateTransitionHandler :=
DFA<dfa.decisionNumber>_SpecialStateTransition;<endif>}; separator="\n">
end;

<if(bitsets)>
class procedure T<grammar.recognizerName>.InitializeBitsets;
begin
  <bitsets:bitset(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>}, words64=it.bits)>
end;
<endif>

<@membersImplementation>
<@end>

function T<grammar.recognizerName>.GetTokenNames: TStringArray;
var
  I: Integer;
begin
  SetLength(Result,Length(T<grammar.composite.rootGrammar.recognizerName>.TOKEN_NAMES));
  for I := 0 to Length(T<grammar.composite.rootGrammar.recognizerName>.TOKEN_NAMES) - 1 do
    Result[I] := T<grammar.composite.rootGrammar.recognizerName>.TOKEN_NAMES[I];
  end;

function T<grammar.recognizerName>.GetGrammarFileName: String;
begin
  Result := '<fileName>';
end;

<rules; separator="\n\n">
<synpreds:{p | <synpred(p)>}>

<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>
<if(bitsets)>
initialization
  T<grammar.recognizerName>.InitializeBitsets;<\n>
<endif>
end.>>

delegatedRuleDeclaration(ruleDescriptor) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
function <ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>):
I<returnType()>;<\n>
<else>

```

```

<if(ruleDescriptor.hasSingleReturnValue)>
function <ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>):
<returnType()>;<\n>
<else>
procedure <ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>);<\n>
<endif>
<endif>
>>

delegatedRuleImplementation(ruleDescriptor) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
function
T<grammar.recognizerName>.<ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>
): I<returnType()>;<\n>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
function
T<grammar.recognizerName>.<ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>
): <returnType()>;<\n>
<else>
procedure
T<grammar.recognizerName>.<ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>
);<\n>
<endif>
<endif>
begin
<if(ruleDescriptor.hasReturnValue)>Result :=<endif>
T<ruleDescriptor.grammar.recognizerName>(<ruleDescriptor.grammar.delegateName()>.Implementor).<ruleDescriptor.name>(<ruleDescriptor.parameterScope.attributes: { a|<a.name> }; separator=" , ">);
end;

>>

parserCtorBody() ::= <<
InitializeCyclicDFAs;
<if(memoize)>
<if(grammar.grammarIsRoot)>
State.RuleMemoCount := <length(grammar.allImportedRules)>+1;<\n> <! index from 1..n !>
<endif>
<endif>
<grammar.delegators: { g|<g.delegateName()> := Pointer(A<g.delegateName()>); separator="\n">
>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets, ASTLabelType, superClass="Parser",
labelType="Token", members={<actions.parser.members>}) ::= <<
<genericParser(inputStreamType="ITokenStream", rewriteElementType="Token", ...)>
>>

```

```

/** How to generate a tree parser; same as parser except the input
 * stream is a different type.
 */
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules, numRules, bitsets,
labelType={ <ASTLabelType> }, ASTLabelType="object", superClass="TreeParser",
members={ <actions.treeparser.members> }, filterMode) ::= <<
<genericParser(inputStreamType="ITreeNodeStream", rewriteElementType="Node", ...)>
>>

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
// $ANTLR start "<ruleName>"
procedure
T<grammar.recognizerName>.<ruleName>_fragment(<ruleDescriptor.parameterScope:parameterScope(scope=it)>)
;
var
Alt: array [0..<grammar.numberOfDecisions>]
of Integer;
<ruleLabelDefVars()>
begin
<ruleLabelDefs()>
<if(trace)>
TraceIn('<ruleName>_fragment', <ruleDescriptor.index>);
try
<block>
finally
TraceOut('<ruleName>_fragment', <ruleDescriptor.index>);
end;
<else>
<block>
<endif>
end;
// $ANTLR end "<ruleName>"
>>

synpredDecls(name) ::= <<
SynPredPointer <name>;<\n>
>>

synpred(name) ::= <<

```

```

function T<grammar.recognizerName>.<name>: Boolean;
var
  Start: Integer;
  Success: Boolean;
begin
  State.Backtracking := State.Backtracking + 1;
  <@start()>
  Start := Input.Mark;
  try
    <name>_fragment(); // can never throw exception
  except
    on RE: ERecognitionException do
      WriteLn('Impossible: ' + RE.ToString);
    end;
  Success := not State.Failed;
  Input.Rewind(Start);
  <@stop()>
  State.Backtracking := State.Backtracking - 1;
  State.Failed := False;
  Result := Success;
end;<\n>
>>

lexerSynpred(name) ::= <<
<synpred(name)>
>>

lexerSynpredDeclaration(name) ::= <<
function
  <name>: Boolean;
  procedure <name>_fragment;
>>

synpredDeclaration(name) ::= <<
function <name>: Boolean;
  procedure <name>_fragment;
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if ((State.Backtracking > 0) and AlreadyParsedRule(Input, <ruleDescriptor.index>)) then
  Exit(<ruleReturnValue()>);
<endif>
>>

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
<if(backtracking)><\n>if (State.Failed) then Exit(<ruleReturnValue()>);<\n><endif>

```

>>

```
/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>if (State.Backtracking > 0) then
begin
  State.Failed := True;
  Exit(<ruleReturnValue(>);
end;<endif>
>>
```

```
genericParserRuleDeclaration(rule, ruleDescriptor) ::= <<
<if(ruleDescriptor.isSynPred)>
<else>
<ruleAttributeScopeDeclaration(scope=ruleDescriptor.ruleScope)>
<returnScopeDeclaration(scope=ruleDescriptor.returnScope)>
public
<if(ruleDescriptor.hasMultipleReturnValues)>
  function <rule.ruleName>:
  I<returnType(>);<\n>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
  function <rule.ruleName>: <returnType(>);<\n>
<else>
  procedure <rule.ruleName>;<\n>
<endif>
<endif>
<endif>
>>
```

```
genericParserRuleInterface(rule, ruleDescriptor) ::= <<
<if(ruleDescriptor.isSynPred)>
<else>
<if(ruleDescriptor.hasMultipleReturnValues)>
function <rule.ruleName>: I<returnType(>);<\n>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
function <rule.ruleName>: <returnType(>);<\n>
<else>
  procedure <rule.ruleName>;<\n>
<endif>
<endif>
<endif>
>>
```

```
genericParserRuleReturnType(rule, ruleDescriptor) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(ruleDescriptor.isSynPred)>
```



```

<else>
I<returnType()> = interface(I<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope)
end;<\n>
<endif>
<endif>
>>

/** How to generate code for a rule. This includes any return type
 * data aggregates required for multiple return values.
 */
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize)
::= <<
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
<returnScope(scope=ruleDescriptor.returnScope)>

// $ANTLR start "<ruleName>"
(* <fileName>:<description> *)
<if(ruleDescriptor.hasMultipleReturnValues)>
function T<grammar.recognizerName>.<ruleName>(<ruleDescriptor.parameterScope;parameterScope(scope=it)>):
I<returnType()>;
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
function T<grammar.recognizerName>.<ruleName>(<ruleDescriptor.parameterScope;parameterScope(scope=it)>):
<returnType()>;
<else>
procedure
T<grammar.recognizerName>.<ruleName>(<ruleDescriptor.parameterScope;parameterScope(scope=it)>);
<endif>
<endif>

var
<ruleDescriptor.actions.vars>
Locals: TLocalStorage;
<if(ruleDescriptor.hasMultipleReturnValues)>
RetVal: I<returnType()>;<\n>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
RetVal: <returnType()>;<\n>
<else>
<endif>
<endif>
Alt: array [0..<grammar.numberOfDecisions>] of Integer;
<ruleDeclarationVars()>
<ruleLabelDefVars()>
begin
Locals.Initialize;
try
<if(trace)>TraceIn('<ruleName>', <ruleDescriptor.index>);<endif>

```

```

<ruleScopeSetUp()>
<ruleDeclarations()>
<ruleLabelDefs()>
<ruleDescriptor.actions.init>
<@preamble()>
try
  try
    <ruleMemoization(name=ruleName)>
    <block>
    <ruleCleanUp()>
    <(ruleDescriptor.actions.after):execAction()>
<if(exceptions)>
  <exceptions: { e|<catch(decl=e.decl,action=e.action)><\n>}>
<else>
<if(!emptyRule)>
<if(actions.(actionScope).rulecatch)>
  <actions.(actionScope).rulecatch>
<else>
  except
    on RE: ERecognitionException do
    begin
      ReportError(RE);
      Recover(Input,RE);
      <@setErrorReturnValue()>
    end;<\n>
<endif>
<endif>
<endif>
  end;
  finally
    <if(trace)>TraceOut("<ruleName>", <ruleDescriptor.index>);<endif>
    <memoize()>
    <ruleScopeCleanUp()>
    <finally>
  end;
  <@postamble()>
  finally
    Locals.Finalize;
  end;
  Exit(<ruleReturnValue()>);
end;
//
$ANTLR end "<ruleName>"
>>

catch(decl,action) ::= <<
catch (<e.decl>)
{

```

```

    <e.action>
  }
>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
RetVal := T<returnType()>.Create;
RetVal.Start := Input.LT(1);<\n>
<else>
<ruleDescriptor.returnScope.attributes: { a |
<a.name> := <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
<ruleDescriptor.name>_StartIndex := Input.Index();
<endif>
>>

ruleDeclarationVars() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<else>
<ruleDescriptor.returnScope.attributes: { a |
<a.name>: <a.type>;
}>
<endif>
<if(memoize)>
<ruleDescriptor.name>_StartIndex: Integer;
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: {<it>Stack.Push(T<it>Scope.Create);}; separator="\n">
<ruleDescriptor.ruleScope: {<it.name>Stack.Push(T<it.name>Scope.Create);}; separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: {<it>Stack.Pop();}; separator="\n">
<ruleDescriptor.ruleScope: {<it.name>Stack.Pop();};
separator="\n">
>>

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels]:{<it.label.text> := nil;}; separator="\n">
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels]:{list_<it.label.text> := nil;}; separator="\n">
<ruleDescriptor.ruleLabels:ruleLabelDef(label=it); separator="\n">
<ruleDescriptor.ruleListLabels: {ll<ll.label.text> := nil;}; separator="\n">
>>

```

```

ruleLabelDefVars() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels]:{<it.label.text>: I<labelType>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels]:{list_<it.label.text>: IList<IANTLRInterface>;};
separator="\n">
<ruleDescriptor.ruleLabels:ruleLabelDefVar(label=it); separator="\n">
<ruleDescriptor.ruleListLabels:{ll<ll.label.text>: <ruleLabelType(referencedRule=ll.referencedRule)>;};
separator="\n">
>>

```

```

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {<it.label.text> := nil;}; separator="\n"
>
<ruleDescriptor.charLabels:{int <it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
: {List_<it.label.text> := nil;}; separator="\n"
>
>>

```

```

lexerRuleLabelDefDeclarations() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {<it.label.text>: I<labelType>;}; separator="\n"
>
<ruleDescriptor.charLabels:{int <it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels,
ruleDescriptor.ruleListLabels]
: {List_<it.label.text>: IList;}; separator="\n"
>
>>

```

```

ruleReturnValue() ::= <<
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
RetVal
<endif>
<else>
<! nil !>
<endif>

```

```

<endif>
>>

ruleCleanUp() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
RetVal.Stop
:= Input.LT(-1);
<endif>
<endif>
>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if (State.Backtracking > 0) then
Memoize(Input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex);
<endif>
<endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
// $ANTLR start "<ruleName>"
<ruleDescriptor.parameterScope>
procedure
T<grammar.recognizerName>.m<ruleName>(<ruleDescriptor.parameterScope:parameterScope(scope=it)>);
var
<ruleDescriptor.actions.vars>
Locals: TLocalStorage;
TokenType, Channel: Integer;
Alt: array [0..<grammar.numberofDecisions>] of Integer;
<lexerRuleLabelDefDeclarations(>
begin
Locals.Initialize;
try
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
<if(trace)>TraceIn("<ruleName>", <ruleDescriptor.index>);<endif>
<ruleScopeSetUp(>
<ruleDeclarations(>
try
<if(nakedBlock)>

<ruleMemoization(name=ruleName)>
<lexerRuleLabelDefs(>
<ruleDescriptor.actions.init>

```

```

    <block><\n>
<else>
    TokenType := <ruleName>;
    Channel := DEFAULT_TOKEN_CHANNEL;
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs(>
    <ruleDescriptor.actions.init>
    <block>
    <ruleCleanUp(>
    State.TokenType := TokenType;
    State.Channel := Channel;
    <(ruleDescriptor.actions.after):execAction(>
<endif>
    finally
    <if(trace)>TraceOut("<ruleName>", <ruleDescriptor.index>);<endif>
    <ruleScopeCleanUp(>
    <memoize(>
    end;
    finally
    Locals.Finalize;
    end;
    end;
    // $ANTLR end "<ruleName>"
>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
procedure T<grammar.recognizerName>.mTokens;
var
    Alt: array [0..<grammar.numberofDecisions>] of Integer;
begin
    <block>
end;

procedure T<grammar.recognizerName>.DoTokens;
begin
    mTokens;
end;
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
(* <fileName>:<description> *)
Alt[<decisionNumber>] := <maxAlt>;

```

```

<decls>
<@predecision()>
<decision>
<@postdecision()>
<@prebranch()>
case Alt[<decisionNumber>] of
  <alts:altSwitchCase()>
end;
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
(* <fileName>:<description> *)
Alt[<decisionNumber>] := <maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>
case Alt[<decisionNumber>] of
  <alts:altSwitchCase()>
end;
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
(* <fileName>:<description> *)
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule
with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
(* <fileName>:<description> *)
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
(* <fileName>:<description> *)
FCnt[<decisionNumber>] := 0;
<decls>

```

```

<@preloop()>
while (True) do
begin
Alt[<decisionNumber>] := <maxAlt>;
<@predecision()>
<decision>
<@postdecision()>
case Alt[<decisionNumber>] of
  <alts:altSwitchCase()>
else
  begin
    if (FCnt[<decisionNumber>] >= 1) then
      Break;
    <ruleBacktrackFailure()>
    raise EEarlyExitException.Create(<decisionNumber>, Input);
    <@earlyExitException()>
  end;
end;
Inc(FCnt[<decisionNumber>]);
end;
<@postloop()>
>>

```

positiveClosureBlockSingleAlt ::= positiveClosureBlock

*/\*\* A (..)\* block with 1 or more alternatives \*/*

closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)

::= <<

(\* <fileName>:<description> \*)

<decls>

<@preloop()>

while (True) do

begin

Alt[<decisionNumber>] := <maxAlt>;

<@predecision()>

<decision>

<@postdecision()>

case Alt[<decisionNumber>] of

<alts:altSwitchCase()>

else

Break;

end;

end;

<@postloop()>

>>

closureBlockSingleAlt ::= closureBlock



```

/** Optional blocks (x)? are translated to (x|) by before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase() ::= <<
<i>:
<@prealt()>
<it><\n>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew)
 ::= <<
(* <fileName>:<description> *)
begin
<@declarations()>
<elements:element()>
<rew>
<@cleanup()>
end;
>>

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element() ::= <<
<@prematch()>
<it.el>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(label)><label> := <endif>Match(Input, <token>,
FOLLOW_<token>_in_<ruleName><elementIndex><if(label)> as
I<labelType><endif>;<\n><checkRuleBacktrackFailure()>
>>

```

```

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

listLabel(label,elem) ::= <<
if (list_<label> = nil) then list_<label> := TList<IANTLRInterface>.Create;
list_<label>.Add(<elem>);<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> := Input.LA(1);<\n>
<endif>
Match(<char>);
<checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> := Input.LA(1);<\n>
<endif>
MatchRange(<a>, <b>); <checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label> := Input.LA(1);<\n>
<else>
<label> := Input.LT(1) as I<labelType>;<\n>
<endif>
<endif>
if (<s>) then
begin
Input.Consume;
<postmatchCode>
<if(!LEXER)>
State.ErrorRecovery := False;<endif>
<if(backtracking)>State.Failed := False;<endif>
end
else
begin

```

```

<ruleBacktrackFailure()>
FException := EMismatchedSetException.Create(nil, Input);
<@mismatchedSetException()>
<if(LEXER)>
Recover(FException);
raise FException;<\n>
<else>
raise FException;
<! use following code to make it recover inline; remove throw mse;
RecoverFromMismatchedSet(input,mse,FOLLOW_set_in_<ruleName><elementIndex>);
!>
<endif>
end;<\n>
>>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(elem=label,...)>
>>

/** Match a string literal */
lexerStringRef(string,label,elementIndex) ::= <<
<if(label)>
Locals.AsInteger['<label>Start'] := CharIndex;
Match(<string>); <checkRuleBacktrackFailure()>
<label> := TCommonToken.Create(Input, TToken.INVALID_TOKEN_TYPE, TToken.DEFAULT_CHANNEL,
Locals.AsInteger['<label>Start'], CharIndex-1);
<else>
Match(<string>); <checkRuleBacktrackFailure()>
<endif>
>>

wildcard(label,elementIndex) ::= <<
<if(label)>
<label> := Input.LT(1) as I<labelType>;<\n>
<endif>
MatchAny(input); <checkRuleBacktrackFailure()>
>>

wildcardAndListLabel(label,elementIndex) ::= <<
<wildcard(...)>
<listLabel(elem=label,...)>
>>

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<

```

```

<if(label)>
<label> := Input.LA(1);<\n>
<endif>
MatchAny(); <checkRuleBacktrackFailure()>
>>

wildcardCharListLabel(label,
elementIndex) ::= <<
<wildcardChar(...)>
<listLabel(elem=label,...)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
PushFollow(FOLLOW_<rule.name>_in_<ruleName><elementIndex>);
<if(label)>
<label> := <if(scope)><scope:delegateName()>.<endif><rule.name><(args; separator=", ">);<\n>
<else>
<if(scope)>T<scope.recognizerName>(IANTLRObject(<scope:delegateName()>).Implementor).<endif><rule.name>
><(args; separator=", ">);<\n>
<endif>
State.FollowingStackPointer := State.FollowingStackPointer - 1;
<checkRuleBacktrackFailure()>
>>

/** ids+=1 */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(elem=label,...)>
>>

/** A lexer rule reference.
 *
 * The 'rule' argument was
the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
<if(label)>
Locals.AsInteger['<label>Start<elementIndex>'] := CharIndex;
<if(scope)><scope:delegateName()>.<endif>m<rule.name><(args; separator=", ">);
<checkRuleBacktrackFailure()>

```

```

<label> := TCommonToken.Create(Input, TToken.INVALID_TOKEN_TYPE, TToken.DEFAULT_CHANNEL,
Locals.AsInteger['<label>Start<elementIndex>'], CharIndex - 1);
<else>
<if(scope)><scope:delegateName().Implementor as T<scope.recognizerName>><endif>m<rule.name><args;
separator=", ">; <checkRuleBacktrackFailure()>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabel(elem=label,...)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
Locals.AsInteger['<label>Start<elementIndex>'] := CharIndex;
Match(EOF);
<checkRuleBacktrackFailure()>
Locals['<label>'] := TCommonToken.Create(Input, EOF, TToken.DEFAULT_CHANNEL,
Locals.AsInteger['<label>Start<elementIndex>'], CharIndex-1);
<else>
Match(EOF); <checkRuleBacktrackFailure()>
<endif>
>>

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if (Input.LA(1) = TToken.DOWN) then
begin
Match(Input, TToken.DOWN, nil); <checkRuleBacktrackFailure()>
<children:element()>
Match(Input, TToken.UP, nil); <checkRuleBacktrackFailure()>
end;
<else>
Match(Input, TToken.DOWN, nil); <checkRuleBacktrackFailure()>
<children:element()>
Match(Input, TToken.UP, nil);<\n><checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
* also hoisted into a prediction expression).

```

```

*/
validateSemanticPredicate(pred,description) ::= <<
if (not (<evalPredicate(...)>))
  then
begin
  <ruleBacktrackFailure()>
  raise EFailedPredicateException.Create(Input, '<ruleName>', '<description>');
end;<\n>
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
FLA[<decisionNumber>,<stateNumber>] := Input.LA(<k>);<\n>
<edges; separator="\nelse ">
else
begin
<if(eotPredictsAlt)>
  Alt[<decisionNumber>] := <eotPredictsAlt>;<\n>
<else>
  <ruleBacktrackFailure()>
  raise ENoViableAltException.Create('<description>', <decisionNumber>, <stateNumber>, Input);<\n>
<endif>
end;
>>

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
FLA[<decisionNumber>,<stateNumber>] := Input.LA(<k>);<\n>
<edges;
separator="\nelse ">;
>>

/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
FLA[<decisionNumber>,<stateNumber>] := Input.LA(<k>);
<edges; separator="\nelse ">;<\n>
<if(eotPredictsAlt)>
<if(!edges)>

```

```

Alt[<decisionNumber>] := <eotPredictsAlt>; <! if no edges, don't gen ELSE !>
<else>
else
begin
  Alt[<decisionNumber>] := <eotPredictsAlt>;
end;<\n>
<endif>
<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "Alt[<decisionNumber>] := <alt>";

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions,
 * we may
 * have to evaluate some predicates for this edge.
 */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ((<labelExpr>)<if(predicates)> and (<predicates>)<endif>) then
begin
  <targetState>
end <! no ; here !>
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
case Input.LA(<k>) of
  <edges; separator="\n">
else
begin
  <if(eotPredictsAlt)>
    Alt[<decisionNumber>] := <eotPredictsAlt>;
  <else>
    <ruleBacktrackFailure()>
    <@noViableAltException()>
    raise ENoViableAltException.Create('<description>', <decisionNumber>, <stateNumber>, Input);<\n>
  <endif>
end;
end;<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
case Input.LA(<k>) of

```

```

    <edges; separator="\n">
end;<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState)
::= <<
case Input.LA(<k>) of
    <edges; separator="\n"><\n>
<if(eotPredictsAlt)>
else
    Alt[<decisionNumber>] := <eotPredictsAlt>;<\n>
<endif>
end;<\n>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
<labels:{<it>}; separator=",\n">:
begin
    <targetState>
end;
>>

// C y c l i c D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
Alt[<decisionNumber>] := FDFA<decisionNumber>.Predict(Input);
>>

/* Dump DFA tables.
 */
cyclicDFADeclaration(dfa) ::= <<
strict protected
type
    TDFA<dfa.decisionNumber> = class(TDFA)
protected
    { IDFA }
    function Description: String; override;
public
    constructor Create(const ARecognizer: IBaseRecognizer);
end;
var
    FDFA<dfa.decisionNumber>: IDFA;
<if(dfa.specialStateSTs)>
strict

```



```

protected
function DFA<dfa.decisionNumber>_SpecialStateTransition(const DFA: IDFA; S: Integer;
  const AInput: IIntStream): Integer;<endif>
>>

cyclicDFA(dfa) ::= <<
{ T<grammar.recognizerName>.TDFA<dfa.decisionNumber> }

constructor T<grammar.recognizerName>.TDFA<dfa.decisionNumber>.Create(const ARecognizer:
IBaseRecognizer);
const
DFA<dfa.decisionNumber>_EOT = '<dfa.javaCompressedEOT; wrap=""+\n  "'>;
DFA<dfa.decisionNumber>_EOF = '<dfa.javaCompressedEOF; wrap=""+\n  "'>;
DFA<dfa.decisionNumber>_MIN = '<dfa.javaCompressedMin; wrap=""+\n  "'>;
DFA<dfa.decisionNumber>_MAX = '<dfa.javaCompressedMax; wrap=""+\n  "'>;
DFA<dfa.decisionNumber>_ACCEPT = '<dfa.javaCompressedAccept; wrap=""+\n  "'>;
DFA<dfa.decisionNumber>_SPECIAL = '<dfa.javaCompressedSpecial; wrap=""+\n  "'>;
DFA<dfa.decisionNumber>_TRANSITION: array [0..<length(dfa.javaCompressedTransition)>-1] of String = (
  <dfa.javaCompressedTransition:{s|<s; wrap=""+\n"'>}; separator=",\n">);
begin
  inherited Create;
  Recognizer := ARecognizer;
  DecisionNumber := <dfa.decisionNumber>;
  EOT := TDFA.UnpackEncodedString(DFA<dfa.decisionNumber>_EOT);
  EOF := TDFA.UnpackEncodedString(DFA<dfa.decisionNumber>_EOF);
  Min := TDFA.UnpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_MIN);
  Max := TDFA.UnpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_MAX);
  Accept := TDFA.UnpackEncodedString(DFA<dfa.decisionNumber>_ACCEPT);
  Special := TDFA.UnpackEncodedString(DFA<dfa.decisionNumber>_SPECIAL);
  Transition := TDFA.UnpackEncodedStringArray(DFA<dfa.decisionNumber>_TRANSITION);
end;

function T<grammar.recognizerName>.TDFA<dfa.decisionNumber>.Description: String;
begin
  Result := '<dfa.description>';
end;<\n>
<if(dfa.specialStateSTs)>
function T<grammar.recognizerName>.DFA<dfa.decisionNumber>_SpecialStateTransition(const DFA: IDFA; S:
Integer;
  const AInput: IIntStream): Integer;
var
  Locals: TLocalStorage;
  <if(LEXER)>
  Input: IIntStream;
  <endif>
  <if(PARSER)>
  Input: ITokenStream;
  <endif>

```

```

<if(TREE_PARSER)>
Input: ITreeNodeStream;
<endif>
_S: Integer;
NVAE: ENoViableAltException;
begin
Result := -1;
Locals.Initialize;
try
  <if(LEXER)>
    Input := AInput;
  <endif>
  <if(PARSER)>
    Input := AInput as ITokenStream;
  <endif>
  <if(TREE_PARSER)>
    Input := AInput as ITreeNodeStream;
  <endif>
  _S := S;
  case S of
    <dfa.specialStateSTs:{state | <i0>: begin<! compressed special state numbers 0..n-1 !>
    <state> <\n> end;}; separator="\n">
    end;
  <if(backtracking)>
    if (State.Backtracking > 0) then
    begin
      State.Failed := True;
      Exit(-1);
    end;<\n>
  <endif>
  NVAE := ENoViableAltException.Create(DFA.Description, <dfa.decisionNumber>, _S, Input);
  DFA.Error(NVAE);
  raise NVAE;
finally
  Locals.Finalize;
end;
end;<\n>
<endif>
>>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
* state.
*/
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState)
::= <<
FLA[<decisionNumber>,<stateNumber>] := Input.LA(1);<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
Locals.AsInteger['index<decisionNumber>_<stateNumber>'] := Input.Index;

```

```

Input.Rewind;<\n>
<endif>
S := -1;
<edges; separator="\nelse ">;
<if(semPredState)> <! return input cursor to state before we rewound !>
Input.Seek(Locals.AsInteger['index<decisionNumber>_<stateNumber>']);<\n>
<endif>
if (S >= 0) then
  Exit(S);
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ((<labelExpr>)<if(predicates)> and (<predicates>)<endif>) then
  S := <targetStateNumber>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
S := <targetStateNumber>;<\n>
>>

//
D F A E X P R E S S I O N S

andPredicates(left,right) ::= "((<left>) and (<right>))"

orPredicates(operands) ::= "<operands:{o|(<o>)}; separator=\" or \">"

notPredicate(pred) ::= "!(<evalPredicate(...)>)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "FLA[<decisionNumber>,<stateNumber>] = <atomAsInt>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "Input.LA(<k>) = <atomAsInt>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <<

```

```

((FLA[<decisionNumber>,<stateNumber>] \>= <lowerAsInt>) and (FLA[<decisionNumber>,<stateNumber>] \<=
<upperAsInt>))
>>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "(Input.LA(<k>) \>=
<lowerAsInt>) and (Input.LA(<k>) \<= <upperAsInt>)"

setTest(ranges) ::= "<ranges; separator=\"\"
or (\">"

// A T T R I B U T E S

globalAttributeScope(scope) ::= <<
<scope.name>Stack := TStackList\<I<scope.name>Scope\>.Create;<\n>
<endif>
>>

globalAttributeScopeDeclaration(scope) ::= <<
<if(scope.attributes)>
strict protected
type
I<scope.name>Scope = interface(IANTLRObject)
end;
T<scope.name>Scope = class(TANTLRObject, I<scope.name>Scope)
protected
<scope.attributes:{<it.name>: <it.type>;}; separator="\n">
end;
strict protected
<scope.name>Stack: IStackList\<I<scope.name>Scope\>;
<endif>
>>

ruleAttributeScopeDeclaration(scope) ::= <<
<if(scope.attributes)>
strict protected
type
I<scope.name>Scope = interface(IANTLRObject)
end;
T<scope.name>Scope = class(TANTLRObject, I<scope.name>Scope)
protected
<scope.attributes:{<it.name>: <it.type>;}; separator="\n">
end;
strict protected
<scope.name>Stack: IStackList\<I<scope.name>Scope\>;
<endif>
>>

ruleAttributeScope(scope) ::= <<

```

```

<! protected Stack <scope.name>Stack = new
Stack();<\n> !>
>>

ruleAttributeScopeInit(scope) ::= <<
<if(scope)>
<scope.name>Stack := TStackList\<I<scope.name>Scope\>.Create;<\n>
<endif>
>>

returnStructName() ::= "<it.name>_return"

returnType() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor:returnStructName()>
<! I<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope !>
<else>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
<! Pointer/void !>
<endif>
<endif>
>>

/** Generate the C# type associated with a single or multiple return
* values.
*/
ruleLabelType(referencedRule) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
I<referencedRule.name>_return
<else>
<if(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
<endif>
>>

delegateName() ::= <<
<if(it.label)><it.label><else>g<it.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
* must be an object, default value is "null".
*/
initValue(typeName) ::= <<

```

```

<csharpTypeInitMap.(typeName)>
>>

/** Define a rule label including default value */
ruleLabelDef(label) ::= <<
<label.label.text> := <initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))>;<\n>
>>

ruleLabelDefVar(label) ::= <<
<label.label.text>: <ruleLabelType(referencedRule=label.referencedRule)>;
>>

/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
{ T<ruleDescriptor:returnStructName()> }

<scope.attributes:{public <it.decl>;}; separator="\n">
<@ruleReturnMembers()>
<endif>
>>

returnScopeDeclaration(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
public
type
T<ruleDescriptor:returnStructName()> =
class(T<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope, I<ruleDescriptor:returnStructName()>)
<scope.attributes:{public
<it.decl>;}; separator="\n">
<@ruleReturnMembers()>
end;
<endif>
>>

parameterScope(scope) ::= <<
<scope.attributes:{<it.decl>}; separator=", ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> := <expr>;"

scopeAttributeRef(scope,attr,index,negIndex) ::= <<
<if(negIndex)>
(<scope>Stack[<scope>Stack.Count-<negIndex>-1] as T<scope>Scope).<attr.name>

```

```

<else>
<if(index)>
(<scope>Stack[<index>] as T<scope>Scope).<attr.name>
((<scope>_scope)<scope>_stack[<index>]).<attr.name>
<else>
(<scope>Stack.Peek.Implementor as T<scope>Scope).<attr.name>
<endif>
<endif>
>>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <<
<if(negIndex)>
(<scope>Stack[<scope>Stack.Count-<negIndex>-1] as T<scope>Scope).<attr.name> := <expr>;<\n>
<else>
<if(index)>
(<scope>Stack[<index>] as T<scope>Scope).<attr.name> := <expr>;<\n>
<else>
(<scope>Stack.Peek.Implementor as T<scope>Scope).<attr.name> := <expr>;<\n>
<endif>
<endif>
>>

/** $x is
    either global scope or x is rule with dynamic scope; refers
    * to stack itself not top of stack. This is useful for predicates
    * like {function.size()>0 && $function::name.equals("foo")}?
    */
isolatedDynamicScopeRef(scope) ::= "<scope>Stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
(IfThen(Assigned(<scope>),Def(<scope>).<attr.name>,<initValue(attr.type)>))
<else>
<scope>
<endif>
>>

returnAttributeRef(ruleDescriptor,attr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
RetVal.<attr.name>
<else>
<attr.name>
<endif>
>>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>

```

```

RetVal.<attr.name> := <expr>;
<else>
<attr.name> := <expr>;
<endif>
>>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next
// are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "(Def(<scope>).Text)"
tokenLabelPropertyRef_type(scope,attr) ::= "(Def(<scope>).TokenType)"
tokenLabelPropertyRef_line(scope,attr) ::= "(Def(<scope>).Line)"
tokenLabelPropertyRef_pos(scope,attr) ::= "(Def(<scope>).CharPositionInLine)"
tokenLabelPropertyRef_channel(scope,attr) ::= "(Def(<scope>).Channel)"
tokenLabelPropertyRef_index(scope,attr) ::= "(Def(<scope>).TokenIndex)"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "(StrToIntDef(Def(<scope>).Text,0))"

ruleLabelPropertyRef_start(scope,attr) ::= "(IfThen(Assigned(<scope>), Def(<scope>).Start, nil) as I<labelType>)"
ruleLabelPropertyRef_stop(scope,attr) ::= "(Def(<scope>).Stop as I<labelType>)"
ruleLabelPropertyRef_tree(scope,attr) ::= "(Def(Def(<scope>).Tree as I<ASTLabelType>))"
ruleLabelPropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
IfThen(Assigned(<scope>), Input.TokenStream.ToString(
  Input.TreeAdaptor.GetTokenStartIndex(Def(<scope>).Start),
  Input.TreeAdaptor.GetTokenStopIndex(Def(<scope>).Start)), ")
<else>
IfThen(Assigned(<scope>), Input.ToString(
  (Def(<scope>).Start) as IToken,(Def(<scope>).Stop) as IToken), ")
<endif>
>>
ruleLabelPropertyRef_st(scope,attr) ::= "((<scope> != null) ? <scope>.ST : null)"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "(Def(<scope>).TokenType)"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "(Def(<scope>).Line)"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "(IfThen(Assigned(<scope>),Def(<scope>).CharPositionInLine,-1))"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "(Def(<scope>).Channel)"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "(Def(<scope>).TokenIndex)"

```



```

lexerRuleLabelPropertyRef_text(scope,attr) ::= "(Def(<scope>).Text)"
lexerRuleLabelPropertyRef_int(scope,attr) ::= "(StrToIntDef(Def(<scope>).Text,0))"

// Somebody may ref $template
// or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "(RetVal.Start as I<labelType>)"
rulePropertyRef_stop(scope,attr) ::= "(RetVal.Stop as I<labelType>)"
rulePropertyRef_tree(scope,attr) ::= "(RetVal.Tree as I<ASTLabelType>)"
rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
Input.TokenStream.ToString(
  Input.TreeAdaptor.GetTokenStartIndex(RetVal.Start),
  Input.TreeAdaptor.GetTokenStopIndex(RetVal.Start))
<else>
Input.ToString(RetVal.Start as IToken,Input.LT(-1))
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "RetVal.ST"

lexerRulePropertyRef_text(scope,attr) ::= "Text"
lexerRulePropertyRef_type(scope,attr) ::= "TokenType"
lexerRulePropertyRef_line(scope,attr) ::= "State.TokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "State.TokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "Channel"
lexerRulePropertyRef_start(scope,attr) ::= "State.TokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr)
::= "(CharIndex-1)"
lexerRulePropertyRef_int(scope,attr) ::= "StrToInt(<scope>.Text)"

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "RetVal.Tree := <expr>;"
ruleSetPropertyRef_st(scope,attr,expr) ::= "RetVal.ST := <expr>;"

/** How to execute an action (only when not backtracking) */
execAction(action) ::= <<
<if(backtracking)>
<if(actions.(actionScope).synpredgate)>
if (<actions.(actionScope).synpredgate>) then
begin
  <action>
end;
<else>
if (State.Backtracking = 0) then
begin
  <action>

```

```

end;<\n>
<endif>
<else>
<action>
<endif>
>>

/** How to always execute an action even when backtracking */
execForcedAction(action) ::= "<action>"

// M I S C (properties, etc...)

bitset(name, words64) ::= <<
<name> := TBitSet.Create([<words64:{<it>};separator=",>"]);<\n>
>>

bitsetDecl(name) ::= <<
<name>: IBitSet;<\n>
>>

codeFileExtension() ::= ".pas"

true()
::= "True"
false() ::= "False"

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Delphi/Delphi.stg
No license file was found, but licenses were detected in source scan.

/*
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```

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\*/

/\*

\* Template group file for the Objective C code generator.

\* Heavily based on Java.stg

\*

\* Written by Kay Roepke <kroepke(at)classdump.org>

\* Modified by Alan Condit <acondit(at)ipns.com>

\*

\* This file is part of ANTLR and subject to the same license as ANTLR itself.

\*/

objcTypeInitMap ::= [

"int" : "0", // Integers start out being 0

"long" : "0", // Longs start out being 0

"float"

: "0.0", // Floats start out being 0

"double" : "0.0", // Doubles start out being 0

"BOOL" : "NO", // Booleans start out being Antlr ObjC for false

"byte" : "0", // Bytes start out being 0

"short" : "0", // Shorts start out being 0

"char" : "0", // Chars start out being 0

"id" : "nil", // ids start out being nil

default : "nil" // anything other than an atomic type

]

// System.Boolean.ToString() returns "True" and "False", but the proper C# literals are "true" and "false"

// The Java version of Boolean returns "true" and "false", so they map to themselves here.

booleanLiteral ::= [

"True": "true",

"False": "false",

"true": "YES",

"false": "NO",

default: "NO"

]

```

className() ::= "<name><!<if(LEXER)>Lexer<else><if(TREE_PARSER)>Tree<endif>Parser<endif>!>"
leadIn(type)
 ::=
 <<
 /** \file
 * This <type> file was generated by $ANTLR version <ANTLRVersion>
 *
 * - From the grammar source file : <fileName>
 * - On : <generatedTimestamp>
 <if(LEXER)>
 * - for the lexer : <name>Lexer
 <endif>
 <if(PARSER)>
 * - for the parser : <name>Parser
 <endif>
 <if(TREE_PARSER)>
 * - for the tree parser : <name>TreeParser
 <endif>
 *
 * Editing it, at least manually, is not wise.
 *
 * ObjC language generator and runtime by Alan Condit, acondit|hereisanat|ipns|dotgoeshere|com.
 *
 *
 >>

/** The overall file structure of a recognizer; stores methods for rules
 * and cyclic DFAs plus support code.
 */
outputFile( LEXER,
            PARSER,
            TREE_PARSER,
            actionScope,
            actions,
            docComment,
            recognizer,
            name,
            tokens,
            tokenNames,
            rules,
            cyclicDFAs,
            bitsets,
            buildTemplate,
            buildAST,
            rewriteMode,
            profile,
            backtracking,
            synpreds,

```

```

        memoize,
        numRules,
        fileName,
        ANTLRVersion,
        generatedTimestamp,
        trace,
        scopes,
        superClass,
        literals
    ) ::=
<<
<leadIn("OBJC source")>
*/
// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>

<! <if(actions.(actionScope).header)>
/* =====
* This is what the grammar programmer asked us to put at the top of every file.
*/
<actions.(actionScope).header>
/* End of Header action.
* =====
*/
<endif> !>

/* -----
* Include the ANTLR3 generated header file.
*/
#import "<name><!<if(LEXER)>Lexer<else><if(TREE_PARSER)>Tree<endif>Parser<endif>!>.h"
<actions.(actionScope).postinclude>
/*
----- */

<docComment>

<if(literals)>
/** String literals used by <name> that we must do things like MATCHS() with.
* C will normally just lay down 8 bit characters, and you can use L"xxx" to
* get wchar_t, but wchar_t is 16 bits on Windows, which is not UTF32 and so
* we perform this little trick of defining the literals as arrays of UINT32
* and passing in the address of these.
*/
<literals:{it | static ANTLR3_UCHAR lit_<i>[] = <it>;}; separator="\n">

<endif>

/* ===== */
/* ===== */

```

```

* Start of recognizer
*/
<recognizer>
>>
headerFileExtension() ::= ".h"

headerFile( LEXER,
            PARSEr,
            TREE_PARSEr,
            actionScope,
            actions,
            docComment,
            recognizer,
            name,
            tokens,

            tokenNames,
            rules,
            cyclicDFAs,
            bitsets,
            buildTemplate,
            buildAST,
            rewriteMode,
            profile,
            backtracking,
            synpreds,
            memoize,
            numRules,
            fileName,
            ANTLRVersion,
            generatedTimestamp,
            trace,
            scopes,
            superClass,
            literals
            ) ::=

<<
// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>

<@imports>
<actions.(actionScope).preincludes>
/* =====
* Standard antlr OBJC runtime definitions
*/
#import \<Cocoa/Cocoa.h>
#import \<ANTLR/ANTLR.h>
/* End of standard antlr3 runtime definitions
* =====

```

```
*/  
<actions.(actionScope).includes>  
<@end>
```

```
<if(LEXER)>  
<lexerHeaderFile(...)>  
<endif>  
<if(PARSER)>  
<parserHeaderFile(...)>  
<endif>  
<if(TREE_PARSER)>  
<treeParserHeaderFile(...)>  
<endif>  
<docComment>  
>>
```

```
lexerHeaderFile(  
LEXER,  
    PARSER,  
    TREE_PARSER,  
    actionScope,  
    actions,  
    docComment,  
    recognizer,  
    name,  
    tokens,  
    tokenNames,  
    rules,  
    cyclicDFAs,  
    bitsets,  
    buildTemplate,  
    profile,  
    backtracking,  
    synpreds,  
    memoize,  
    numRules,  
    fileName,  
    ANTLRVersion,  
    generatedTimestamp,  
    trace,  
    scopes,  
    superClass="Lexer"  
    ) ::=
```

```
<<
```

```
<if(actions.(actionScope).header)>
```

```
/* =====
```

```
* This is what the grammar programmer asked us to put at the top of every file.
```

```

*/
<actions.(actionScope).header>
/* End of Header action.
* =====
*/
<endif>

/* Start cyclicDFAInterface */
<cyclicDFAs:cyclicDFAInterface(>

#pragma mark Rule return scopes Interface start
<rules:{ rule |
<rule.ruleDescriptor:{ruleDescriptor | <returnScopeInterface(scope=ruleDescriptor.returnScope)>>>}>
#pragma mark Rule return scopes Interface end
#pragma mark Tokens
#ifndef TOKENLISTAlreadyDefined
#define TOKENLISTAlreadyDefined 1
#ifdef EOF
#undef EOF
#endif
<tokens:{it | #define <it.name> <it.type>}; separator="\n">
#endif
/* interface lexer class */
@interface <className()> <@superClassName>: <superClass><@end> { // line 283
<cyclicDFAs:{ dfa | DFA<dfa.decisionNumber> *dfa<dfa.decisionNumber>;}; separator="\n">
<synpreds:{ pred | SEL <pred>Selector;}; separator="\n">
/* ObjC start of actions.lexer.memVars */
<actions.lexer.memVars>
/* ObjC end of actions.lexer.memVars */
}
+ (void) initialize;
+ (<className()> *)new<className()>WithCharStream:(id<CharStream>)anInput;
/* ObjC start actions.lexer.methodsDecl */
<actions.lexer.methodsDecl>
/* ObjC
end actions.lexer.methodsDecl */
<rules:{ rule |
- (<rule.ruleDescriptor:{ruleDescriptor|<returnType()>>})
<if(!rule.ruleDescriptor.isSynPred)>m<rule.ruleName><else><rule.ruleName>_fragment<endif>
<if(rule.ruleDescriptor.parameterScope)><rule.ruleDescriptor.parameterScope:parameterScope()><endif>; };
separator="\n"><\n>
@end /* end of <className()> interface */<\n>
>>

headerReturnScope(ruleDescriptor) ::= "<returnScopeInterface(...)>"
headerReturnTypes(ruleDescriptor) ::= <<
<if(LEXER)>
<if(!r.ruleDescriptor.isSynPred)>

```



```

void
<else>
<ruleDescriptor:returnType()>
<endif>
<else>
<ruleDescriptor:returnType()>
<endif>
>>
// Produce the lexer output
lexer( grammar,
      name,
      tokens,
      scopes,
      rules,
      numRules,
      filterMode,
      labelType="CommonToken",
      superClass="Lexer"
      ) ::= <<
<cyclicDFAs:cyclicDFA()>

/** As per Terence: No returns for lexer rules! */
<!
#pragma mark Rule return scopes start
<rules:{rule | <rule.ruleDescriptor:{ruleDescriptor
|
<returnScopeImplementation(scope=ruleDescriptor.returnScope)>}>
}>
#pragma mark Rule return scopes end
!>
@implementation <grammar.recognizerName> // line 330

+ (void) initialize
{
    [BaseRecognizer setGrammarFileName:@"<fileName>"];
}

+ (NSString *) tokenNameForType:(NSInteger)aTokenType
{
    return [[self getTokenNames] objectAtIndex:aTokenType];
}

+ (<grammar.recognizerName> *)new<grammar.recognizerName>WithCharStream:(id<CharStream>)anInput
{
    return [[<grammar.recognizerName> alloc] initWithCharStream:anInput];
}

- (id) initWithCharStream:(id<CharStream>)anInput

```

```

{
    self = [super initWithCharStream:anInput State:[RecognizerSharedState
newRecognizerSharedStateWithRuleLen:<numRules>+1]];
    if ( self != nil ) {
<if(memoize)>
        if ( state.ruleMemo == nil ) {
            state.ruleMemo = [[RuleStack newRuleStackWithSize:<numRules>+1] retain];
        }
        if ( [state.ruleMemo count] == 0 ) {
            // initialize the memoization cache
            - the indices are 1-based in the runtime code!
            <! [state.ruleMemo addObject:[NSNull null]]; /* dummy entry to ensure 1-basedness. */ !>
            for (NSInteger i = 0; i \< <numRules>; i++) {
                [state.ruleMemo addObject:[HashRule newHashRuleWithLen:17]];
            }
        }
<endif>
        <synpreds:{ pred | <lexerSynpred(name=pred)>};separator="\n">
        <cyclicDFAs:{ dfa | dfa<dfa.decisionNumber> = [DFA<dfa.decisionNumber>
newDFA<dfa.decisionNumber>WithRecognizer:self];}; separator="\n">
        <actions.lexer.init>
    }
    return self;
}

- (void) dealloc
{
    <cyclicDFAs:{ dfa | [dfa<dfa.decisionNumber> release];}; separator="\n">
<actions.lexer.dealloc>
    [super dealloc];
}

/* ObjC Start of actions.lexer.methods */
<actions.lexer.methods>
/* ObjC end of actions.lexer.methods */
/* ObjC start methods() */
<@methods()>
/* ObjC end methods() */

<if(actions.lexer.reset)>
- (void) reset
{
    <actions.lexer.reset>
    [super reset];
}
<endif>

<if(filterMode)>

```

```

<filteringNextToken(>
<endif>
/*
Start of Rules */
<rules; separator="\n">

@end /* end of <grammar.recognizerName> implementation line 397 */
>>

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
- (id\<Token>) nextToken
{
while (YES) {
if ( [input LA:1] == CharStreamEOF ) {
return [<labelType> eofToken];
}
state.token = nil;
state.channel = TokenChannelDefault;
state.tokenStartCharIndex = input.index;
state.tokenStartCharPositionInLine = input.charPositionInLine;
state.tokenStartLine = input.line;
state.text = nil;
@try {
NSInteger m = [input mark];
state.backtracking
= 1; /* means we won't throw slow exception */
state.failed = NO;
[self mTokens];
state.backtracking = 0;
/* mTokens backtracks with synpred at backtracking==2
and we set the synpredgate to allow actions at level 1. */
if ( state.failed ) {
[input rewind:m];
[input consume]; /* advance one char and try again */
} else {
[self emit];
return state.token;
}
}
}
@catch (RecognitionException *re) {
// shouldn't happen in backtracking mode, but...
[self reportError:re];
}
}

```

```

        [self recover:re];
    }
}
}

- (void)memoize:(id<IntStream>)anInput
  RuleIndex:(NSInteger)ruleIndex
  StartIndex:(NSInteger)ruleStartIndex
{
    if ( state.backtracking > 1 ) [super memoize:anInput RuleIndex:ruleIndex StartIndex:ruleStartIndex];
}

- (BOOL)alreadyParsedRule:(id<IntStream>)anInput
  RuleIndex:(NSInteger)ruleIndex
{
    if ( state.backtracking > 1 ) return [super alreadyParsedRule:anInput RuleIndex:ruleIndex];
    return NO;
}
>>

actionGate() ::= "state.backtracking == 0"

filteringActionGate() ::= "state.backtracking == 1"

parserHeaderFile( LEXER,
    PARSER,
    TREE_PARSER,
    actionScope,
    actions,
    docComment,
    recognizer,
    name,
    tokens,
    tokenNames,
    rules,
    cyclicDFAs,
    bitsets,
    buildTemplate,
    profile,
    backtracking,
    synpreds,
    memoize,
    numRules,
    fileName,
    ANTLRVersion,
    generatedTimestamp,
    trace,
    scopes,

```

```

        literals,
        superClass="Parser"
    ) ::= <<
/* parserHeaderFile */
<genericParserHeaderFile(inputStreamType="id\<TokenStream>",...)>
>>

treeParserHeaderFile(
    LEXER,
        PARSER,
        TREE_PARSER,
        actionScope,
        actions,
        docComment,
        recognizer,
        name,
        tokens,
        tokenNames,
        rules,
        cyclicDFAs,
        bitsets,
        buildTemplate,
        profile,
        backtracking,
        synpreds,
        memoize,
        numRules,
        fileName,
        ANTLRVersion,
        generatedTimestamp,
        trace,
        scopes,
        literals,
        superClass="TreeParser"
    ) ::= <<
/* treeParserHeaderFile */
<genericParserHeaderFile(inputStreamType="id\<TreeNodeStream>",...)>
>>

genericParserHeaderFile( LEXER,
    PARSER,
    TREE_PARSER,
    actionScope,
    actions,
    docComment,
    recognizer,
    name,
    tokens,

```

```

    tokenNames,
    rules,
    cyclicDFAs,
    bitsets,
    buildTemplate,
    profile,
    backtracking,
    synpreds,
    memoize,
    numRules,
    fileName,
    ANTLRVersion,
    generatedTimestamp,
    trace,
    scopes,
    superClass,
    literals,
    inputStreamType
) ::=
<<
<if(actions.(actionScope).header)>
/* =====
* This is what the grammar programmer asked us to put at the top of every file.
*/
<actions.(actionScope).header>
/* End of Header action.
* =====
*/
<endif>

#ifndef ANTLR3TokenTypeAlreadyDefined
#define ANTLR3TokenTypeAlreadyDefined
typedef enum {
    ANTLR_EOF = -1,
    INVALID,
    EOR,
    DOWN,
    UP,
    MIN
} ANTLR3TokenType;
#endif

<cyclicDFAs:cyclicDFAInterface(>
#pragma mark Tokens
#ifndef TOKENLISTAlreadyDefined
#define TOKENLISTAlreadyDefined
1
#endif EOF

```

```

#undef EOF
#endif
<tokens:{it | #define <it.name> <it.type>}; separator="\n">
#endif
#pragma mark Dynamic Global Scopes globalAttributeScopeInterface
<scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeInterface(scope=it)><endif>}>
#pragma mark Dynamic Rule Scopes ruleAttributeScopeInterface
<rules:{rule |
<rule.ruleDescriptor:{ ruleDescriptor | <ruleAttributeScopeInterface(scope=ruleDescriptor.ruleScope)>}>>
#pragma mark Rule Return Scopes returnScopeInterface
<rules:{rule |<rule.ruleDescriptor:{ ruleDescriptor |
<returnScopeInterface(scope=ruleDescriptor.returnScope)>}>}>

/* Interface grammar class */
@interface <className()> <@superClassName> : <superClass><@end> { /* line 572 */
#pragma mark Dynamic Rule Scopes ruleAttributeScopeDecl
<rules:{rule | <rule.ruleDescriptor.ruleScope:ruleAttributeScopeDecl(scope=rule.ruleDescriptor.ruleScope)>}>
#pragma mark Dynamic Global Rule Scopes globalAttributeScopeMemVar
<scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeMemVar(scope=it)><endif>}><\n>
/*
ObjC start of actions.(actionScope).memVars */
<actions.(actionScope).memVars>
/* ObjC end of actions.(actionScope).memVars */
/* ObjC start of memVars */
<@memVars()>
/* ObjC end of memVars */

<cyclicDFAs:{ dfa | DFA<dfa.decisionNumber> *dfa<dfa.decisionNumber>;}; separator="\n">
<synpreds:{ pred | SEL <pred>Selector;}; separator="\n">
}

/* ObjC start of actions.(actionScope).properties */
<actions.(actionScope).properties>
/* ObjC end of actions.(actionScope).properties */
/* ObjC start of properties */
<@properties()>
/* ObjC end of properties */

+ (void) initialize;
+ (<className()> *) new<className()>:(<inputStreamType>)aStream;
/* ObjC start of actions.(actionScope).methodsDecl */
<actions.(actionScope).methodsDecl>
/* ObjC end of actions.(actionScope).methodsDecl */

/* ObjC start of methodsDecl */
<@methodsDecl()>
/* ObjC end of methodsDecl */

```

```

<rules:{rule |
-
(<rule.ruleDescriptor:{ruleDescriptor|<returnType()>}>><if(!rule.ruleDescriptor.isSynPred)><rule.ruleName><else
><rule.ruleName>_fragment<endif><if(rule.ruleDescriptor.parameterScope)><rule.ruleDescriptor.parameterScope:
parameterScope()><endif>;
}; separator="\n"><\n>

@end /* end of <className()> interface */<\n>
>>

```

```

parser( grammar,
    name,
    scopes,
    tokens,
    tokenNames,
    rules,
    numRules,
    bitsets,
    ASTLabelType="CommonTree",
    superClass="Parser",
    labelType="CommonToken",
    members={<actions.parser.members>}
) ::= <<
<genericParser(inputStreamType="id\<TokenStream>", rewriteElementType="Token", ...)>
>>

```

```

/** How to generate a tree parser; same as parser except the input
* stream is a different type.
*/

```

```

treeParser( grammar,
    name,
    scopes,
    tokens,
    tokenNames,
    globalAction,
    rules,
    numRules,
    bitsets,
    filterMode,
    labelType={<ASTLabelType>},
    ASTLabelType="CommonTree",
    superClass={<if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif>},
    members={<actions.treeparser.members>}
) ::= <<
<genericParser(inputStreamType="id\<TreeNodeStream>", rewriteElementType="Node", ...)>
>>

```

```

/** How to generate a parser */

```



```

genericParser( grammar,
    name,
    scopes,
    tokens,
    tokenNames,
    rules,
    numRules,
    cyclicDFAs,    // parser init -- initializes the DFAs
    bitsets,
    labelType,
    ASTLabelType,
    superClass,
    members,
    filterMode,
    rewriteElementType,
    inputStreamType
) ::= <<
<cyclicDFAs:cyclicDFA(>

#pragma mark Bitsets
<bitsets:{it | <bitset(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>}, words64=it.bits)>>>

#pragma mark Dynamic Global globalAttributeScopeImplementation
<scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeImplementation(scope=it)><endif>>>

#pragma mark Dynamic
Rule Scopes ruleAttributeScopeImplementation
<rules:{rule |
<rule.ruleDescriptor:{ ruleDescriptor | <ruleAttributeScopeImplementation(scope=ruleDescriptor.ruleScope)>>>>

#pragma mark Rule Return Scopes returnScopeImplementation
<rules:{rule | <rule.ruleDescriptor:{ ruleDescriptor |
<returnScopeImplementation(scope=ruleDescriptor.returnScope)>>>>

@implementation <grammar.recognizerName> // line 637

/* ObjC start of ruleAttributeScope */
#pragma mark Dynamic Rule Scopes ruleAttributeScope
<rules:{rule | <rule.ruleDescriptor.ruleScope:ruleAttributeScope(>>>
/* ObjC end of ruleAttributeScope */
#pragma mark global Attribute Scopes globalAttributeScope
/* ObjC start globalAttributeScope */
<scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScope(>><endif>>>
/* ObjC end globalAttributeScope */
/* ObjC start actions.(actionScope).synthesize */
<actions.(actionScope).synthesize>
/* ObjC start synthesize() */
<@synthesize(>

```

```

+ (void) initialize
{
    #pragma mark Bitsets

    <bitsets:{it | <bitsetInit(name={ FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>}, words64=it.bits)>>
    [BaseRecognizer setTokenNames:[[AMutableArray arrayWithObjects:@"\<invalid>", @"\<EOR>",
    @"\<DOWN>", @"\<UP>", <tokenNames:{it | @<it>}; separator=", ", wrap="\n ", nil] retain]];
    [BaseRecognizer setGrammarFileName:@"<fileName>"];
    <synpreds:{pred | <synpred(pred)>>
}

+ (<grammar.recognizerName> *)new<grammar.recognizerName>:(<inputStreamType>)aStream
{
<if(PARSER)>
    return [[<grammar.recognizerName> alloc] initWithTokenStream:aStream];
<else><! TREE_PARSER !>
    return [[<grammar.recognizerName> alloc] initWithStream:aStream];
<endif>
}

<if(PARSER)>
- (id) initWithTokenStream:(<inputStreamType>)aStream
{
    self = [super initWithTokenStream:aStream State:[[RecognizerSharedState
newRecognizerSharedStateWithRuleLen:<numRules>+1] retain]];
    if ( self != nil ) {
<else><! TREE_PARSER !>
- (id) initWithStream:(<inputStreamType>)aStream
{
    self = [super initWithStream:aStream
State:[[RecognizerSharedState newRecognizerSharedStateWithRuleLen:<numRules>+1] retain]];
    if ( self != nil ) {
<endif>
        <! <parserCtorBody()> !>
        <cyclicDFAs:{dfa | dfa<dfa.decisionNumber> = [DFA<dfa.decisionNumber>
newDFA<dfa.decisionNumber>WithRecognizer:self];}; separator="\n">
        <scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeInit(scope=it)><endif>>}>
        <rules:{rule | <rule.ruleDescriptor.ruleScope:ruleAttributeScopeInit()>>}>
        /* start of actions-actionScope-init */
        <actions.(actionScope).init>
        /* start of init */
        <@init()>
    }
    return self;
}

- (void) dealloc

```

```

{
  <cyclicDFAs:{dfa | [dfa<dfa.decisionNumber> release];}; separator="\n">
  <scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeDealloc(scope=it)><endif> }>
  <actions.(actionScope).dealloc>
  <@dealloc()>
  [super dealloc];
}

/* ObjC start actions.(actionScope).methods */
<actions.(actionScope).methods>
/* ObjC
end actions.(actionScope).methods */
/* ObjC start methods() */
<@methods()>
/* ObjC end methods() */
/* ObjC start rules */
<rules; separator="\n">
/* ObjC end rules */

@end /* end of <grammar.recognizerName> implementation line 692 */<\n>
>>

parserCtorBody() ::= <<
<if(memoize)> /* parserCtorBody */
<if(grammar.grammarIsRoot)>
state.ruleMemo = [[RuleStack newRuleStack:<numRules>+1] retain];<\n> <! index from 1..n !>
<endif>
<endif>
<grammar.delegators:
{g|this.<g:delegateName()> = <g:delegateName()>;}; separator="\n">
>>

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock)
::=
<<
// $ANTLR start <ruleName>_fragment
- (void) <ruleName>_fragment
{
  <ruleLabelDefs()>
  <if(trace)>
    [self traceIn:@"<ruleName>_fragment" Index:<ruleDescriptor.index>];

```

```

    @try {
        <block>
    }
    @finally {
        [self traceOut:@"<ruleName>_fragment" Index:<ruleDescriptor.index>];
    }
<else>
    <block>
<endif>
} // $ANTLR end <ruleName>_fragment
>>

synpred(name) ::= <<
SEL <name>Selector = @selector(<name>_fragment);
<!// $ANTLR start <name>
- (BOOL) <name>
{
    state.backtracking++;
    <@start()>
    NSInteger start = [input mark];
    @try {
        [self <name>_fragment]; // can never throw exception
    }
    @catch (RecognitionException *re) {
        NSLog(@"impossible: %@\n", re.name);
    }
    BOOL success = (state.failed == NO);
    [input rewind:start];
    <@stop()>
    state.backtracking--;
    state.failed=NO;
    return success;
} // $ANTLR end <name> <\n> !>
>>

lexerSynpred(name) ::= <<
<synpred(name)>
>>

ruleMemoization(name)
::= <<
<if(memoize)>
if ( state.backtracking > 0 && [self alreadyParsedRule:input RuleIndex:<ruleDescriptor.index>] ) { return
<ruleReturnValue()>; }
<endif>
>>

/** How to test for failure and return from rule */

```

```

checkRuleBacktrackFailure() ::= <<
<if (backtracking)>if ( state.failed ) return <ruleReturnValue(>;<endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>if ( state.backtracking > 0 ) { state.failed = YES; return <ruleReturnValue(>; }<\n><endif>
>>

/** How to generate code for a rule.
* The return type aggregates are declared in the header file (headerFile template)
*/
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<

/*
* $ANTLR start <ruleName>
* <fileName>:<description>
*/
- (<returnType(>) <ruleName><ruleDescriptor.parameterScope:parameterScope(>)
{
<if(trace)>[self traceIn:\@"<ruleName>" Index:<ruleDescriptor.index>];<endif>
<if(trace)>NSLog(@"enter
<ruleName> %@ failed=%@ backtracking=%d", [input LT:1], (state.failed==YES)?@"YES":@"NO",
state.backtracking);<endif>
<ruleScopeSetUp(>
<ruleDeclarations(>
<ruleDescriptor.actions.init>
<@preamble(>
@try {
<ruleMemoization(name=ruleName)>
<ruleLabelDefs(>
<block>
<ruleCleanUp(>
<(ruleDescriptor.actions.after):execAction(>
}
<if(exceptions)>
<exceptions:{e|<catch(decl=e.decl,action=e.action)><\n>}}>
<else><if(!emptyRule)><if(actions.(actionScope).rulecatch)>
<actions.(actionScope).rulecatch>
<else>
@catch (RecognitionException *re) {
[self reportError:re];
[self recover:input Exception:re];
<@setErrorReturnValue(>
}<\n>
<endif><endif><endif>
@finally {
<if(trace)>[self traceOut:@"<ruleName>" Index:<ruleDescriptor.index>];<endif>

```

```

    <memoize()>
    <ruleScopeCleanUp()>
    <finally>
  }
  <@postamble()>
  return <ruleReturnValue()>;
}
/*
$ANTLR end <ruleName> */
>>

finalCode(finalBlock) ::= <<
{
  <finalBlock>
}
>>

catch(decl,action) ::= <<
@catch (<e.decl>) {
  <e.action>
}
>>

ruleDeclarations() ::= <<
/* ruleDeclarations */
<if(ruleDescriptor.hasMultipleReturnValues)>
<returnType()> retval = [<ruleDescriptor:returnStructName()> new<ruleDescriptor:returnStructName()>];
[retval setStart:[input LT:1]];<n>
<else>
<ruleDescriptor.returnScope.attributes: { a |
<a.type> <a.name> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
NSInteger <ruleDescriptor.name>_startIndex = input.index;
<endif>
>>

ruleScopeSetUp() ::= <<
/* ruleScopeSetUp */
<ruleDescriptor.useScopes: { it | [<it>_stack push:[<it>_Scope new<it>_Scope];]}>
<ruleDescriptor.ruleScope: { it | [<it.name>_stack push:[<it.name>_Scope new<it.name>_Scope];]}>
>>

ruleScopeCleanUp() ::= <<
/* ruleScopeCleanUp */
<ruleDescriptor.useScopes: { it | [<it>_stack pop];}; separator="\n">
<ruleDescriptor.ruleScope: { it | [<it.name>_stack

```

```
pop];}; separator="\n">
```

```
>>
```

```
ruleLabelDefs() ::= <%
```

```
/* ruleLabelDefs entry */<"\n">
```

```
<[ruleDescriptor.tokenLabels, ruleDescriptor.tokenListLabels,  
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
```

```
:{it |<labelType> *<it.label.text> = nil;}; separator="\n"><"\n">
```

```
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]  
:{it | AMutableArray *list_<it.label.text> = nil;}; separator="\n"><"\n">
```

```
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n"><"\n">
```

```
<ruleDescriptor.ruleListLabels:{|l|ParserRuleReturnScope *<l.label.text> = nil;}; separator="\n"><"\n">  
%>
```

```
lexerRuleLabelDefs() ::= <<
```

```
<[ruleDescriptor.tokenLabels,  
ruleDescriptor.tokenListLabels,  
ruleDescriptor.ruleLabels]
```

```
:{it |<labelType> *<it.label.text>=nil;}; separator="\n"
```

```
>
```

```
<ruleDescriptor.charLabels:{it |NSInteger <it.label.text>;}; separator="\n">
```

```
<[ruleDescriptor.tokenListLabels,  
ruleDescriptor.ruleListLabels]:{it |AMutableArray  
*list_<it.label.text>=nil; }; separator="\n">
```

```
>>
```

```
ruleReturnValue() ::= <%
```

```
<if(!ruleDescriptor.isSynPred)>
```

```
<if(ruleDescriptor.hasReturnValue)>
```

```
<if(ruleDescriptor.hasSingleReturnValue)>
```

```
<ruleDescriptor.singleValueReturnName>
```

```
<else>
```

```
retval
```

```
<endif>
```

```
<endif>
```

```
<endif>
```

```
%>
```

```
ruleCleanUp() ::= <<
```

```
/* token+rule list labels */
```

```
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels]:{it |[[list_<it.label.text> release];}; separator="\n">
```

```
<if(ruleDescriptor.hasMultipleReturnValues)>
```

```
<if(!TREE_PARSER)>
```

```
[retval setStop:[input LT:-1]];<\n>
```

```
<endif><endif>
```

```
>>
```

```
memoize() ::= <<
```

```

<if(memoize)>
<if(backtracking)>
if (state.backtracking > 0) [self memoize:input RuleIndex:<ruleDescriptor.index>
StartIndex:<ruleDescriptor.name>_StartIndex];
<endif><endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName, nakedBlock, ruleDescriptor, block, memoize) ::= <<
// $ANTLR start "<ruleName>"
- (void)
m<ruleName><if(ruleDescriptor.parameterScope)><ruleDescriptor.parameterScope:parameterScope(scope=it)><en
dif>
{
  //<if(trace)>[self traceIn:\@"<ruleName>" Index:<ruleDescriptor.index>];<endif>
<if(trace)>NSLog(@"enter <ruleName> %C line=%d:%d failed=%@ backtracking=%d",
  [input LA:1],
  self.line,
  self.charPositionInLine,
  (state.failed==YES) ? @"YES" : @"NO",
  state.backtracking);
<endif>
<ruleScopeSetUp()>
<ruleDeclarations()>
  @try {
<if(nakedBlock)>
  <ruleMemoization(name=ruleName)>
  <lexerRuleLabelDefs()>
  <ruleDescriptor.actions.init>
  <block><\n>
<else>
  NSInteger _type = <ruleName>;
  NSInteger _channel = TokenChannelDefault;
  <ruleMemoization(name=ruleName)>
  <lexerRuleLabelDefs()>
  <ruleDescriptor.actions.init>
  <block>
  <ruleCleanUp()>
  state.type = _type;
  state.channel = _channel;
  <(ruleDescriptor.actions.after):execAction()>
<endif>
  }
  @finally {

```



```

//<if(trace)>[self traceOut:[NSString stringWithFormat:@"<ruleName> %d\n", <ruleDescriptor.index>]];<endif>
    <if(trace)>NSLog(@"exit <ruleName> %C line=%d:%d failed=%@ backtracking=%d",
        [input LA:1], self.line, self.charPositionInLine,
        (state.failed==YES) ? @"YES" : @"NO", state.backtracking);<endif>
    <ruleScopeCleanUp()>
    <memoize()>
}
return;
}
/* $ANTLR end "<ruleName>" */
>>

```

```

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */

```

```

tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
- (void) mTokens
{
    <block><\n>
}
>>

```

## // S U B R U L E S

```

/** A (...) subrule with multiple alternatives */

```

```

block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description> // block
NSInteger alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>
<@prebranch()>
switch (alt<decisionNumber>)
{
    <alts:{a | <altSwitchCase(i, a)>}>
}
<@postbranch()>
>>

```

```

/** A rule block with multiple alternatives */

```

```

ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description> //ruleblock
NSInteger alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>

```

```

switch (alt<decisionNumber>) {
  <alts:{ a | <altSwitchCase(i, a)>}>
}
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description> // ruleBlockSingleAlt
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description> // blockSingleAlt
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
 ::= <<
// <fileName>:<description> // positiveClosureBlock
NSInteger cnt<decisionNumber> = 0;
<decls>
<@preloop()>
do {
  NSInteger alt<decisionNumber> = <maxAlt>;
  <@predecision()>
  <decision>
  <@postdecision()>
  switch (alt<decisionNumber>) {
    <alts:{ a | <altSwitchCase(i, a)>}>
    default :
      if ( cnt<decisionNumber> >= 1 )
        goto loop<decisionNumber>;
      <ruleBacktrackFailure()>
      EarlyExitException *eee =
        [EarlyExitException newException:input decisionNumber:<decisionNumber>];
      <@earlyExitException()>
      @throw eee;
  }
  cnt<decisionNumber>++;
} while (YES);

```

```
loop<decisionNumber>;
<@postloop()>
>>
```

```
positiveClosureBlockSingleAlt ::= positiveClosureBlock
```

```
/** A (..)* block with 0 or more alternatives */
```

```
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
<decls>
<@preloop()>
do {
  NSInteger alt<decisionNumber>=<maxAlt>;
  <@predecision()>
  <decision>
  <@postdecision()>
  switch (alt<decisionNumber>) {
    <alts:{a | <altSwitchCase(i, a)>}>
    default :
      goto loop<decisionNumber>;
  }
} while (YES);
loop<decisionNumber>;
<@postloop()>
>>
```

```
closureBlockSingleAlt ::= closureBlock
```

```
/** Optional blocks (x)? are translated to (x|) by before code generation
```

```
* so we can just use the normal block template
```

```
*/
```

```
optionalBlock ::= block
```

```
optionalBlockSingleAlt ::= block
```

```
/** A case in a switch that jumps to an alternative given the alternative
```

```
* number. A DFA predicts the alternative and then a simple switch
```

```
* does the jump to the code that actually matches that alternative.
```

```
*/
```

```
altSwitchCase(altNum, alt) ::= <<
```

```
case <altNum> : ;
```

```
  <@prealt()>
```

```
  <alt>
```

```
  break;<\n>
```

```
>>
```

```
/** An alternative is just a list of elements; at outermost level */
```

```
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew)
```

```

 ::= <<
 // <fileName>:<description> // alt
 {
 <@declarations()>
 <elements:element()>
 <rew>
 <@cleanup()>
 }
 >>

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element(e) ::= << <@prematch()><\n><e.el><\n> >>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
<if(label)><label>=(<labelType> *)<endif>[self match:input TokenType:<token>
Follow:FOLLOW_<token>_in_<ruleName><elementIndex>]; <checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

listLabel(label,elem) ::= <<
if (list_<label> == nil) list_<label> = [[AMutableArray arrayWithCapacity:5] retain];
[list_<label> addObject:<elem>];<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>NSInteger <label> =
[input LA:1];<\n><endif>
[self matchChar:<char>]; <checkRuleBacktrackFailure()><\n>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)><label> = [input LA:1];<\n><endif>
[self matchRangeFromChar:<a> to:<b>]; <checkRuleBacktrackFailure()>

```

>>

```
/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,terminalOptions,postmatchCode="") ::= <<
<if(label)>
<if(LEXER)>
<label> = [input LA:1];<\n>
<else>
<label> = (<labelType> *)[input LT:1]; /* matchSet */<\n>
<endif><endif>
if (<s>) {
  [input consume];
  <postmatchCode>
<if(!LEXER)>
  [state setIsErrorRecovery:NO];
<endif>
  <if(backtracking)>state.failed = NO;<\n><endif>
} else {
  <ruleBacktrackFailure()>
  MismatchedSetException *mse = [MismatchedSetException newException:nil stream:input];
  <@mismatchedSetException()>
<if(LEXER)>
<if(label)>
  mse.c = <label>;
<endif>
  [self recover:mse];
  @throw mse;
<else>
  @throw mse;
  <! use following code to
make it recover inline; remove throw mse;
  [self recoverFromMismatchedSet:input exception:mse follow:FOLLOW_set_in_<ruleName><elementIndex>]; !>
<endif>
}<\n>
>>
```

matchRuleBlockSet ::= matchSet

```
matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(elem=label,...)>
>>
```

```
/** Match a string literal */
lexerStringRef(string,label,elementIndex="0") ::= <<
<if(label)>
NSInteger <label>Start = input.index;
[self matchString:<string>]; <checkRuleBacktrackFailure()>
```

```

NSInteger StartLine<elementIndex> = self.line;
NSInteger <label>StartCharPos<elementIndex> = self.charPositionInLine;
<label> = [[<labelType> newToken:input Type:TokenTypeInvalid Channel:TokenChannelDefault
Start:<label>Start Stop:input.index] retain];
[self setLine:<label>StartLine<elementIndex>];
[self setCharPositionInLine:<label>StartCharPos<elementIndex>];
<else>
[self matchString:<string>]; <checkRuleBacktrackFailure()><\n>
<endif>
>>

```

```

wildcard(token,label,elementIndex,terminalOptions)
 ::= <<
<if(label)>
<label> = (<labelType> *)[input LT:1];<\n>
<endif>
[self matchAny:input]; <checkRuleBacktrackFailure()>
>>

```

```

wildcardAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<wildcard(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
NSInteger <label> = [input LA:1];<\n>
<endif>
[self matchAny]; <checkRuleBacktrackFailure()><\n>
>>

```

```

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabel(elem=label,...)>
>>

```

```

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
/* ruleRef */
[self pushFollow:FOLLOW_<rule.name>_in_<ruleName><elementIndex>];
<if(label)><label> = <endif>[self <if(scope)><scope.delegateName()>.<endif><rule.name><if(args)>:<first(args)>

```

```

<rest(args):{ a | arg<i>:<rest(args)>}; separator=" "><endif>];<\n>
[self popFollow];
<checkRuleBacktrackFailure()><\n>
>>

/** ids+=r */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabel(elem=label,...)>
>>

/** A lexer rule reference.
 *
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
<if(label)>
NSInteger <label>Start<elementIndex> = input.index;
[self m<rule.name><if(args)>:<args; separator=":"><endif>]; <checkRuleBacktrackFailure()><\n>
<label> = [[<labelType> newToken:input Type:TokenTypeInvalid Channel:TokenChannelDefault
Start:<label>Start<elementIndex> Stop:input.index-1] retain];
<label>.line = self.line;
<else>
[self <if(scope)><scope:delegateName()><endif>m<rule.name><if(args)>:<args; separator=":"><endif>]; <checkRuleBacktrackFailure()><\n>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabel(elem=label,...)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
NSInteger <label>Start<elementIndex> = input.index;
[self matchChar:CharStreamEOF]; <checkRuleBacktrackFailure()><\n>
<labelType> <label> = [[<labelType> newToken:input Type:TokenTypeEOF Channel:TokenChannelDefault
Start:<label>Start<elementIndex> Stop:input.index-1] retain];
<label>.line = self.line;
<else>
[self matchChar:CharStreamEOF]; <checkRuleBacktrackFailure()><\n>
<endif>
>>

```

```

// used for left-recursive rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()            ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> |<= <opPrec>"
recRuleSetResultAction() ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name)  ::=
"$<name>=$<src>.<name>;"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList, enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( [input LA:1] == DOWN ) {
    [self match:input TokenType:DOWN Follow:nil]; <checkRuleBacktrackFailure()>
    <children:element()>
    [self match:input TokenType:UP Follow:nil]; <checkRuleBacktrackFailure()>
}
<else>
    [self match:input TokenType:DOWN Follow:nil]; <checkRuleBacktrackFailure()>
    <children:element()>
    [self match:input TokenType:UP Follow:nil]; <checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if ( !(<evalPredicate(...)> ) ) {
    <ruleBacktrackFailure()>
    @throw [FailedPredicateException newException:@"<ruleName>" predicate:@"<description>" stream:input];
}
>>

//
F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
NSInteger LA<decisionNumber>_<stateNumber> = [input LA:<k>];<n>
<edges; separator="\nelse ">
else {
<if(eotPredictsAlt)>
    alt<decisionNumber> = <eotPredictsAlt>;
<else>
    <ruleBacktrackFailure()>
    NoViableAltException *nvae = [NoViableAltException newException:<decisionNumber> state:<stateNumber>

```



```

stream:input];
    nvae.c = LA<decisionNumber>_<stateNumber>;
    <@noViableAltException()>
    @throw nvae;<\n>
<endif>
}
>>

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
NSInteger LA<decisionNumber>_<stateNumber> = [input LA:<k>];<\n>
<edges; separator="\nelse ">
>>

/**
A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
NSInteger LA<decisionNumber>_<stateNumber> = [input LA:<k>];
<edges; separator="\nelse "><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber>=<eotPredictsAlt>; <! if no edges, don't gen ELSE !>
<else>
else {
    alt<decisionNumber> = <eotPredictsAlt>;
}<\n>
<endif><endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber>=<alt>";

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates
for this edge.
 */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> ) {

```

```

    <targetState>
  }
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
  unichar charLA<decisionNumber> = [input LA:<k>];
  switch (charLA<decisionNumber>) {
    <edges; separator="\n"><\n>
  default: ;
  <if(eotPredictsAlt)>
    alt<decisionNumber> = <eotPredictsAlt>;
  <else>
    <ruleBacktrackFailure()>
    NoViableAltException *nvae = [NoViableAltException newException:<decisionNumber> state:<stateNumber>
stream:input];
    nvae.c = charLA<decisionNumber>;
    <@noViableAltException()>
    @throw nvae;<\n>
  <endif>
  }<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
  switch ([input LA:<k>])
  { // dfaOptionalBlockStateSwitch
    <edges; separator="\n"><\n>
  }<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
  switch ([input LA:<k>]) { // dfaLoopbackStateSwitch
    <edges; separator="\n"><\n>
  <if(eotPredictsAlt)>
  default:
    alt<decisionNumber> = <eotPredictsAlt>;
    break;<\n>
  <endif>
  }<\n>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
  <labels:{it | case <it>;}; separator="\n">
  {

```

```

    <targetState>
    }
    break;
>>

// C y c l i c D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = [dfa<decisionNumber> predict:input];
>>

/** Used in headerFile */
cyclicDFAInterface(dfa) ::= <<
#pragma mark Cyclic DFA interface start DFA<dfa.decisionNumber>
@interface DFA<dfa.decisionNumber> : DFA {
}
+ (DFA<dfa.decisionNumber>
 *) newDFA<dfa.decisionNumber>WithRecognizer:(BaseRecognizer *)theRecognizer;
- initWithRecognizer:(BaseRecognizer *)recognizer;
@end /* end of DFA<dfa.decisionNumber> interface */<\n>
#pragma mark Cyclic DFA interface end DFA<dfa.decisionNumber><\n>
>>

/** Used in lexer/parser implementation files */
/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */
cyclicDFA(dfa) ::= <<
#pragma mark Cyclic DFA implementation start DFA<dfa.decisionNumber>

@implementation DFA<dfa.decisionNumber>
const static NSInteger dfa<dfa.decisionNumber>_eot[<dfa.numberOfWorkStates>] =
    {<dfa.eot; wrap="\n    ", separator=",", null="-1">};
const
static NSInteger dfa<dfa.decisionNumber>_eof[<dfa.numberOfWorkStates>] =
    {<dfa.eof; wrap="\n    ", separator=",", null="-1">};
const static unichar dfa<dfa.decisionNumber>_min[<dfa.numberOfWorkStates>] =
    {<dfa.min; wrap="\n    ", separator=",", null="-1">};
const static unichar dfa<dfa.decisionNumber>_max[<dfa.numberOfWorkStates>] =

```

```

    {<dfa.max; wrap="\n    ", separator=",", null="-1">};
const static NSInteger dfa<dfa.decisionNumber>_accept[<dfa.numberofStates>] =
    {<dfa.accept; wrap="\n    ", separator=",", null="-1">};
const static NSInteger dfa<dfa.decisionNumber>_special[<dfa.numberofStates>] =
    {<dfa.special; wrap="\n    ", separator=",", null="-1">};

/** Used when there is no transition table entry for a particular state */
#define dfa<dfa.decisionNumber>_T_empty    nil

<dfa.edgeTransitionClassMap.keys:{ table |
const static NSInteger dfa<dfa.decisionNumber>_T<i0>[] =
{
    <table; separator=", ", wrap="\n ", null="-1">
\};
}; null="">

const static NSInteger *dfa<dfa.decisionNumber>_transition[]
=
{
    <dfa.transitionEdgeTables:{ whichTable|dfa<dfa.decisionNumber>_T<whichTable>}; separator=", ", wrap="\n",
null="nil">
};

+ (DFA<dfa.decisionNumber> *) newDFA<dfa.decisionNumber>WithRecognizer:(BaseRecognizer *)aRecognizer
{
    return [[[DFA<dfa.decisionNumber> alloc] initWithRecognizer:aRecognizer] retain];
}

- (id) initWithRecognizer:(BaseRecognizer *) theRecognizer
{
    self = [super initWithRecognizer:theRecognizer];
    if ( self != nil ) {
        decisionNumber = <dfa.decisionNumber>;
        eot = dfa<dfa.decisionNumber>_eot;
        eof = dfa<dfa.decisionNumber>_eof;
        min = dfa<dfa.decisionNumber>_min;
        max = dfa<dfa.decisionNumber>_max;
        accept = dfa<dfa.decisionNumber>_accept;
        special = dfa<dfa.decisionNumber>_special;
        transition = dfa<dfa.decisionNumber>_transition;
    }
    return self;
}

<if(dfa.specialStateSTs)>
/* start dfa.specialStateSTs */
- (NSInteger) specialStateTransition:(NSInteger)s

```

```

Stream:(id<IntStream>)anInput
{
<if(LEXER)>
  id<IntStream> input = anInput;<\n>
<endif>
<if(PARSER)>
  id<TokenStream> input = (id<TokenStream>)anInput;<\n>
<endif>
<if(TREE_PARSER)>
  id<TreeNodeStream> input = (id<TreeNodeStream>)anInput;<\n>
<endif>
  switch (s) {
    <dfa.specialStateSTs:{state |
      case <i0> : ;<! compressed special state numbers 0..n-1 !>
        <state>}; separator="\n">
  }
<if(backtracking)>
  if ( [recognizer getBacktrackingLevel] > 0 ) { [recognizer setFailed:YES]; return -1; }<\n>
<endif>
  NoViableAltException *nvae = [NoViableAltException newException:<dfa.decisionNumber> state:s
stream:recognizer.input];
  // nvae.c = s;
  /* [self error:nvae]; */ <! for debugger - do later !>
  @throw nvae;
}<\n>
/* end dfa.specialStateSTs */
<endif>

- (void) dealloc
{
  //free(transition);
  [super dealloc];
}

- (NSString *) description
{
  return @"<dfa.description>";
}

<@errorMethod()>

@end /* end DFA<dfa.decisionNumber>
implementation */<\n>
#pragma mark Cyclic DFA implementation end DFA<dfa.decisionNumber>
<\n>
>>
/** A state in a cyclic DFA; it's a special state and part of a big switch on
* state.

```

```

*/
cyclicDFAState(decisionNumber, stateNumber, edges, needErrorClause, semPredState) ::= <<
/* cyclicDFAState */
NSInteger LA<decisionNumber>_<stateNumber> = [input LA:1];<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
NSInteger index<decisionNumber>_<stateNumber> = input.index;
[input rewind];<\n>
<endif>
s = -1;
<edges; separator="\nelse ">
<if(semPredState)> <! return input cursor to state before we rewound !>
[input seek:index<decisionNumber>_<stateNumber>];<\n>
<endif>
if ( s >= 0 )
    return s;
break;
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
/* cyclicDFAEdge */
if (<labelExpr><if(predicates)> && (<predicates>)<endif>)
    { s = <targetStateNumber>;}<\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n> /* eotDFAEdge */
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "<left>&&<right>"

orPredicates(operands) ::= "<operands; separator=\\|\\>"

notPredicate(pred) ::= "!(<evalPredicate(pred, {})>)"

evalPredicate(pred,description) ::= "<pred>"

/*
 * evalSynPredicate(pred,description) ::= "<pred>()"
 *
 * synpreds are broken in cyclic DFA special states

```

```

* Damn! For now, work around with using the selectors directly, and by providing a trampoline evalSynPred
method in
* DFA
*/
/* evalSynPredicate(pred,description) ::= "[self evaluateSyntacticPredicate:<pred>Selector stream:input]" */
evalSynPredicate(pred,description) ::= "[self evaluateSyntacticPredicate:@selector(<pred>_fragment)]"
/* evalSynPredicate(pred,description)
::= "[recognizer <pred>]" */

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber>==<atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
* somewhere. Must ask for the lookahead directly.
*/
isolatedLookaheadTest(atom,k,atomAsInt) ::= "[input LA:<k>] == <atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
(LA<decisionNumber>_<stateNumber> >= <lower> && LA<decisionNumber>_<stateNumber> \<= <upper>)
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "(((input LA:<k>] >=
<lower>) && ([input LA:<k>] \<= <upper>)))"

setTest(ranges) ::= <%
<ranges; separator="|" ">
%>

// A T T R I B U T E S

memVars(scope) ::= <% <scope.attributes:{a|<a.type> <a.name>;<\n>}; separator="\n"> %>

properties(scope) ::= <%
<scope.attributes:{a|@property (assign, getter=get<a.name>, setter=set<a.name>:) <a.type> <a.name>;<\n>};
separator="\n">
%>

methodsDecl(scope) ::= <%
<scope.attributes:{a|
(<a.type>)get<a.name>;<\n>- (void)set<a.name>:(<a.type>)aVal;<\n>}; separator="\n">
%>

synthesize(scope) ::= <% <scope.attributes:{a|@synthesize <a.name>;}; separator="\n"> %>

methods(scope) ::= <%
<scope.attributes:{a|
- (<a.type>)get<a.name> { return( <a.name> ); }\<\n>
- (void)set<a.name>:(<a.type>)aVal { <a.name> = aVal; }\<\n>}; separator="\n">
%>

```

```

globalAttributeScopeInterface(scope) ::= <%
/* globalAttributeScopeInterface */<\n>
@interface <scope.name>_Scope : SymbolsScope {<\n>
<if(scope.attributes)>
<memVars(scope)>
<endif>
}<\n>
<if(scope.attributes)>
/* start of globalAttributeScopeInterface properties */<\n>
<properties(scope)>
/* end globalAttributeScopeInterface properties */<\n>
<endif>

+ (<scope.name>_Scope *)new<scope.name>_Scope;<\n>
- (id) init;<\n>
<if(scope.attributes)>
/* start of globalAttributeScopeInterface methodsDecl */<\n>
<methodsDecl(scope)>
/* End of globalAttributeScopeInterface methodsDecl */<\n>
<endif>
@end /* end of <scope.name>_Scope interface
*/<\n>
%>

globalAttributeScopeMemVar(scope) ::= <%
/* globalAttributeScopeMemVar */<\n>
SymbolStack *<scope.name>_stack;<\n>
<scope.name>_Scope *<scope.name>_scope;<\n>
%>

globalAttributeScopeImplementation(scope) ::= <%
@implementation <scope.name>_Scope /* globalAttributeScopeImplementation */<\n>
<if(scope.attributes)>
/* start of synthesize -- OBJC-Line 1750 */<\n>
<synthesize(scope)><\n>
<endif>
<\n>
+ (<scope.name>_Scope *)new<scope.name>_Scope<\n>
{<\n>
return [[<scope.name>_Scope alloc] init];<\n>
}<\n>
<\n>
- (id) init<\n>
{<\n>
self = [super init];<\n>
return self;<\n>
}<\n>

```



```

<\n>
<if(scope.attributes)>
/* start of iterate get and set functions */<\n>
<methods(scope)><\n>
/* End of iterate get and set functions */<\n>
<endif>
@end /* end of <scope.name>_Scope implementation */<\n><\n>
%>

globalAttributeScopeInit(scope) ::= <<
/* globalAttributeScopeInit */<\n>
<scope.name>_scope = [<scope.name>_Scope new<scope.name>_Scope];<\n>
<scope.name>_stack = [SymbolStack
newSymbolStackWithLen:30];<\n>
>>

globalAttributeScopeDealloc(scope) ::= <% [<scope.name>_stack release];<\n> %>

globalAttributeScope(scope) ::= <%
<if(scope.name)>
static <scope.name>_stack;<\n>
<endif>
%>

ruleAttributeScopeMemVar(scope) ::= <%
/* ObjC ruleAttributeScopeMemVar */<\n>
<if(scope.attributes)>
<scope.name>_Scope *<scope.name>_scope; /* ObjC ruleAttributeScopeMemVar */<\n>
<endif>
%>

ruleAttributeScopeInterface(scope) ::= <%
<if(scope.attributes)>
/* start of ruleAttributeScopeInterface */<\n>
@interface <scope.name>_Scope : SymbolsScope {<\n>
    <memVars(scope)><\n>
}<\n>
<\n>
/* start property declarations */<\n>
<properties(scope)><\n>
/* start method declarations */<\n>
+ (<scope.name>_Scope *)new<scope.name>_Scope;<\n>
- (id) init;<\n>
<methodsDecl(scope)><\n>
@end /* end of ruleAttributeScopeInterface */<\n><\n>
<endif>
%>

```

```

ruleAttributeScopeImplementation(scope) ::= <%
<if(scope.attributes)>
@implementation <scope.name>_Scope /* start of ruleAttributeScopeImplementation
*/<\n>
<synthesize(scope)><\n>
<\n>
+ (<scope.name>_Scope *)new<scope.name>_Scope<\n>
{<\n>
return [[<scope.name>_Scope alloc] init];<\n>
}<\n>
<\n>
- (id) init<\n>
{<\n>
self = [super init];<\n>
return self;<\n>
}<\n>
<\n>
/* start of <scope.name>_Scope get and set functions */<\n>
<methods(scope)><\n>
/* End of <scope.name>_Scope get and set functions */<\n>
@end /* end of ruleAttributeScopeImplementation */<\n><\n>
<endif>
%>

```

```

ruleAttributeScopeInit(scope) ::= <%
/* ruleAttributeScopeInit */<\n>
<scope.name>_scope = [<scope.name>_Scope new<scope.name>_Scope];<\n>
<scope.name>_stack = [SymbolStack newSymbolStackWithLen:30];<\n>
%>

```

```

ruleAttributeScopeDealloc(scope) ::= <% [<scope.name>_Scope release];<\n> %>

```

```

ruleAttributeScope(scope) ::= <%
<if(scope.attributes)>
/* ruleAttributeScope */<\n>
static SymbolStack *<scope.name>_stack;<\n>
static <scope.name>_Scope *<scope.name>_scope;
<endif>
%>

```

```

ruleAttributeScopeDecl(scope) ::= <%
/* ruleAttributeScopeDecl
*/<\n>
<if(scope.attributes)>
<scope.name>_Scope *<scope.name>_scope;<\n>
<endif>
%>

```

```
returnStructName(r) ::= "<className()>_<r.name>_return"
```

```
returnType() ::= <%  
<if(!ruleDescriptor.isSynPred)>  
<if(ruleDescriptor.hasMultipleReturnValues)>  
<ruleDescriptor:returnStructName()> *  
<else>  
<if(ruleDescriptor.hasSingleReturnValue)>  
<ruleDescriptor.singleValueReturnType>  
<else>  
void  
<endif>  
<endif>  
<else>  
void  
<endif>  
>%
```

```
/** Generate the Objective-C type associated with a single or multiple return  
 * values.  
 */
```

```
ruleLabelType(referencedRule) ::= <%  
<if(referencedRule.hasMultipleReturnValues)>  
<className()>_<referencedRule.name>_return *<else>  
<if(referencedRule.hasSingleReturnValue)><referencedRule.singleValueReturnType><else>  
void<endif>  
<endif>  
>%
```

```
delegateName(d) ::= <% <if(d.label)><d.label><else>g<d.name><endif> %>
```

```
/** Using a type to init value map, try to init a type; if not in table  
 * must be an object, default value is "null".  
 */
```

```
initValue(typeName) ::= <% <objcTypeInitMap.(typeName)>  
>%
```

```
/** Define a rule label including default value */
```

```
ruleLabelDef(label) ::= <%  
<ruleLabelType(referencedRule=label.referencedRule)> <label.label.text> =  
<initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))>;<\n>  
>%
```

```
/** Define a return struct for a rule if the code needs to access its  
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for  
 * subgroups to stick in members.  
 */
```

```
returnScopeInterface(scope) ::= <<
```

```

<if(ruleDescriptor.hasMultipleReturnValues)>
/* returnScopeInterface <ruleDescriptor:returnStructName()> */
@interface <ruleDescriptor:returnStructName()> :
<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope { /* returnScopeInterface line 1838 */
<@memVars()> /* ObjC start of memVars() */<\n>
<if(scope.attributes)>
<memVars(scope)><\n>
<endif>
}
/* start property declarations */
<@properties()><\n>
<if(scope.attributes)>
<properties(scope)><\n>
<endif>
/* start of method declarations */<\n>
+ (<ruleDescriptor:returnStructName()> *)new<ruleDescriptor:returnStructName()>;
/*
this is start of set and get methods */
<@methodsDecl()> /* methodsDecl */<\n>
<if(scope.attributes)>
/* start of iterated get and set functions */<\n>
<methodsDecl(scope)><\n>
<endif>
@end /* end of returnScopeInterface interface */<\n>
<endif>
>>

```

```

returnScopeImplementation(scope) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
@implementation <ruleDescriptor:returnStructName()> /* returnScopeImplementation */<\n>
<@synthesize()> /* start of synthesize -- OBJC-Line 1837 */<\n>
<if(scope.attributes)>
<synthesize(scope)><\n>
<endif>
+ (<ruleDescriptor:returnStructName()> *)new<ruleDescriptor:returnStructName()><\n>
{<\n>
return [[<ruleDescriptor:returnStructName()> alloc] init] retain];<\n>
}<\n>
<\n>
- (id) init<\n>
{<\n>
self = [super init];<\n>
return self;<\n>
}<\n>
<\n>
<@methods()><\n>
<if(scope.attributes)>
/* start of iterate get and set functions */<\n>

```

```

<methods(scope)><\n>
/* End of iterate get and set functions
*/<\n>
<endif>
<actions.(actionScope).ruleReturnMethods>
<@ruleReturnMembers()><\n>
@end /* end of returnScope implementation */<\n><\n>
<endif>
%>

parameterScope(scope) ::= <<
<! <scope.attributes:{ it | :(<it.type><it.name>}; separator=" "> !>
<first(scope.attributes):{ a | :(<a.type><a.name>}> <rest(scope.attributes):{ a | arg<i>:(<a.type><a.name> }>
separator=" ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> = <expr>";

/** Note that the scopeAttributeRef does not have access to the
* grammar name directly
*/
scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
(((<scope>_Scope *) [<scope>_stack objectAtIndex:<scope>_stack size]-<negIndex>-1)).<attr.name>
<else>
<if(index)>
(((<scope>_Scope *) [<scope>_stack objectAtIndex:<index>]).<attr.name>
<else>
(((<scope>_Scope *) [<scope>_stack peek]).<attr.name>
<endif>
<endif>
%>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
/* scopeSetAttributeRef */
<if(negIndex)>
((<scope>_Scope
*) [<scope>_stack objectAtIndex:(<scope>_stack size)-<negIndex>-1]).<attr.name> = <expr>;
<else>
<if(index)>
((<scope>_Scope *) [<scope>_stack objectAtIndex:<index>]).<attr.name> = <expr>;
<else>
((<scope>_Scope *) [<scope>_stack peek]).<attr.name> = <expr>;
<endif>
<endif>
%>

```

```

scopeAttributeRefStack() ::= <<
/* scopeAttributeRefStack */
<if(negIndex)>
((<scope>_Scope *)[<scope>_stack objectAtIndex:[<scope>_stack count]-<negIndex>-1]).<attr.name> = <expr>;
<else>
<if(index)>
((<scope>_Scope *)[<scope>_stack objectAtIndex:<index>]).<attr.name> = <expr>;
<else>
((<scope>_Scope *)[<scope>_stack peek]).<attr.name> = <expr>;
<endif>
<endif>
>>

/** $x is either global scope or x is rule with dynamic scope; refers
* to stack itself not top of stack. This is useful for predicates
* like {$function.size()>0 && $function::name.equals("foo")}?
*/
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/** reference an attribute of rule; might only have single return
value */
ruleLabelRef(referencedRule,scope,attr) ::= <<
<if(referencedRule.hasMultipleReturnValues)>
(<scope>!=nil?<scope>.<attr.name>:<initValue(attr.type)>)
<else>
<scope>
<endif>
>>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> /* added to returnAttributeRef */<\n>
<else>
<attr.name><\n>
<endif>
%>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> =<expr>; /* added to returnSetAttributeRef */<\n>
<else>
<attr.name> = <expr>;<\n>
<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

```

```

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

/* not sure the next are the right approach; and they are evaluated early; */
/* they cannot see TREE_PARSER or PARSER attributes for example. :( */

tokenLabelPropertyRef_text(scope,attr) ::= "<scope>!=nil?<scope>.text:nil)"
tokenLabelPropertyRef_type(scope,attr)
::= "<scope>!=nil?<scope>.type:0)"
tokenLabelPropertyRef_line(scope,attr) ::= "<scope>!=nil?<scope>.line:0)"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>!=nil?<scope>.charPositionInLine:0)"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>!=nil?<scope>.channel:0)"
tokenLabelPropertyRef_index(scope,attr) ::= "<scope>!=nil?[<scope> getTokenIndex]:0)"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "<scope>!=nil?[<scope>.text integerValue]:0)"

ruleLabelPropertyRef_start(scope,attr) ::= "<scope>!=nil?((<labelType> *)<scope>.start):nil)"
ruleLabelPropertyRef_stop(scope,attr) ::= "<scope>!=nil?((<labelType> *)<scope>.stopToken):nil)"
ruleLabelPropertyRef_tree(scope,attr) ::= "<scope>!=nil?((<ASTLabelType> *)<scope>.tree):nil)"
ruleLabelPropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
<scope>!=nil?[[input getTokenStream] toStringFromStart:[[input getTreeAdaptor] getTokenStartIndex:[<scope>
getStart]]
ToEnd:[[input getTreeAdaptor] getTokenStopIndex:[<scope> getStart]]]:0)
<else>
<scope>!=nil?[[input toStringFromToken:[<scope> getStart] ToToken:[<scope> getStop]]]:0)
<endif>
%>
ruleLabelPropertyRef_st(scope,attr) ::= "<scope>!=nil?[<scope> st]:nil)"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "<scope>!=nil?<scope>.type:0)"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "<scope>!=nil?<scope>.line:0)"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "<scope>!=nil?<scope>.charPositionInLine:-1)"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "<scope>!=nil?<scope>.channel:0)"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "<scope>!=nil?[<scope> getTokenIndex]:0)"
lexerRuleLabelPropertyRef_text(scope,attr) ::= "<scope>!=nil?<scope>.text:nil)"
lexerRuleLabelPropertyRef_int(scope,attr) ::= "<scope>!=nil?[<scope>.text integerValue]:0)"

// Somebody may ref $template or $tree or $stop within
a rule:
rulePropertyRef_start(scope,attr) ::= "((<labelType> *)retval.start)"
rulePropertyRef_stop(scope,attr) ::= "((<labelType> *)retval.stopToken)"
rulePropertyRef_tree(scope,attr) ::= "((<ASTLabelType> *)retval.tree)"

```

```

rulePropertyRef_text(scope,attr) ::= <<
<if(TREE_PARSER)>
[[input getTokenStream] toStringFromStart:[[input getTreeAdaptor]
getTokenStartIndex:retval.start.token.startIndex]
                ToEnd:[[input getTreeAdaptor] getTokenStopIndex:retval.start.token.stopIndex]]
<else>
[input toStringFromToken:retval.start ToToken:[input LT:-1]]
<endif>
>>
rulePropertyRef_st(scope,attr) ::= "retval.st"

/* hideous: find a way to cut down on the number of templates to support read/write access */
/* TODO: also, which ones are valid to write to? ask Ter */
lexerRuleSetPropertyRef_text(scope,attr,expr) ::= "state.text = <expr>;"
lexerRuleSetPropertyRef_type(scope,attr,expr) ::= "_type"
lexerRuleSetPropertyRef_line(scope,attr,expr) ::= "state.tokenStartLine"
lexerRuleSetPropertyRef_pos(scope,attr,expr)
::= "state.tokenStartCharPositionInLine"
lexerRuleSetPropertyRef_index(scope,attr,expr) ::= "-1" /* undefined token index in lexer */
lexerRuleSetPropertyRef_channel(scope,attr,expr) ::= "state.channel=<expr>;"
lexerRuleSetPropertyRef_start(scope,attr,expr) ::= "state.tokenStartCharIndex"
lexerRuleSetPropertyRef_stop(scope,attr,expr) ::= "(input.index-1)"

lexerRulePropertyRef_text(scope,attr) ::= "self.text"
lexerRulePropertyRef_type(scope,attr) ::= "state.type"
lexerRulePropertyRef_line(scope,attr) ::= "state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"
lexerRulePropertyRef_start(scope,attr) ::= "state.tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(input.index-1)"
lexerRulePropertyRef_int(scope,attr) ::= "[<scope>.text integerValue]"

//
setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.start =<expr>;"
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>;" /* "<n>#error StringTemplates are
unsupported<n>" */

/** How to execute an action */
execAction(action) ::= <<
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> ) {
    <action>
}

```



```

<else>
<action>
<endif>
>>

/** How to always execute an action even when backtracking */
execForcedAction(action) ::= "<action>"

// M I S C (properties, etc...)

bitset(name, words64) ::= <<
static ANTLRBitSet *<name>;
static const unsigned long long <name>_data[] = { <words64:{it | <it>LL};separator=", ">};<n>
>>

bitsetInit(name, words64) ::= <<
<name> = [[ANTLRBitSet newBitSetWithBits:(const unsigned long long *)<name>_data
Count:(NSUInteger)<length(words64)>] retain];<n>
>>

codeFileExtension() ::= ".m"

true_value() ::= "YES"
false_value() ::= "NO"

Found in path(s):
*
/opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/ObjC/ObjC.stg
No license file was found, but licenses were detected in source scan.

/*
* [The "BSD license"]
* Copyright (c) 2007-2008 Johannes Luber
* Copyright (c) 2005-2007 Kunle Odutola
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*/

```

```

csharpVisibilityMap ::= [
  "private":"private",
  "protected":"protected",
  "public":"public",
  "fragment":"private",
  default:"private"
]

```

```

/** The overall file structure of a recognizer; stores methods for rules
* and cyclic DFAs plus support code.
*/

```

```

outputFile( LEXER,PARSER,TREE_PARSER, actionScope, actions,
  docComment,
  recognizer,
  name, tokens, tokenNames, rules, cyclicDFAs,
  bitsets, buildTemplate, buildAST, rewriteMode, profile,
  backtracking, synpreds, memoize, numRules,
  fileName, ANTLRVersion, generatedTimestamp, trace,
  scopes, superClass, literals) ::=

```

```
<<
```

```
//-----
```

```
//\<auto-generated>
```

```
// This code was generated by a tool.
```

```
// ANTLR Version: <ANTLRVersion>
```

```
//
```

```
// Changes to this file may cause incorrect behavior and will be lost if
```

```
// the code is regenerated.
```

```
//\</auto-generated>
```

```
//-----
```

```
// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>
```

```
<if(trace)>
```

```
#define ANTLR_TRACE
```

```

<endif>
<@debugPreprocessor()>
// The variable 'variable' is assigned but its value is never used.
#pragma warning disable 168, 219
// Unreachable code detected.
#pragma warning disable 162
// Missing XML comment for publicly visible type or member
'Type_or_Member'
#pragma warning disable 1591

<actions.(actionScope).header>

<@imports>
using System.Collections.Generic;
using Antlr.Runtime;
using Antlr.Runtime.Misc;
<if(TREE_PARSER)>
using Antlr.Runtime.Tree;
using RewriteRuleITokenStream = Antlr.Runtime.Tree.RewriteRuleTokenStream;
<endif>
using ConditionalAttribute = System.Diagnostics.ConditionalAttribute;
<@end>
<if(actions.(actionScope).namespace)>
namespace <actions.(actionScope).namespace>
{
<endif>
<docComment>
<recognizer>
<if(actions.(actionScope).namespace)>

} // namespace <actions.(actionScope).namespace>
<endif>
>>

lexerInputStreamType() ::= <<
<actions.(actionScope).inputStreamType; null="ICharStream">
>>

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode, labelType="CommonToken",
superClass={ <if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else>Antlr.Runtime.Lexer
<endif>}) ::= <<
[System.CodeDom.Compiler.GeneratedCode("ANTLR", "<ANTLRVersion>")]
[System.CLSCompliant(false)]
<parserModifier(grammar=grammar,
actions=actions)> partial class <grammar.recognizerName> : <@superClassName><superClass><@end>
{
<tokens: { it | public const int <it.name; format="id">=<it.type>; }; separator="\n">
<scopes: { it | <if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif> } >

```

```

<actions.lexer.members>

// delegates
<grammar.delegates:
  {g|private <g.recognizerName> <g.delegateName(>);}; separator="\n">
// delegators
<grammar.delegators:
  {g|private <g.recognizerName> <g.delegateName(>);}; separator="\n">
<last(grammar.delegators):{g|private <g.recognizerName> gParent;}>

<actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>(<! needed by subclasses !>
{
  OnCreated();
}

<actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>(<lexerInputStreamType()>
input<grammar.delegators:{g|, <g.recognizerName> <g.delegateName(>}&> )
: this(input, new RecognizerSharedState(<grammar.delegators:{g|,
<g.delegateName(>}&>))
{
}

<actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>(<lexerInputStreamType()> input,
RecognizerSharedState state<grammar.delegators:{g|, <g.recognizerName> <g.delegateName(>}&>))
: base(input, state)
{
<if(memoize)>
<if(grammar.grammarIsRoot)>
  state.ruleMemo = new System.Collections.Generic.Dictionary<int, int>[<numRules>+1];<\n><! index from 1..n !>
<endif>
<endif>
  <grammar.directDelegates:
    {g|<g.delegateName(> = new <g.recognizerName>(input, this.state<trunc(g.delegators):{p|,
<p.delegateName(>}&>, this);}; separator="\n">
  <grammar.delegators:
    {g|this.<g.delegateName(> = <g.delegateName(>);}; separator="\n">
  <last(grammar.delegators):{g|gParent = <g.delegateName(>};}>

  OnCreated();
}
public override string GrammarFileName { get { return "<fileName>"; } }

private static readonly bool[] decisionCanBacktrack = new bool[0];

<if(grammar.hasDelegates)>
public override <lexerInputStreamType()> CharStream
{
  get

```

```

    {
    return
base.CharStream;
    }
set
    {
    base.CharStream = value;
    <grammar.directDelegates:
    {g|<g:delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators):{p|, <p:delegateName()>}>,
this);}; separator="\n">
    <grammar.delegators:
    {g|this.<g:delegateName()> = <g:delegateName()>;}; separator="\n">
    <last(grammar.delegators):{g|gParent = <g:delegateName()>;}>
    }
    }

<if(grammar.delegates)>
public override void SetState(RecognizerSharedState state)
    {
    base.SetState(state);
    <grammar.delegates:{g|<g:delegateName()>.SetState(state);}; separator="\n">
    }
<endif>

<endif>
<if(filterMode)>
    <filteringNextToken()>
<endif>

[Conditional("ANTLR_TRACE")]
protected virtual void OnCreated() {}
[Conditional("ANTLR_TRACE")]
protected virtual void EnterRule(string ruleName, int ruleIndex) {}
[Conditional("ANTLR_TRACE")]
protected virtual void LeaveRule(string ruleName, int ruleIndex) {}

    <rules; separator="\n">

<insertLexerSynpreds(synpreds)>

#region
DFA
<cyclicDFAs:{dfa | DFA<dfa.decisionNumber> dfa<dfa.decisionNumber>;}; separator="\n">

protected override void InitDFAs()
    {
    base.InitDFAs();
    <cyclicDFAs:{dfa | dfa<dfa.decisionNumber> = new DFA<dfa.decisionNumber>(this<if(dfa.specialStateSTs)>,

```

```

SpecialStateTransition<dfa.decisionNumber><endif>}); separator="\n">
}

<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>
#endregion

}
>>

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
public override IToken NextToken()
{
while (true)
{
if (input.LA(1) == CharStreamConstants.EndOfFile)
{
IToken eof = new CommonToken((ICharStream)input, CharStreamConstants.EndOfFile, TokenChannels.Default,
input.Index,
input.Index);
eof.Line = Line;
eof.CharPositionInLine = CharPositionInLine;
return eof;
}
state.token = null;
state.channel = TokenChannels.Default;
state.tokenStartCharIndex = input.Index;
state.tokenStartCharPositionInLine = input.CharPositionInLine;
state.tokenStartLine = input.Line;
state.text = null;
try
{
int m = input.Mark();
state.backtracking=1;<! means we won't throw slow exception !>
state.failed=false;
mTokens();
state.backtracking=0;
<! mTokens backtracks with synpred at backtracking==2
and we set the synpredgate to allow actions at level 1. !>
if (state.failed)
{
input.Rewind(m);
input.Consume();<! advance one char and try again !>

```

```

    }
    else
    {
        Emit();
        return state.token;
    }
}
catch (RecognitionException re)
{
    // shouldn't happen in backtracking mode, but...
    ReportError(re);
    Recover(re);
}
}
}

public override void Memoize(IIntStream input, int ruleIndex, int ruleStartIndex)
{
    if
    (state.backtracking > 1)
        base.Memoize(input, ruleIndex, ruleStartIndex);
}

public override bool AlreadyParsedRule(IIntStream input, int ruleIndex)
{
    if (state.backtracking > 1)
        return base.AlreadyParsedRule(input, ruleIndex);

    return false;
}
>>

actionGate() ::= "state.backtracking == 0"

filteringActionGate() ::= "state.backtracking == 1"

/** How to generate a parser */
genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, inputStreamType, superClass,
    labelType, members, rewriteElementType,
    filterMode, ASTLabelType="object") ::= <<
[System.CodeDom.Compiler.GeneratedCode("ANTLR", "<ANTLRVersion>")]
[System.CLSCompliant(false)]
<parserModifier(grammar=grammar, actions=actions)> partial class <grammar.recognizerName> :
<@superClassName><superClass><@end>
{
<if(grammar.grammarIsRoot)>
    internal static readonly string[] tokenNames = new string[] {

```

```

    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>", <tokenNames;
separator=", ">
};
<endif>
<tokens:{it|public const int <it.name; format="id">=<it.type>;}; separator="\n">

<if(grammar.delegates)>
// delegates
<grammar.delegates:
    {g|private <g.recognizerName> <g.delegateName(>;}; separator="\n">
<endif>
<if(grammar.delegators)>
// delegators
<grammar.delegators:
    {g|private <g.recognizerName> <g.delegateName(>;}; separator="\n">
<last(grammar.delegators):{g|private <g.recognizerName> gParent;}>
<endif>

<if(grammar.delegates)>
public override void SetState(RecognizerSharedState state)
{
    base.SetState(state);
    <grammar.delegates:{g|<g.delegateName(>.SetState(state);}; separator="\n">
}

<if(TREE_PARSER)>
public override void SetTreeNodeStream(ITreeNodeStream input)
{
    base.SetTreeNodeStream(input);
    <grammar.delegates:{g|<g.delegateName(>.SetTreeNodeStream(input);}; separator="\n">
}
<endif>
<endif>

<scopes:{it|<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>}>
<@members(>

public override
string[] TokenNames { get { return <grammar.composite.rootGrammar.recognizerName>.tokenNames; } }
public override string GrammarFileName { get { return "<fileName>"; } }

<members>

[Conditional("ANTLR_TRACE")]
protected virtual void OnCreated() {}
[Conditional("ANTLR_TRACE")]
protected virtual void EnterRule(string ruleName, int ruleIndex) {}
[Conditional("ANTLR_TRACE")]

```



```

protected virtual void LeaveRule(string ruleName, int ruleIndex) { }

#region Rules
<rules; separator="\n">
#endregion Rules

<if(grammar.delegatedRules)>
<! generate rule/method definitions for imported rules so they
  appear to be defined in this recognizer. !>
#region Delegated rules
<grammar.delegatedRules:{ruleDescriptor|
  <ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> <return Type(ruleDescriptor)>
  <ruleDescriptor.name; format="id">(<ruleDescriptor.parameterScope:parameterScope(>>) <!throws
  RecognitionException !>{ <if(ruleDescriptor.hasReturnValue)>return
  <endif><ruleDescriptor.grammar:delegateName(>).<ruleDescriptor.name;
  format="id">(<if(ruleDescriptor.parameterScope)><ruleDescriptor.parameterScope.attributes:{a|<a.name;
  format="id">}; separator=", "><endif>); \} } }; separator="\n">
#endregion Delegated rules
<endif>

<insertSynpreds(synpreds)>

<if(cyclicDFAs)>
#region DFA
<cyclicDFAs:{ dfa | private DFA<dfa.decisionNumber> dfa<dfa.decisionNumber>; }; separator="\n">

protected override void InitDFAs()
{
  base.InitDFAs();
  <cyclicDFAs:{ dfa | dfa<dfa.decisionNumber> = new DFA<dfa.decisionNumber>( this<if(dfa.specialStateSTs)>,
  SpecialStateTransition<dfa.decisionNumber><endif> ); }; separator="\n">
}

<cyclicDFAs:cyclicDFA()><! dump tables for all DFA !>
#endregion DFA
<endif>

<if(bitsets)>
#region Follow sets
private static class Follow
{
  <bitsets:{ it|bitset(name={_<it.name>_in_<it.inName><it.tokenIndex>}, words64=it.bits)> }; separator="\n">
}
#endregion Follow sets
<endif>
}
>>

```

```

@genericParser.members() ::= <<
#if ANTLR_DEBUG
private static readonly
bool[] decisionCanBacktrack =
new bool[]
{
    false, // invalid decision
    <grammar.decisions:{d | <d.dfa.hasSynPred>}; wrap="\n", separator=", ">
};
#else
private static readonly bool[] decisionCanBacktrack = new bool[0];
#endif
<! WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>
<actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>( <inputStreamType>
input<grammar.delegates:{g|, <g.recognizerName> <g.delegateName()>}>
: this(input, new RecognizerSharedState()<grammar.delegates:{g|, <g.delegateName()>}>)
{
}
<actions.(actionScope).ctorModifier; null="public"> <grammar.recognizerName>( <inputStreamType> input,
RecognizerSharedState state<grammar.delegates:{g|, <g.recognizerName> <g.delegateName()>}>)
: base(input, state)
{
<if(grammar.directDelegates)>
<grammar.directDelegates:
{g|<g.delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegates):{p|, <p.delegateName()>}>,
this);}; separator="\n">
<endif>
<if(grammar.indirectDelegates)>
<grammar.indirectDelegates:{g
| <g.delegateName()> = <g.delegateName()>. <g.delegateName()>}; separator="\n">
<endif>
<if(grammar.delegates)>
<last(grammar.delegates):{g|gParent = <g.delegateName()>};>
<endif>
<parserCtorBody()>
OnCreated();
}
>>

// imported grammars are 'public' (can't be internal because their return scope classes must be accessible)
parserModifier(grammar, actions) ::= <<
<if(grammar.grammarIsRoot)><actions.(actionScope).modifier; null="public"><else>public<endif>
>>

parserCtorBody() ::= <<
<if(memoize)>
<if(grammar.grammarIsRoot)>
this.state.ruleMemo = new System.Collections.Generic.Dictionary<int,

```

```

int>[<length(grammar.allImportedRules)>+1];<\n><! index from 1..n !>
<endif>
<endif>
<grammar.delegators:
{g[this.<g.delegateName()> = <g.delegateName()>]; separator="\n">
>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets,
    ASTLabelType="object",
superClass={<if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else>Antlr.Runtime.Parser
<endif>},
labelType="IToken",
    members={<actions.parser.members>}) ::= <<
<genericParser(inputStreamType="ITokenStream", rewriteElementType="IToken", ...)>
>>

/** How to generate a tree parser; same as parser except the input
* stream is a different type.
*/
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={<ASTLabelType>}, ASTLabelType="object",
superClass={<if(actions.(actionScope).superClass)><actions.(actionScope).superClass><else>Antlr.Runtime.Tree.<
if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif><endif>},
    members={<actions.treeparser.members>}) ::= <<
<genericParser(inputStreamType="ITreeNodeStream", rewriteElementType="Node", ...)>
>>

/** A simpler version of a rule template that is specific to the imaginary
* rules created for syntactic predicates. As they never have return values
*
* nor parameters etc..., just give simplest possible method. Don't do
* any of the normal memoization stuff in here either; it's a waste.
* As predicates cannot be inlined into the invoking rule, they need to
* be in a rule by themselves.
*/
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
[Conditional("ANTLR_TRACE")]
protected virtual void EnterRule_<ruleName>_fragment() { }
[Conditional("ANTLR_TRACE")]
protected virtual void LeaveRule_<ruleName>_fragment() { }

// $ANTLR start <ruleName>
<ruleModifier(grammar,ruleDescriptor)> void
<ruleName>_fragment(<ruleDescriptor.parameterScope:parameterScope(>))
{
    <ruleLabelDefs(>
    EnterRule_<ruleName>_fragment();

```

```

EnterRule("<ruleName>_fragment", <ruleDescriptor.index>);
TraceIn("<ruleName>_fragment", <ruleDescriptor.index>);
try
{
    <block>
}
finally
{
    TraceOut("<ruleName>_fragment", <ruleDescriptor.index>);
    LeaveRule("<ruleName>_fragment", <ruleDescriptor.index>);
    LeaveRule_<ruleName>_fragment();
}
}
//
$ANTLR end <ruleName>
>>

```

```

insertLexerSynpreds(synpreds) ::= <<
<insertSynpreds(synpreds)>
>>

```

```

insertSynpreds(synpreds) ::= <<
<if(synpreds)>
#region Synpreds
private bool EvaluatePredicate(System.Action fragment)
{
    bool success = false;
    state.backtracking++;
    <@start()>
    try { DebugBeginBacktrack(state.backtracking);
    int start = input.Mark();
    try
    {
        fragment();
    }
    catch ( RecognitionException re )
    {
        System.Console.Error.WriteLine("impossible: "+re);
    }
    success = !state.failed;
    input.Rewind(start);
    } finally { DebugEndBacktrack(state.backtracking, success); }
    <@stop()>
    state.backtracking--;
    state.failed=false;
    return success;
}
#endregion Synpreds

```

```

<endif>
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if (state.backtracking > 0 && AlreadyParsedRule(input, <ruleDescriptor.index>)) { <returnFromRule()> }
<endif>
>>

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
<if(backtracking)>if (state.failed) <returnFromRule()><endif>
>>

/**
This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>if (state.backtracking>0) {state.failed=true; <returnFromRule()>}<endif>
>>

ruleWrapperMap ::= [
"bottomup":{<ruleWrapperBottomup()>},
"topdown":{<ruleWrapperTopdown()>},
default:""
]

ruleWrapperBottomup() ::= <<
<if(TREE_PARSER && filterMode)>
protected override <if(buildAST)>IAstRuleReturnScope<else>void<endif> Bottomup() { return bottomup(); }
<endif>
>>

ruleWrapperTopdown() ::= <<
<if(TREE_PARSER && filterMode)>
protected override <if(buildAST)>IAstRuleReturnScope<else>void<endif> Topdown() { return topdown(); }
<endif>
>>

/** How to generate code for a rule. This includes any return type
* data aggregates required for multiple return values.
*/
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
<returnScope(ruleDescriptor.returnScope)>

[Conditional("ANTLR_TRACE")]
protected

```

```

virtual void EnterRule_<ruleName>() {}
[Conditional("ANTLR_TRACE")]
protected virtual void LeaveRule_<ruleName>() {}
<ruleWrapperMap.(ruleName)>
// $ANTLR start "<ruleName>"
// <fileName>:<description>
[GrammarRule("<ruleName>")]
<ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> <returnType(ruleDescriptor)> <ruleName>;
format="id"><ruleDescriptor.parameterScope:parameterScope(>)
{
    EnterRule_<ruleName>();
    EnterRule("<ruleName>", <ruleDescriptor.index>);
    TraceIn("<ruleName>", <ruleDescriptor.index>);
    <ruleScopeSetUp(>
    <ruleDeclarations(>
    <ruleLabelDefs(>
    <ruleDescriptor.actions.init>
    try { DebugEnterRule(GrammarFileName, "<ruleName>");
    DebugLocation(<ruleDescriptor.tree.line>, <ruleDescriptor.EORNode.charPositionInLine>);
    <@preamble(>
    try
    {
        <ruleMemoization(name=ruleName)>
        <block>
        <ruleCleanUp(>
        <(ruleDescriptor.actions.after):execAction(>
    }
    <if(exceptions)>
    <exceptions: {e|<catch(decl=e.decl,action=e.action)><\n>}>
    <else>
    <if(!emptyRule)>
    <if(actions.(actionScope).rulecatch)>
    <actions.(actionScope).rulecatch>
    <else>
    catch
    (RecognitionException re)
    {
        ReportError(re);
        Recover(input,re);
        <@setErrorReturnValue(>
    }
    <endif>
    <endif>
    <endif>
    finally
    {
        TraceOut("<ruleName>", <ruleDescriptor.index>);
        LeaveRule("<ruleName>", <ruleDescriptor.index>);

```

```

LeaveRule_<ruleName>();
    <memoize()>
    <ruleScopeCleanUp()>
    <finally>
    }
DebugLocation(<ruleDescriptor.EORNode.line>, <ruleDescriptor.EORNode.charPositionInLine>);
} finally { DebugExitRule(GrammarFileName, "<ruleName>"); }
<@postamble()>
<returnFromRule()><\n>
}
// $ANTLR end "<ruleName>"
>>

// imported grammars need to have internal rules
ruleModifier(grammar,ruleDescriptor) ::= <<
<if(grammar.grammarIsRoot)><csharpVisibilityMap.(ruleDescriptor.modifier);
null="private"><else>internal<endif>
>>

// imported grammars need to have public return scopes
returnScopeModifier(grammar,ruleDescriptor) ::= <<
<if(grammar.grammarIsRoot)><csharpVisibilityMap.(ruleDescriptor.modifier);
null="private"><else>public<endif>
>>

catch(decl,action) ::= <<
catch (<e.decl>)
{
    <e.action>
}
>>

ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<returnType(ruleDescriptor)> retval = new <returnType(ruleDescriptor)>();
retval.Start = (<labelType>)input.LT(1);
<elseif(ruleDescriptor.returnScope)>
<ruleDescriptor.returnScope.attributes: { a |
<a.type> <a.name; format="id"> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
int <ruleDescriptor.name>_startIndex = input.Index;
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: { it|<it>_stack.Push(new <it>_scope());<it>_scopeInit(<it>_stack.Peek());};

```

```

separator="\n">
<ruleDescriptor.ruleScope:{it|<it.name>_stack.Push(new
<it.name>_scope());<it.name>_scopeInit(<it.name>_stack.Peek());}; separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes:{it|<it>_scopeAfter(<it>_stack.Peek());<it>_stack.Pop()};
separator="\n">
<ruleDescriptor.ruleScope:{it|<it.name>_scopeAfter(<it.name>_stack.Peek());<it.name>_stack.Pop()};
separator="\n">
>>

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it|<labelType> <it.label.text> = default(<labelType>);}; separator="\n"
>
<ruleDescriptor.tokenListLabels
: {it|List<<labelType>> list_<it.label.text> = null;}; separator="\n"
>
<[ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]
: {it|List<<ASTLabelType>> list_<it.label.text> = null;}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
<ruleDescriptor.ruleListLabels:ruleLabelDef(); separator="\n">
>>

lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it|<labelType> <it.label.text> = default(<labelType>);}; separator="\n"
>
<[ruleDescriptor.charListLabels,
ruleDescriptor.charLabels]
: {it|int <it.label.text> = 0;}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
: {it|List<<labelType>> list_<it.label.text> = null;}; separator="\n"
>
<ruleDescriptor.charListLabels: {it|List<int> list_<it.label.text> = null;}; separator="\n"
>
>>

returnFromRule() ::= <%
return
<if(!ruleDescriptor.isSynPred)>

```



```

<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<! This comment is a hack to make sure the following
  single space appears in the output. !> <ruleDescriptor.singleValueReturnName>
<else>
<!!> retval
<endif>
<endif>
<endif>
<endif>
;
%>

ruleCleanUp() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
retval.Stop = (<labelType>)input.LT(-1);
<endif>
<endif>
>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if (state.backtracking > 0) { Memoize(input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>

/** How to generate a rule in the
lexer; naked blocks are used for
* fragment rules.
*/
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<

[Conditional("ANTLR_TRACE")]
protected virtual void EnterRule_<ruleName>() {}
[Conditional("ANTLR_TRACE")]
protected virtual void LeaveRule_<ruleName>() {}

// $ANTLR start "<ruleName>"
[GrammarRule("<ruleName>")]
<ruleModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)> void
m<ruleName>(<ruleDescriptor.parameterScope:parameterScope())
{
  EnterRule_<ruleName>();
  EnterRule("<ruleName>", <ruleDescriptor.index>);
  TraceIn("<ruleName>", <ruleDescriptor.index>);
  <ruleScopeSetUp()>
}

```

```

    <ruleDeclarations()>
    try
    {
<if(nakedBlock)>
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block>
<else>
    int _type = <ruleName>;
    int _channel = DefaultTokenChannel;
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block>
    <ruleCleanUp()>
    state.type = _type;
    state.channel =
    _channel;
    <(ruleDescriptor.actions.after):execAction()>
<endif>
    }
    finally
    {
        TraceOut("<ruleName>", <ruleDescriptor.index>);
        LeaveRule("<ruleName>", <ruleDescriptor.index>);
        LeaveRule_<ruleName>();
        <ruleScopeCleanUp()>
        <memoize()>
    }
}
// $ANTLR end "<ruleName>"
>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<

public override void mTokens()
{
    <block><\n>
}
>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */

```

```

block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
int alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
try { DebugEnterSubRule(<decisionNumber>);
try { DebugEnterDecision(<decisionNumber>, decisionCanBacktrack[<decisionNumber>]);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
<@prebranch()>
switch
  (alt<decisionNumber>)
  {
<alts:{a|altSwitchCase(i,a)}>
  }
} finally { DebugExitSubRule(<decisionNumber>); }
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
int alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
try { DebugEnterDecision(<decisionNumber>, decisionCanBacktrack[<decisionNumber>]);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
switch (alt<decisionNumber>)
  {
<alts:{a|altSwitchCase(i,a)}>
  }
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
DebugEnterAlt(1);
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>

```

```

<decls>
<@prealt()>
DebugEnterAlt(1);
<alts>
<@postalt()>
>>

/**
 A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,descriptio
n) ::= <<
// <fileName>:<description>
int cnt<decisionNumber>=0;
<decls>
<@preloop()>
try { DebugEnterSubRule(<decisionNumber>);
while (true)
{
int alt<decisionNumber>=<maxAlt>;
<@predecision()>
try { DebugEnterDecision(<decisionNumber>, decisionCanBacktrack[<decisionNumber>]);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
switch (alt<decisionNumber>)
{
<alts:{a|<altSwitchCase(i,a)>}>
default:
if (cnt<decisionNumber> >= 1)
goto loop<decisionNumber>;

<ruleBacktrackFailure()>
EarlyExitException eee<decisionNumber> = new EarlyExitException( <decisionNumber>, input );
DebugRecognitionException(eee<decisionNumber>);
<@earlyExitException()>
throw eee<decisionNumber>;
}
cnt<decisionNumber>++;
}
loop<decisionNumber>:
;

}
finally { DebugExitSubRule(<decisionNumber>); }
<@postloop()>
>>

positiveClosureBlockSingleAlt ::= positiveClosureBlock

```

```

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
// <fileName>:<description>
<decls>
<@preloop()>
try { DebugEnterSubRule(<decisionNumber>);
while (true)
{
int alt<decisionNumber>=<maxAlt>;
<@predecision()>
try { DebugEnterDecision(<decisionNumber>, decisionCanBacktrack[<decisionNumber>]);
<decision>
} finally { DebugExitDecision(<decisionNumber>); }
<@postdecision()>
switch ( alt<decisionNumber> )
{
<alts:{a|<altSwitchCase(i,a)>}>
default:
goto loop<decisionNumber>;
}
}

loop<decisionNumber>:
;

} finally { DebugExitSubRule(<decisionNumber>); }
<@postloop()>
>>

```

```
closureBlockSingleAlt ::= closureBlock
```

```

/** Optional blocks (x)? are translated to (x|) by before code generation
* so we can just use the normal block template
*/

```

```
optionalBlock ::= block
```

```
optionalBlockSingleAlt ::= block
```

```

/** A case in a switch that jumps to an alternative given the alternative
* number. A DFA predicts the alternative and then a simple switch
* does the jump to the code that actually matches that alternative.
*/

```

```
altSwitchCase(altNum,alt) ::= <<
```

```
case <altNum>:
```

```
<@prealt()>
```

```
DebugEnterAlt(<altNum>);
```

```

<alt>
break;<\n>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<
// <fileName>:<description>
{
<@declarations()>
<elements:element()>
<rew>
<@cleanup()>
}
>>

/** What to emit when there is no rewrite. For auto build
* mode, does nothing.
*/
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element(it) ::= <%
<@prematch()>
DebugLocation(<it.line>, <it.pos>);<\n>
<it.el><\n>
%>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions={ })
::= <<
<if(label)><label>=<(<labelType>)<endif>Match(input,<token>,Follow._<token>_in_<ruleName><elementIndex>);
<checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<tokenRef(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

listLabelElem(label,elem,elemType) ::= <<
if (list_<label>==null) list_<label>=new List<<elemType; null={ <labelType> }>>();
list_<label>.Add(<elem>);<\n>
>>

/** match a character */

```

```

charRef(char,label) ::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
Match(<char>); <checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
MatchRange(<a>,<b>); <checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="",terminalOptions={}) ::= <<
<if(label)>
<matchSetLabel()>
<endif>
if (<s>)
{
input.Consume();
<postmatchCode>
<if(!LEXER)>state.errorRecovery=false;<endif><if(backtracking)>state.failed=false;<endif>
}
else
{
<ruleBacktrackFailure()>
MismatchedSetException
mse = new MismatchedSetException(null,input);
DebugRecognitionException(mse);
<@mismatchedSetException()>
<if(LEXER)>
Recover(mse);
throw mse;
<else>
throw mse;
<! use following code to make it recover inline; remove throw mse;
recoverFromMismatchedSet(input,mse,Follow._set_in_<ruleName><elementIndex>);
!>
<endif>
}<\n>
>>

matchSetUnchecked(s,label,elementIndex,postmatchCode=false) ::= <%
<if(label)>
<matchSetLabel()><\n>

```

```

<endif>
input.Consume();<\n>
<if(postmatchCode)>
<postmatchCode><\n>
<endif>
<if(!LEXER)>state.errorRecovery=false;<endif><if(backtracking)>state.failed=false;<endif>
%>

matchSetLabel() ::= <%
<if(LEXER)>
<label>= input.LA(1);
<else>
<label>=(<labelType>)input.LT(1);
<endif>
%>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/**
Match a string literal */
lexerStringRef(string,label,elementIndex) ::= <%
<if(label)>
int <label>Start = CharIndex;<\n>
Match(<string>); <checkRuleBacktrackFailure()><\n>
int <label>StartLine<elementIndex> = Line;<\n>
int <label>StartCharPos<elementIndex> = CharPositionInLine;<\n>
<label> = new <labelType>(input, TokenTypes.Invalid, TokenChannels.Default, <label>Start, CharIndex-1);<\n>
<label>.Line = <label>StartLine<elementIndex>;<\n>
<label>.CharPositionInLine = <label>StartCharPos<elementIndex>;
<else>
Match(<string>); <checkRuleBacktrackFailure()><\n>
<endif>
%>

wildcard(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(label)>
<label>=(<labelType>)input.LT(1);<\n>
<endif>
MatchAny(input); <checkRuleBacktrackFailure()>
>>

wildcardAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<wildcard(...)>

```



```

<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex)
::= <<
<if(label)>
<label> = input.LA(1);<\n>
<endif>
MatchAny(); <checkRuleBacktrackFailure()>
>>

wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
PushFollow(Follow._<rule.name>_in_<ruleName><elementIndex>);
<if(label)><label>=<endif><if(scope)><scope.delegateName()>.<endif><rule.name; format="id">(<args;
separator=", ">);
PopFollow();
<checkRuleBacktrackFailure()>
>>

/** ids+=r */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabelElem(elem=label,elemType={<ASTLabelType>},...)>
>>

/** A lexer rule reference.
 *
 * The 'rule' argument was
the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <%
<if(label)>
int <label>Start<elementIndex> = CharIndex;<\n>
int <label>StartLine<elementIndex> = Line;<\n>

```

```

int <label>StartCharPos<elementIndex> = CharPositionInLine;<\n>
<if(scope)><scope:delegateName()>.<endif>m<rule.name>(<args; separator=", ">);
<checkRuleBacktrackFailure()><\n>
<label> = new <labelType>(input, TokenType.Invalid, TokenChannels.Default, <label>Start<elementIndex>,
CharIndex-1);<\n>
<label>.Line = <label>StartLine<elementIndex>;<\n>
<label>.CharPositionInLine = <label>StartCharPos<elementIndex>;
<else>
<if(scope)><scope:delegateName()>.<endif>m<rule.name>(<args; separator=", ">);
<checkRuleBacktrackFailure()>
<endif>
%>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(...)>
<listLabelElem(elem=label,elemType=labelType,...)>
>>

/**
EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <%
<if(label)>
int <label>Start<elementIndex> = CharIndex;<\n>
int <label>StartLine<elementIndex> = Line;<\n>
int <label>StartCharPos<elementIndex> = CharPositionInLine;<\n>
Match(EOF); <checkRuleBacktrackFailure()><\n>
<labelType> <label> = new <labelType>(input, EOF, TokenChannels.Default, <label>Start<elementIndex>,
CharIndex-1);<\n>
<label>.Line = <label>StartLine<elementIndex>;<\n>
<label>.CharPositionInLine = <label>StartCharPos<elementIndex>;
<else>
Match(EOF); <checkRuleBacktrackFailure()>
<endif>
%>

// used for left-recursive rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()            ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> \<= <opPrec>"
recRuleSetResultAction() ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name)  ::= "$<name>=$<src>.<name>;"

/** match ^(root children) in tree parser */
tree(root,
actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
<root:element()>

```

```

<actionsAfterRoot:element()>
<if(nullableChildList)>
if (input.LA(1) == TokenType.Down)
{
Match(input, TokenType.Down, null); <checkRuleBacktrackFailure()>
<children:element()>
Match(input, TokenType.Up, null); <checkRuleBacktrackFailure()>
}
<else>
Match(input, TokenType.Down, null); <checkRuleBacktrackFailure()>
<children:element()>
Match(input, TokenType.Up, null); <checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if (!(<evalPredicate(...)>))
{
<ruleBacktrackFailure()>
throw new FailedPredicateException(input, "<ruleName>", "<description>");
}
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
int LA<decisionNumber>_<k> = input.LA(<k>);<n>
<edges;
separator="\nelse ">
<if(!!(isTrue.(last(edges).labelExpr)) && (!last(edges).predicates))>
else
{
<if(eotPredictsAlt)>
alt<decisionNumber> = <eotPredictsAlt>;
<else>
<ruleBacktrackFailure()>
NoViableAltException nvae = new NoViableAltException("<description>", <decisionNumber>, <stateNumber>,
input, <k>);
DebugRecognitionException(nvae);
<@noViableAltException()>
throw nvae;
<endif>
}
<endif>
>>

```

```

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
int LA<decisionNumber>_<k> = input.LA(<k>);<\n>
<edges; separator="\nelse ">
>>

```

```

/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
int LA<decisionNumber>_<k> = input.LA(<k>);<\n>
<edges; separator="\nelse "><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber> = <eotPredictsAlt>;<! if no edges, don't gen ELSE !>
<else>
else
{
alt<decisionNumber> = <eotPredictsAlt>;
}<\n>
<endif>
<endif>
>>

```

```

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber> = <alt>;"

```

```

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.
 */
dfaEdge(labelExpr, targetState, predicates) ::= <<
if ((<labelExpr><if(predicates)> && (<predicates><endif>))
{
<targetState>
}
>>

```

```
//
```

## Fixed DFA (switch case)

```
/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch (input.LA(<k>))
{
<edges; separator="\n">
default:
<if(eotPredictsAlt)>
alt<decisionNumber>=<eotPredictsAlt>;
break;<\n>
<else>
{
<ruleBacktrackFailure()>
NoViableAltException nvae = new NoViableAltException("<description>", <decisionNumber>, <stateNumber>,
input, <k>);
DebugRecognitionException(nvae);
<@noViableAltException()>
throw nvae;
}
<endif>
}<\n>
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch (input.LA(<k>))
{
<edges; separator="\n">
}<\n>
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch (input.LA(<k>))
{
<edges; separator="\n">
<if(eotPredictsAlt)>
default:
alt<decisionNumber>=<eotPredictsAlt>;
break;<\n>
<endif>
}<\n>
>>

dfaEdgeSwitch(labels,
targetState) ::= <<
<labels: {it|case <it>:}; separator="\n">
```

```

{
<targetState>
}
break;
>>

// C y c l i c D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
try
{
alt<decisionNumber> = dfa<decisionNumber>.Predict(input);
}
catch (NoViableAltException nvae)
{
DebugRecognitionException(nvae);
throw;
}
>>

/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */
cyclicDFA(dfa)
::= <<
private class DFA<dfa.decisionNumber> : DFA
{
private const string DFA<dfa.decisionNumber>_eotS =
"<dfa.javaCompressedEOT; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_eofS =
"<dfa.javaCompressedEOF; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_minS =
"<dfa.javaCompressedMin; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_maxS =
"<dfa.javaCompressedMax; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_acceptS =
"<dfa.javaCompressedAccept; wrap=\""+\n\t\t\">";
private const string DFA<dfa.decisionNumber>_specialS =
"<dfa.javaCompressedSpecial; wrap=\""+\n\t\t\">}>";

```

```

private static readonly string[] DFA<dfa.decisionNumber>_transitionS =
{
    <dfa.javaCompressedTransition:{s|"<s; wrap="\n" ">"; separator=",\n">
};

private static readonly short[] DFA<dfa.decisionNumber>_eot =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_eotS);
private static readonly short[]
DFA<dfa.decisionNumber>_eof = DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_eofS);
private static readonly char[] DFA<dfa.decisionNumber>_min =
DFA.UnpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_minS);
private static readonly char[] DFA<dfa.decisionNumber>_max =
DFA.UnpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_maxS);
private static readonly short[] DFA<dfa.decisionNumber>_accept =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_acceptS);
private static readonly short[] DFA<dfa.decisionNumber>_special =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_specialS);
private static readonly short[][] DFA<dfa.decisionNumber>_transition;

static DFA<dfa.decisionNumber>()
{
    int numStates = DFA<dfa.decisionNumber>_transitionS.Length;
    DFA<dfa.decisionNumber>_transition = new short[numStates][];
    for ( int i=0; i < numStates; i++ )
    {
        DFA<dfa.decisionNumber>_transition[i] =
DFA.UnpackEncodedString(DFA<dfa.decisionNumber>_transitionS[i]);
    }
}

public
DFA<dfa.decisionNumber>( BaseRecognizer recognizer<if(dfa.specialStateSTs)>, SpecialStateTransitionHandler
specialStateTransition<endif> )
<if(dfa.specialStateSTs)>
    : base(specialStateTransition)
<endif>
{
    this.recognizer = recognizer;
    this.decisionNumber = <dfa.decisionNumber>;
    this.eot = DFA<dfa.decisionNumber>_eot;
    this.eof = DFA<dfa.decisionNumber>_eof;
    this.min = DFA<dfa.decisionNumber>_min;
    this.max = DFA<dfa.decisionNumber>_max;
    this.accept = DFA<dfa.decisionNumber>_accept;
    this.special = DFA<dfa.decisionNumber>_special;
    this.transition = DFA<dfa.decisionNumber>_transition;
}

```

```

public override string Description { get { return "<dfa.description>"; } }

public override void Error(NoViableAltException nvae)
{
    DebugRecognitionException(nvae);
}
}<\n>
<if(dfa.specialStateSTs)>
private int SpecialStateTransition<dfa.decisionNumber>(DFA dfa, int s, IIntStream _input)<! throws
NoViableAltException!>
{
    <if(LEXER)>
    IIntStream input = _input;
    <endif>
    <if(PARSER)>
    ITokenStream
    input = (ITokenStream)_input;
    <endif>
    <if(TREE_PARSER)>
    ITreeNodeStream input = (ITreeNodeStream)_input;
    <endif>
    int _s = s;
    s = -1;
    <! pull these outside the switch cases to save space on locals !>
    int LA<dfa.decisionNumber>_1 = input.LA(1);
    int index<dfa.decisionNumber>_1 = input.Index;
    switch (_s)
    {
        <dfa.specialStateSTs:{state |case <i0>:<! compressed special state numbers 0..n-1 !>
        <state>}; separator="\n">

    default:
        break;
    }

    if (s >= 0)
        return s;

    <if(backtracking)>
    if (state.backtracking > 0) {state.failed=true; return -1;}
    <endif>
    NoViableAltException nvae = new NoViableAltException(dfa.Description, <dfa.decisionNumber>, _s, input);
    dfa.Error(nvae);
    throw nvae;
}
<endif>
>>

```



```

/** A state in a cyclic DFA; it's a special state and part of a big switch on
 * state.
 */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
{
<if(semPredState)>
<! get next lookahead symbol to test edges, then rewind !>
input.Rewind();
<endif>
<edges;
separator="\nelse ">
<if(semPredState)>
<! return input cursor to state before we rewound !>
input.Seek(index<decisionNumber>_1);
<endif>
break;
}
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ((<labelExpr><if(predicates)> && (<predicates><endif>) {s = <targetStateNumber>;}<\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;<\n>
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "<left>&&<right>"

orPredicates(operands) ::= "<operands; separator=\\|\\>"

notPredicate(pred) ::= "!(<evalPredicate(...)>)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "EvaluatePredicate(<pred>_fragment)"

lookaheadTest(atom,k,atomAsInt)

```

```
::= "LA<decisionNumber>_<k>==<atom>"
```

```
/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable  
 * somewhere. Must ask for the lookahead directly.  
 */
```

```
isolatedLookaheadTest(atom,k,atomAsInt) ::= "input.LA(<k>)==<atom>"
```

```
lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%  
(LA<decisionNumber>_<k><ge()><lower> && LA<decisionNumber>_<k><le()><upper>)  
%>
```

```
isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::=  
"(input.LA(<k><ge()><lower> && input.LA(<k><le()><upper>))"
```

```
le() ::= "\<="
```

```
ge() ::= ">="
```

```
setTest(ranges) ::= <<  
<ranges; separator="||">  
>>
```

```
// A T T R I B U T E S
```

```
attributeScope(scope) ::= <<  
<if(scope)>  
<if(scope.attributes)>  
protected sealed partial class <scope.name>_scope  
{  
  <scope.attributes:{it|public <it.decl>;}; separator="\n">  
}  
<if(scope.actions.scopeinit)>  
protected void <scope.name>_scopeInit( <scope.name>_scope scope )  
{  
  <scope.actions.scopeinit>  
}  
<else>  
protected virtual void <scope.name>_scopeInit(  
  <scope.name>_scope scope ) {}  
<endif>  
<if(scope.actions.scopeafter)>  
protected void <scope.name>_scopeAfter( <scope.name>_scope scope )  
{  
  <scope.actions.scopeafter>  
}  
<else>  
protected virtual void <scope.name>_scopeAfter( <scope.name>_scope scope ) {}  
<endif>  
protected readonly ListStack<<scope.name>_scope> <scope.name>_stack = new
```

```

ListStack\<<scope.name>_scope>();
<endif>
<endif>
>>

globalAttributeScope(scope) ::= <<
<attributeScope(...)>
>>

ruleAttributeScope(scope) ::= <<
<attributeScope(...)>
>>

returnStructName(it) ::= "<it.name>_return"

returnType(ruleDescriptor) ::= <%
<if(ruleDescriptor.returnScope.attributes && ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.grammar.recognizerName>.<ruleDescriptor:returnStructName()>
<elseif(ruleDescriptor.hasMultipleReturnValues)>
<ruleReturnBaseType()>
<elseif(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
%>

/** Generate the C# type associated with
a single or multiple return
* values.
*/
ruleLabelType(referencedRule) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
<ruleReturnBaseType()>
<elseif(referencedRule.hasSingleReturnValue)>
<referencedRule.singleValueReturnType>
<else>
void
<endif>
%>

delegateName(it) ::= <<
<if(it.label)><it.label><else>g<it.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
* must be an object, default value is "null".
*/

```

```

initValue(typeName) ::= <<
default(<typeName>)
>>

/** Define a rule label including default value */
ruleLabelDef(label) ::= <%
<ruleLabelType(referencedRule=label.referencedRule)> <label.label.text> =
<initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))>;
%>

/** Define a return struct for a rule if the code needs to access its
* start/stop tokens, tree stuff, attributes, ... Leave a hole for
* subgroups to stick in members.
*/
returnScope(scope) ::= <<
<if(scope.attributes && ruleDescriptor.hasMultipleReturnValues)>
<returnScopeModifier(grammar=grammar,ruleDescriptor=ruleDescriptor)>
sealed partial class <ruleDescriptor:returnStructName()> : <ruleReturnBaseType()><@ruleReturnInterfaces()>
{
<scope.attributes: {it|public <it.decl>;}; separator="\n">
<@ruleReturnMembers()>
}
<endif>
>>

ruleReturnBaseType() ::= <%
<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope<<labelType>>
%>

@returnScope.ruleReturnMembers() ::= <<
>>

parameterScope(scope) ::= <<
<scope.attributes: {it|<it.decl>;}; separator=", ">
>>

parameterAttributeRef(attr) ::= <<
<attr.name; format="id">
>>

parameterSetAttributeRef(attr,expr) ::= <<
<attr.name; format="id"> =<expr>;
>>

scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack[<scope>_stack.Count - <negIndex> - 1].<attr.name; format="id">
<else>

```

```

<if(index)>
<scope>_stack[<index>].<attr.name; format="id">
<else>
<scope>_stack.Peek().<attr.name; format="id">
<endif>
<endif>
%>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::=
<%
<if(negIndex)>
<scope>_stack[<scope>_stack.Count - <negIndex> - 1].<attr.name; format="id"> = <expr>;
<else>
<if(index)>
<scope>_stack[<index>].<attr.name; format="id"> = <expr>;
<else>
<scope>_stack.Peek().<attr.name; format="id"> = <expr>;
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.Count>0 && $function::name.Equals("foo")}?
 */
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
(<scope>!=null?(<<returnType(referencedRule)>><scope>).<attr.name; format="id">:<initValue(attr.type)>)
<else>
<scope>
<endif>
%>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name; format="id">
<else>
<attr.name; format="id">
<endif>
%>

returnSetAttributeRef(ruleDescriptor,attr,expr)
::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name; format="id"> =<expr>;

```

```

<else>
<attr.name; format="id"> =<expr>;
<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "(<scope>!=null?<scope>.Text:default(string))"
tokenLabelPropertyRef_type(scope,attr) ::= "(<scope>!=null?<scope>.Type:0)"
tokenLabelPropertyRef_line(scope,attr) ::= "(<scope>!=null?<scope>.Line:0)"
tokenLabelPropertyRef_pos(scope,attr) ::= "(<scope>!=null?<scope>.CharPositionInLine:0)"
tokenLabelPropertyRef_channel(scope,attr) ::= "(<scope>!=null?<scope>.Channel:0)"
tokenLabelPropertyRef_index(scope,attr) ::= "(<scope>!=null?<scope>.TokenIndex:0)"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "(<scope>!=null?int.Parse(<scope>.Text):0)"

ruleLabelPropertyRef_start(scope,attr)
::= "(<scope>!=null?((<labelType><scope>.Start):default(<labelType>))"
ruleLabelPropertyRef_stop(scope,attr) ::= "(<scope>!=null?((<labelType><scope>.Stop):default(<labelType>))"
ruleLabelPropertyRef_tree(scope,attr) ::=
"(<scope>!=null?((<ASTLabelType><scope>.Tree):default(<ASTLabelType>))"
ruleLabelPropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
(<scope>!=null?(input.TokenStream.ToString(
input.TreeAdaptor.GetTokenStartIndex(<scope>.Start),
input.TreeAdaptor.GetTokenStopIndex(<scope>.Start))):default(string))
<else>
(<scope>!=null?input.ToString(<scope>.Start,<scope>.Stop):default(string))
<endif>
%>

ruleLabelPropertyRef_st(scope,attr) ::= "(<scope>!=null?<scope>.Template:null)"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::=
"(<scope>!=null?<scope>.Type:0)"

lexerRuleLabelPropertyRef_line(scope,attr) ::=
"(<scope>!=null?<scope>.Line:0)"

```

```

lexerRuleLabelPropertyRef_pos(scope,attr)
 ::=
  "<scope>!=null?<scope>.CharPositionInLine:-1)"

lexerRuleLabelPropertyRef_channel(scope,attr) ::=
  "<scope>!=null?<scope>.Channel:0)"

lexerRuleLabelPropertyRef_index(scope,attr) ::=
  "<scope>!=null?<scope>.TokenIndex:0)"

lexerRuleLabelPropertyRef_text(scope,attr) ::=
  "<scope>!=null?<scope>.Text:default(string)"

lexerRuleLabelPropertyRef_int(scope,attr) ::=
  "<scope>!=null?int.Parse(<scope>.Text):0)"

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "retval.Start"
rulePropertyRef_stop(scope,attr) ::= "retval.Stop"
rulePropertyRef_tree(scope,attr) ::= "retval.Tree"
rulePropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
input.TokenStream.ToString(
  input.TreeAdaptor.GetTokenStartIndex(retval.Start),
  input.TreeAdaptor.GetTokenStopIndex(retval.Start))
<else>
input.ToString(retval.Start,input.LT(-1))
<endif>
%>
rulePropertyRef_st(scope,attr)
 ::= "retval.Template"

lexerRulePropertyRef_text(scope,attr) ::= "Text"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"
lexerRulePropertyRef_start(scope,attr) ::= "state.tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(CharIndex-1)"
lexerRulePropertyRef_int(scope,attr) ::= "int.Parse(<scope>.Text)"

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.Tree = <expr>";
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.Template =<expr>";

```

```
/** How to execute an action (only when not backtracking) */
```

```
execAction(action) ::= <%  
<if(backtracking)>  
if (<actions.(actionScope).synpredgate><\n>  
{<\n>  
<@indentedAction()><\n>  
}  
<else>  
<action>  
<endif>  
>%
```

```
@execAction.indentedAction()
```

```
::= <<  
<action>  
>>
```

```
/** How to always execute an action even when backtracking */
```

```
execForcedAction(action) ::= "<action>"
```

```
// M I S C (properties, etc...)
```

```
bitset(name, words64) ::= <<  
public static readonly BitSet <name> = new BitSet(new ulong[] { <words64: {it|<it>UL}; separator="," >});  
>>
```

```
codeFileExtension() ::= ".cs"
```

```
true_value() ::= "true"  
false_value() ::= "false"
```

```
isTrue ::= [  
"true" : true,  
default : false  
]
```

```
Found in path(s):
```

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-  
jar/org/antlr/codegen/templates/CSharp2/CSharp2.stg
```

```
No license file was found, but licenses were detected in source scan.
```

```
/*
```

```
[The "BSD license"]
```

```
Copyright (c) 2005-2006 Terence Parr
```

```
All rights reserved.
```

```
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modification, are permitted provided that the following conditions
```



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\*/

/\*\* The API version of the runtime that recognizers generated by this runtime

\* need.

\*/

apiVersion() ::= "1"

// System.Boolean.ToString() returns "True" and "False", but the proper C# literals are "true" and "false"

// The Java version of Boolean returns "true" and "false", so they map to themselves here.

booleanLiteral ::= [

    "True":"true",

    "False":"false",

    "true":"true",

    "false":"false",

    default:"false"

]

/\*\* The overall file structure

of a recognizer; stores methods for rules

\* and cyclic DFAs plus support code.

\*/

outputFile(LEXER,PARSER,TREE\_PARSER, actionScope, actions,

    docComment, recognizer,

    name, tokens, tokenNames, rules, cyclicDFAs,

    bitsets, buildTemplate, buildAST, rewriteMode, profile,

    backtracking, synpreds, memoize, numRules,

    fileName, ANTLRVersion, generatedTimestamp, trace,

    scopes, superClass, literals) ::=

```

<<
# $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>

<@imports>
import sys
from antlr3 import *
<if(TREE_PARSER)>
from antlr3.tree import *<\n>
<endif>
from antlr3.compat import set, frozenset
<@end>

<actions.(actionScope).header>

<! <docComment> !>

# for convenience in actions
HIDDEN = BaseRecognizer.HIDDEN

# token types
<tokens:{it | <it.name>=<it.type>}; separator="\n">

<recognizer>

<if(actions.(actionScope).main)>
<actions.(actionScope).main>
<else>
def main(argv, stdin=sys.stdin, stdout=sys.stdout, stderr=sys.stderr):
<if(LEXER)>
    from antlr3.main import LexerMain
    main = LexerMain(<recognizer.name>)<\n>
<endif>
<if(PARSER)>
    from antlr3.main import ParserMain
    main = ParserMain("<recognizer.grammar.name>Lexer", <recognizer.name>)<\n>
<endif>
<if(TREE_PARSER)>
    from antlr3.main import WalkerMain
    main = WalkerMain(<recognizer.name>)<\n>
<endif>
    main.stdin = stdin
    main.stdout = stdout
    main.stderr = stderr
    main.execute(argv)<\n>
<endif>

<actions.(actionScope).footer>

```

```

if __name__ == '__main__':
    main(sys.argv)

>>

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode,
    labelType="CommonToken", superClass="Lexer") ::= <<
<grammar.directDelegates:
{g|from <g.recognizerName> import <g.recognizerName>; separator="\n">

class <grammar.recognizerName>(<@superClassName><superClass><@end>):
    <scopes:{it|<if(it.isDynamicGlobalScope)><globalAttributeScope(scope=it)><endif>>>

    grammarFileName = "<fileName>"
    api_version = <apiVersion()>

    def __init__(self<grammar.delegates:{g|,<g:delegateName()>}>, input=None, state=None):
        if state is None:
            state = RecognizerSharedState()
            super(<grammar.recognizerName>, self).__init__(input, state)

<if(memoize)>
<if(grammar.grammarIsRoot)>
    self._state.ruleMemo = {}
<endif>
<endif>

    <grammar.directDelegates:
    {g|self.<g:delegateName()> = <g.recognizerName>(<trunc(g.delegates):{p|<p:delegateName()>, }>self, input,
state)); separator="\n">
    <grammar.directDelegates:
    {g|<g.delegates:{h|self.<h:delegateName()> = self.<g:delegateName()>.<h:delegateName()>};
separator="\n">}; separator="\n">
    <grammar.delegates:
    {g|self.<g:delegateName()> = <g:delegateName()>}; separator="\n">
    <last(grammar.delegates):
    {g|self.gParent = <g:delegateName()>}; separator="\n">
    self.delegates = [<grammar.delegates: {g|self.<g:delegateName()>}; separator = ", ">]

    <cyclicDFAs:{dfa | <cyclicDFAInit(dfa)>};
separator="\n">

    <actions.lexer.init>

<actions.lexer.members>

```

```

<if(filterMode)>
  <filteringNextToken()>
<endif>
<rules; separator="\n\n">

<synpreds:{p | <lexerSynpred(p)>}>

<cyclicDFAs:cyclicDFA()> <! dump tables for all DFA !>

>>

/** A override of Lexer.nextToken() that backtracks over mTokens() looking
 * for matches. No error can be generated upon error; just rewind, consume
 * a token and then try again. backtracking needs to be set as well.
 * Make rule memoization happen only at levels above 1 as we start mTokens
 * at backtracking==1.
 */
filteringNextToken() ::= <<
def nextToken(self):
  while True:
    if self.input.LA(1) == EOF:
      return self.makeEOFToken()

    self._state.token = None
    self._state.channel = DEFAULT_CHANNEL
    self._state.tokenStartCharIndex = self.input.index()
    self._state.tokenStartCharPositionInLine = self.input.charPositionInLine
    self._state.tokenStartLine
= self.input.line
    self._state._text = None
    try:
      m = self.input.mark()
      try:
        # means we won't throw slow exception
        self._state.backtracking = 1
        try:
          self.mTokens()
        finally:
          self._state.backtracking = 0

      except BacktrackingFailed:
        # mTokens backtracks with synpred at backtracking==2
        # and we set the synpredgate to allow actions at level 1.
        self.input.rewind(m)
        self.input.consume() # advance one char and try again

    else:

```

```

        self.emit()
        return self._state.token

    except RecognitionException, re:
        # shouldn't happen in backtracking mode, but...
        self.reportError(re)
        self.recover(re)

def memoize(self, input, ruleIndex, ruleStartIndex, success):
    if self._state.backtracking > 1:
        #
    is Lexer always superclass?
        super(<grammar.recognizerName>, self).memoize(input, ruleIndex, ruleStartIndex, success)

def alreadyParsedRule(self, input, ruleIndex):
    if self._state.backtracking > 1:
        return super(<grammar.recognizerName>, self).alreadyParsedRule(input, ruleIndex)
    return False

>>

actionGate() ::= "self._state.backtracking == 0"

filteringActionGate() ::= "self._state.backtracking == 1"

/** How to generate a parser */

genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
              bitsets, inputStreamType, superClass, labelType, members,
              rewriteElementType, filterMode, init, ASTLabelType="Object") ::= <<
<if(grammar.grammarIsRoot)>
# token names
tokenNames = [
    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>",
    <tokenNames; wrap, separator=", ">
]<\n>
<else>
from <grammar.composite.rootGrammar.recognizerName> import tokenNames<\n>
<endif>
<scopes:{it|<if(it.isDynamicGlobalScope)><globalAttributeScopeClass(scope=it)><endif>}>

<grammar.directDelegates:
{g|from <g.recognizerName> import <g.recognizerName>}; separator="\n">

<rules:{it|<ruleAttributeScopeClass(scope=it.ruleDescriptor.ruleScope)>}>

```

```

class <grammar.recognizerName>(<@superClassName><superClass><@end>):
    grammarFileName = "<fileName>"
    api_version = <apiVersion()>
    tokenNames = tokenNames

    def __init__(self<grammar.delegators:{g|,<g:delegateName()>}, input, state=None, *args, **kwargs):
        if state is None:
            state = RecognizerSharedState()

        <@args()>
        super(<grammar.recognizerName>, self).__init__(input, state, *args, **kwargs)

<if(memoize)>
<if(grammar.grammarIsRoot)>
    self._state.ruleMemo = {}
<endif>
<endif>

    <cyclicDFAs:{dfa | <cyclicDFAInit(dfa)>}; separator="\n">

    <scopes:{it | <if(it.isDynamicGlobalScope)><globalAttributeScopeStack(scope=it)><endif>}>
    <rules:{it | <ruleAttributeScopeStack(scope=it.ruleDescriptor.ruleScope)>}>

    <init>

    <grammar.delegators:
        {g|self.<g:delegateName()> = <g:delegateName()>}; separator="\n">
    <grammar.directDelegates:
        {g|self.<g:delegateName()> = <g.recognizerName>(<trunc(g.delegators):{p|<p:delegateName()>, }>self, input,
state)); separator="\n">
    <grammar.directDelegates:
        {g|<g.delegates:{h|self.<h:delegateName()> = self.<g:delegateName()>.<h:delegateName()>};
separator="\n">}; separator="\n">
    <last(grammar.delegators):
        {g|self.gParent = self.<g:delegateName()>}; separator="\n">
        self.delegates = [<grammar.delegates: {g|self.<g:delegateName()>}; separator = ", ">]

<@init><@end>

<@members><@end>

<members>

<rules; separator="\n\n">

<! generate rule/method definitions for imported rules so they

```

```

    appear to be defined in this recognizer. !>
<grammar.delegatedRules:{ruleDescriptor| <delegateRule(ruleDescriptor)> }; separator="\n">

<synpreds:{p | <synpred(p)>>

<cyclicDFAs:cyclicDFA()> <! dump
tables for all DFA !>

<bitsets:{it | FOLLOW_<it.name>_in_<it.inName><it.tokenIndex> = frozenset([<it.tokenTypes:{it |
<it>};separator=", ">])<\n>>

>>

delegateRule(ruleDescriptor) ::= <<
def <ruleDescriptor.name>(self, <ruleDescriptor.parameterScope:parameterScope>):
<\> <if(ruleDescriptor.hasReturnValue)>return
<endif>self.<ruleDescriptor.grammar:delegateName()>.<ruleDescriptor.name>(<if(ruleDescriptor.parameterScope)
><ruleDescriptor.parameterScope.attributes:{a|<a.name>}; separator=", "><endif>)

>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets,
    ASTLabelType="Object", superClass="Parser", labelType="Token",
    members={<actions.parser.members>},
    init={<actions.parser.init>}
) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TokenStream", superClass,
    labelType, members, "Token",
    false, init, ASTLabelType)>

>>

/** How to generate a tree
parser; same as parser except the input
* stream is a different type.
*/
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={<ASTLabelType>}, ASTLabelType="Object",
superClass={<if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif>},
members={<actions.treeparser.members>},
init={<actions.treeparser.init>}
) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TreeNodeStream", superClass,
    labelType, members, "Node",
    filterMode, init, ASTLabelType)>

>>

```

```

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates
cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
# $ANTLR start "<ruleName>"
def <ruleName>_fragment(self, <ruleDescriptor.parameterScope:parameterScope()>):
    <ruleLabelDefs()>
<if(trace)>
    self.traceIn("<ruleName>_fragment", <ruleDescriptor.index>)
    try:
        <block>

    finally:
        self.traceOut("<ruleName>_fragment", <ruleDescriptor.index>)

<else>
    <block>
<endif>
# $ANTLR end "<ruleName>"

>>

synpred(name) ::= <<
def <name>(self):
    self._state.backtracking += 1
    <@start()>
    start = self.input.mark()
    try:
        self.<name>_fragment()
    except BacktrackingFailed:
        success = False
    else:
        success = True
    self.input.rewind(start)
    <@stop()>
    self._state.backtracking -= 1
    return success

>>

```



```

lexerSynpred(name) ::= <<
<synpred(name)>
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if self._state.backtracking
> 0 and self.alreadyParsedRule(self.input, <ruleDescriptor.index>):
# for cached failed rules, alreadyParsedRule will raise an exception
success = True
return <ruleReturnValue()>

<endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>
if self._state.backtracking > 0:
raise BacktrackingFailed

<endif>
>>

/** How to generate code for a rule. This includes any return type
* data aggregates required for multiple return values.
*/
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<returnScope(scope=ruleDescriptor.returnScope)>

# $ANTLR start "<ruleName>"
# <fileName>:<description>
<ruleDescriptor.actions.decorate>
def <ruleName>(self, <ruleDescriptor.parameterScope:parameterScope()>):
<if(trace)>
self.traceIn("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
<ruleScopeSetUp()>
<ruleDeclarations()>
<ruleLabelDefs()>
<ruleDescriptor.actions.init>
<@preamble()>
<@body><ruleBody()><@end>
<@postamble()>
return <ruleReturnValue()>

# $ANTLR end "<ruleName>"

```

```

>>

ruleBody() ::= <<
<if(memoize)>
<if(backtracking)>
success = False<\n>
<endif>
<endif>
try:
  try:
    <ruleMemoization(name=ruleName)>
    <block>
    <ruleCleanUp()>
    <(ruleDescriptor.actions.after):execAction()>

<if(memoize)>
<if(backtracking)>
  success = True<\n>
<endif>
<endif>
<if(exceptions)>
  <exceptions:{e|<catch(decl=e.decl,action=e.action)><\n>}>
<else>
<if(!emptyRule)>
<if(actions.(actionScope).rulecatch)>
  <actions.(actionScope).rulecatch>
<else>
  except RecognitionException, re:
    self.reportError(re)
    self.recover(self.input, re)
    <@setErrorReturnValue()>

<endif>
<else>
  finally:
    pass

<endif>
<endif>
finally:
<if(trace)>
  self.traceOut("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
  <memoize()>
  <ruleScopeCleanUp()>
  <finally>
  pass
>>

```

```
catch(decl,action)
 ::= <<
except <e.decl>:
  <e.action>
```

```
>>
```

```
ruleDeclarations() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
retval = self.<ruleDescriptor.name>_return()
retval.start = self.input.LT(1)<\n>
<elseif(ruleDescriptor.returnScope)>
<ruleDescriptor.returnScope.attributes: { a |
<a.name> = <if(a.initValue)><a.initValue><else>None<endif>
}>
<endif>
<if(memoize)>
<ruleDescriptor.name>_startIndex = self.input.index()
<endif>
>>
```

```
ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: {it | self.<it>_stack.append(<it>_scope())}; separator="\n">
<ruleDescriptor.ruleScope: {it | self.<it.name>_stack.append(<it.name>_scope())}; separator="\n">
>>
```

```
ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: {it | self.<it>_stack.pop()}; separator="\n">
<ruleDescriptor.ruleScope: {it | self.<it.name>_stack.pop()}; separator="\n">
>>
```

```
ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it | <it.label.text> = None}; separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,
ruleDescriptor.wildcardTreeListLabels]
: {it | list_<it.label.text> = None}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
<ruleDescriptor.ruleListLabels: {it | <it.label.text> = None}; separator="\n">
>>
```

```
lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
```

```

ruleDescriptor.ruleLabels]
  :{it | <it.label.text> = None}; separator="\n"
>
<ruleDescriptor.charLabels:{it | <it.label.text> = None}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
  :{it | list_<it.label.text> = None}; separator="\n"
>
>>

ruleReturnValue() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
%>

ruleCleanup() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
retval.stop
= self.input.LT(-1)<\n>
<endif>
<endif>
>>

memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if self._state.backtracking > 0:
    self.memoize(self.input, <ruleDescriptor.index>, <ruleDescriptor.name>_startIndex, success)

<endif>
<endif>
>>

/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
# $ANTLR start "<ruleName>"
def m<ruleName>(self, <ruleDescriptor.parameterScope:parameterScope(>>):
<if(trace)>

```

```

    self.traceIn("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
    <ruleScopeSetUp()>
    <ruleDeclarations()>
<if(memoize)>
<if(backtracking)>
    success = False<\n>
<endif>
<endif>
    try:
<if(nakedBlock)>
    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block><\n>
<else>
    _type = <ruleName>
    _channel = DEFAULT_CHANNEL

    <ruleMemoization(name=ruleName)>
    <lexerRuleLabelDefs()>
    <ruleDescriptor.actions.init>
    <block>
    <ruleCleanUp()>
    self._state.type = _type
    self._state.channel = _channel
    <(ruleDescriptor.actions.after):execAction()>
<endif>
<if(memoize)>
<if(backtracking)>
    success = True<\n>
<endif>
<endif>

    finally:
<if(trace)>
    self.traceOut("<ruleName>", <ruleDescriptor.index>)<\n>
<endif>
    <ruleScopeCleanUp()>
    <memoize()>
    pass

# $ANTLR end "<ruleName>"

>>

/** How to generate code for the implicitly-defined lexer grammar rule

```

```

* that chooses between lexer rules.
*/
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
def mTokens(self):
  <block><\n>

>>

// S U B R U L E S

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
# <fileName>:<description>
alt<decisionNumber> = <maxAlt>
<decls>
<@body><blockBody()><@end>
>>

blockBody()
::= <<
<@predecision()>
<@decision><decision><@end>
<@postdecision()>
<@prebranch()>
<alts:{ a | <altSwitchCase(i, a)> }; separator="\n" >
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
# <fileName>:<description>
alt<decisionNumber> = <maxAlt>
<decls>
<@predecision()>
<@decision><decision><@end>
<@postdecision()>
<alts:{ a | <altSwitchCase(i, a)> }; separator="\n" >
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
# <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

```

```

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
# <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
 ::= <<
# <fileName>:<description>
cnt<decisionNumber> = 0
<decls>
<@preloop()>
<@loopBody>
<positiveClosureBlockLoop()>
<@end>
<@postloop()>
>>

positiveClosureBlockLoop() ::= <<
while True: #loop<decisionNumber>
  alt<decisionNumber> = <maxAlt>
  <@predecision()>
  <@decisionBody><decision><@end>
  <@postdecision()>
  <alts:{a | <altSwitchCase(i, a)>}; separator="\nel">
  else:
    if cnt<decisionNumber> >= 1:
      break #loop<decisionNumber>

  <ruleBacktrackFailure()>
  eee = EarlyExitException(<decisionNumber>, self.input)
  <@earlyExitException()>
  raise eee

  cnt<decisionNumber> += 1
>>

positiveClosureBlockSingleAlt ::= positiveClosureBlock

/** A (..)* block with 1 or more alternatives */
closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
# <fileName>:<description>

```

```

<decls>
<@preloop()>
<@loopBody>
<closureBlockLoop()>
<@end>
<@postloop()>
>>

closureBlockLoop()
::= <<
while True: #loop<decisionNumber>
  alt<decisionNumber> = <maxAlt>
  <@predecision()>
  <@decisionBody><decision><@end>
  <@postdecision()>
  <alts:{a | <altSwitchCase(i, a)>} ; separator="\nel">
  else:
    break #loop<decisionNumber>
>>

closureBlockSingleAlt ::= closureBlock

/** Optional blocks (x)? are translated to (x|) by before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase(altNum,alt) ::= <<
if alt<decisionNumber> == <altNum>:
  <@prealt()>
  <alt>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,
treeLevel,rew) ::= <<
# <fileName>:<description>
pass <! so empty alternatives are a valid block !>
<@declarations()>
<elements:element()>
<rew>
<@cleanup()>

```



```

>>

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element(e) ::= <<
<@prematch(>
<e.el><\n>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions={}) ::= <<
<if(label)><label> = <endif>self.match(self.input, <token>,
self.FOLLOW_<token>_in_<ruleName><elementIndex>)
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRef(token,label,elementIndex,terminalOptions)>
<listLabel(label, label)>
>>

listLabel(label, elem) ::= <<
if list_<label> is None:
    list_<label> = []
list_<label>.append(<elem>)<\n>
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label>
= self.input.LA(1)<\n>
<endif>
self.match(<char>)
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = self.input.LA(1)<\n>
<endif>
self.matchRange(<a>, <b>)

```

```

>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="",terminalOptions={}) ::= <<
<if(label)>
<label> = self.input.LT(1)<\n>
<endif>
if <s>:
    self.input.consume()
    <postmatchCode>
<if(!LEXER)>
    self._state.errorRecovery = False<\n>
<endif>

else:
    <ruleBacktrackFailure()>
    mse = MismatchedSetException(None, self.input)
    <@mismatchedSetException()>
<if(LEXER)>
    self.recover(mse)
    raise mse
<else>
    raise mse
    <! use following code to make it recover inline; remove throw mse;
    self.recoverFromMismatchedSet(
        self.input, mse, self.FOLLOW_set_in_<ruleName><elementIndex>
    )
    !>
<endif>
<\n>
>>

matchRuleBlockSet ::= matchSet

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(label,
label)>
>>

/** Match a string literal */
lexerStringRef(string,label,elementIndex="0") ::= <<
<if(label)>
<label>Start = self.getCharIndex()
self.match(<string>)
<label>StartLine<elementIndex> = self.getLine()
<label>StartCharPos<elementIndex> = self.getCharPositionInLine()
<label> = <labelType>(input=self.input, type=INVALID_TOKEN_TYPE, channel=DEFAULT_CHANNEL,

```

```

start=<label>Start, stop=self.getCharIndex()-1
<label>.setLine(<label>StartLine<elementIndex>)
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>)
<else>
self.match(<string>)
<endif>
>>

wildcard(token,label,elementIndex,terminalOptions={}) ::= <<
<if(label)>
<label> = self.input.LT(1)<\n>
<endif>
self.matchAny(self.input)
>>

wildcardAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<wildcard(...)>
<listLabel(label,label)>
>>

/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = self.input.LA(1)<\n>
<endif>
self.matchAny()
>>

wildcardCharListLabel(label,
elementIndex) ::= <<
<wildcardChar(label, elementIndex)>
<listLabel(label, label)>
>>

/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
self._state.following.append(self.FOLLOW_<rule.name>_in_<ruleName><elementIndex>)
<if(label)><label> = <endif>self.<if(scope)><scope.delegateName()>.<endif><rule.name>(<args; separator="
">)<\n>
self._state.following.pop()
>>

/** ids+=rule */

```

```

ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(rule,label,elementIndex,args,scope)>
<listLabel(label, label)>
>>

/** A lexer rule reference
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access
 * full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
<if(label)>
<label>Start<elementIndex> = self.getCharIndex()
self.<if(scope)><scope:delegateName().<endif>m<rule.name>(<args; separator=", ">)
<label>StartLine<elementIndex> = self.getLine()
<label>StartCharPos<elementIndex> = self.getCharPositionInLine()
<label> = <labelType>(
  input=self.input,
  type=INVALID_TOKEN_TYPE,
  channel=DEFAULT_CHANNEL,
  start=<label>Start<elementIndex>,
  stop=self.getCharIndex()-1)
<label>.setLine(<label>StartLine<elementIndex>)
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>)
<else>
self.<if(scope)><scope:delegateName().<endif>m<rule.name>(<args; separator=", ">)
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(rule,label,args,elementIndex,scope)>
<listLabel(label, label)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
<label>Start<elementIndex>
= self.getCharIndex()
<label>StartLine<elementIndex> = self.getLine()
<label>StartCharPos<elementIndex> = self.getCharPositionInLine()
self.match(EOF)
<label> = <labelType>(input=self.input, type=EOF, channel=DEFAULT_CHANNEL,
start=<label>Start<elementIndex>, stop=self.getCharIndex()-1)
<label>.setLine(<label>StartLine<elementIndex>)
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>)

```

```

<else>
self.match(EOF)
<endif>
>>

// used for left-recursive rules
recRuleDefArg()          ::= "<recRuleArg()>"
recRuleArg()            ::= "_p"
recRuleAltPredicate(ruleName, opPrec) ::= "<recRuleArg()> |<= <opPrec>"
recRuleSetResultAction() ::= "root_0 = $<ruleName>_primary.tree"
recRuleSetReturnAction(src, name)    ::= "$<name> = $<src>.<name>"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
    enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if
self.input.LA(1) == DOWN:
    self.match(self.input, DOWN, None)
    <children:element()>
    self.match(self.input, UP, None)

<else>
self.match(self.input, DOWN, None)
<children:element()>
self.match(self.input, UP, None)
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if not (<evalPredicate(pred, description)>):
    <ruleBacktrackFailure()>
    raise FailedPredicateException(self.input, "<ruleName>", "<description>")

>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = self.input.LA(<k>)<\n>
<edges; separator="\n" >
else:
<if(eotPredictsAlt)>

```

```

    alt<decisionNumber> = <eotPredictsAlt>
<else>
    <ruleBacktrackFailure()>
    nvae = NoViableAltException("<description>", <decisionNumber>, <stateNumber>, self.input)<\n>

    <@noViableAltException()>
    raise nvae<\n>
<endif>
>>

/** Same as a normal DFA state except that we don't examine lookahead
 * for the bypass alternative. It delays error detection but this
 * is faster, smaller, and more what people expect. For (X)? people
 * expect "if ( LA(1)==X ) match(X);" and that's it.
 */
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = self.input.LA(<k>)<\n>
<edges; separator="\n" >
>>

/** A DFA state that is actually the loopback decision of a closure
 * loop. If end-of-token (EOT) predicts any of the targets then it
 * should act like a default clause (i.e., no error can be generated).
 * This is used only in the lexer so that for ('a')* on the end of a rule
 * anything other than 'a' predicts exiting.
 */
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = self.input.LA(<k>)<\n>
<edges; separator="\n" ><\n>
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber>
= <eotPredictsAlt> <! if no edges, don't gen ELSE !>
<else>
else:
    alt<decisionNumber> = <eotPredictsAlt>
<\n>
<endif>
<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber> = <alt>"

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.
 */

```

```

dfaEdge(labelExpr, targetState, predicates) ::= <<
if (<labelExpr>) <if(predicates)>and (<predicates>)<endif>:
    <targetState>
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
<!
    FIXME: this is one of the few occasion, where I miss a switch statement
    in Python.
    ATM this is implemented as a list of if .. elif ..
    This may be replaced by faster a dictionary lookup, when I find a solution
    for the cases when an edge is not a plain dfaAcceptState.
!>
LA<decisionNumber> = self.input.LA(<k>)
<edges; separator="\n" >
else:
<if(eotPredictsAlt)>
    alt<decisionNumber> = <eotPredictsAlt>
<else>
    <ruleBacktrackFailure()>
    nvae = NoViableAltException("<description>", <decisionNumber>, <stateNumber>, self.input)<\n>
    <@noViableAltException()>
    raise nvae<\n>
<endif>

>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber> = self.input.LA(<k>)
<edges; separator="\n" >
>>

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
LA<decisionNumber> = self.input.LA(<k>)
<edges; separator="\n" >
<if(eotPredictsAlt)>
else:
    alt<decisionNumber> = <eotPredictsAlt>
<endif>
>>

dfaEdgeSwitch(labels, targetState) ::= <<
if <labels: {it | LA<decisionNumber>

```

```

== <it>}; separator=" or ">:
  <targetState>
>>

// C y c l i c   D F A

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */
dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = self.dfa<decisionNumber>.predict(self.input)
>>

/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */
cyclicDFA(dfa) ::= <<
# lookup tables for DFA #<dfa.decisionNumber>

DFA<dfa.decisionNumber>_eot = DFA.unpack(
  u"<dfa.javaCompressedEOT; wrap=""\n  u\>"
)

DFA<dfa.decisionNumber>_eof
= DFA.unpack(
  u"<dfa.javaCompressedEOF; wrap=""\n  u\>"
)

DFA<dfa.decisionNumber>_min = DFA.unpack(
  u"<dfa.javaCompressedMin; wrap=""\n  u\>"
)

DFA<dfa.decisionNumber>_max = DFA.unpack(
  u"<dfa.javaCompressedMax; wrap=""\n  u\>"
)

DFA<dfa.decisionNumber>_accept = DFA.unpack(
  u"<dfa.javaCompressedAccept; wrap=""\n  u\>"
)

DFA<dfa.decisionNumber>_special = DFA.unpack(
  u"<dfa.javaCompressedSpecial; wrap=""\n  u\>"
)

```



```

)

DFA<dfa.decisionNumber>_transition = [
  <dfa.javaCompressedTransition:{s|DFA.unpack(u"<s; wrap="\nu\"")}; separator=",\n">
]

# class definition for DFA #<dfa.decisionNumber>

class DFA<dfa.decisionNumber>(DFA):
  pass

  <@errorMethod()>

  <if(dfa.specialStateSTs)>
    def specialStateTransition(self_, s, input):
      # convince pylint that my self_ magic is ok ;
      # pylint: disable-msg=E0213

      # pretend we are a member of the recognizer
      # thus semantic predicates
      can be evaluated
      self = self._recognizer

      _s = s

      <dfa.specialStateSTs:{state | if s == <i0>: <! compressed special state numbers 0..n-1 !>
      <state>}; separator="\nel">

  <if(backtracking)>
    if self._state.backtracking > 0:
      raise BacktrackingFailed

  <endif>
    nvae = NoViableAltException(self_.getDescription(), <dfa.decisionNumber>, _s, input)
    self_.error(nvae)
    raise nvae<\n>
  <endif>

  >>

  cyclicDFAInit(dfa) ::= <<
self.dfa<dfa.decisionNumber> = self.DFA<dfa.decisionNumber>(
  self, <dfa.decisionNumber>,
  eot = self.DFA<dfa.decisionNumber>_eot,
  eof = self.DFA<dfa.decisionNumber>_eof,
  min = self.DFA<dfa.decisionNumber>_min,
  max = self.DFA<dfa.decisionNumber>_max,

```

```

    accept = self.DFA<dfa.decisionNumber>_accept,
    special = self.DFA<dfa.decisionNumber>_special,
    transition = self.DFA<dfa.decisionNumber>_transition
  )<\n>
>>

/** A state in a cyclic DFA; it's a special state and part of a big switch
  on
  * state.
  */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
LA<decisionNumber>_<stateNumber> = input.LA(1)<\n>
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
index<decisionNumber>_<stateNumber> = input.index()
input.rewind()<\n>
<endif>
s = -1
<edges; separator="\n">
<if(semPredState)> <! return input cursor to state before we rewound !>
input.seek(index<decisionNumber>_<stateNumber>)<\n>
<endif>
if s >= 0:
  return s
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
  * state to jump to next if successful.
  */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if (<labelExpr>)<if(predicates)> and (<predicates>)<endif>:
  s = <targetStateNumber><\n>
>>

/** An edge pointing at end-of-token; essentially matches any char;
  * always jump to the target.
  */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
se:
  s = <targetStateNumber><\n>
>>

// D
F A E X P R E S S I O N S

andPredicates(left,right) ::= "((<left>) and (<right>))"

orPredicates(operands) ::= "(<operands; separator=\" or \">)"

```

```

notPredicate(pred) ::= "not (<evalPredicate(pred, {})>)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "self.<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber> == <atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "self.input.LA(<k>) == <atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
(<lower> \<= LA<decisionNumber>_<stateNumber> \<= <upper>)
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= "<lower> \<=
self.input.LA(<k>) \<= <upper>)"

setTest(ranges) ::= "<ranges; separator=\\\" or \\\">"

// A T T R I B U T E S

globalAttributeScopeClass(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
class
<scope.name>_scope(object):
def __init__(self):
    <scope.attributes:{it | self.<it.decl> = None}; separator=\\\"n\">

<endif>
<endif>
>>

globalAttributeScopeStack(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
self.<scope.name>_stack = []<\n>
<endif>
<endif>
>>

ruleAttributeScopeClass(scope) ::= <<
<if(scope)>
<if(scope.attributes)>

```

```

class <scope.name>_scope(object):
    def __init__(self):
        <scope.attributes: {it | self.<it.decl> = None}; separator="\n">

<endif>
<endif>
>>

ruleAttributeScopeStack(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
self.<scope.name>_stack = []<\n>
<endif>
<endif>
>>

delegateName(d) ::= <<
<if(d.label)><d.label><else>g<d.name><endif>
>>

/** Define a rule label including default value */
ruleLabelDef(label) ::= <<
<label.label.text> = None
>>

returnStructName(r) ::= "<r.name>_return"

/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave
 * a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
class <ruleDescriptor:returnStructName()>(<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope):
    def __init__(self):
        super(<grammar.recognizerName>.<ruleDescriptor:returnStructName()>, self).__init__()

        <if(scope)><scope.attributes: {it | self.<it.decl> = None}; separator="\n"><endif>
        <@ruleReturnInit()>

        <@ruleReturnMembers()>

<endif>
>>

parameterScope(scope) ::= <<

```

```

<if(scope)><scope.attributes:{it | <it.decl>}; separator=", "><endif>
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> = <expr>"

scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
self.<scope>_stack[-<negIndex>].<attr.name>
<else>
<if(index)>
self.<scope>_stack[<index>].<attr.name>
<else>
self.<scope>_stack[-1].<attr.name>
<endif>
<endif>
%>

/* not applying patch because of bug in action parser!

<if(negIndex)>
((len(self.<scope>_stack)
- <negIndex> - 1) >= 0 and [self.<scope>_stack[-<negIndex>].<attr.name>] or [None])[0]
<else>
<if(index)>
((<index> < len(self.<scope>_stack)) and [self.<scope>_stack[<index>].<attr.name>] or [None])[0]
<else>
((len(self.<scope>_stack) > 0) and [self.<scope>_stack[-1].<attr.name>] or [None])[0]
<endif>
<endif>

*/

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
<if(negIndex)>
<!FIXME: this seems not to be used by ActionTranslator...!>
self.<scope>_stack[-<negIndex>].<attr.name> = <expr>
<else>
<if(index)>
<!FIXME: this seems not to be used by ActionTranslator...!>
self.<scope>_stack[<index>].<attr.name> = <expr>
<else>
self.<scope>_stack[-1].<attr.name> = <expr>
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers

```

```

* to stack itself not top of stack. This is useful for predicates
* like {$function.size(>0 && $function::name.equals("foo"))?
*/
isolatedDynamicScopeRef(scope) ::= "self.<scope>_stack"

/**
reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
((<scope> is not None) and [<scope>.<attr.name>] or [None])[0]
<else>
<scope>
<endif>
%>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
<attr.name>
<endif>
%>

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> = <expr>
<else>
<attr.name> = <expr>
<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/** ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach; and they are evaluated early;
// they cannot see TREE_PARSER or PARSER attributes for example. :(

tokenLabelPropertyRef_text(scope,attr) ::= "<scope>.text"
tokenLabelPropertyRef_type(scope,attr) ::= "<scope>.type"
tokenLabelPropertyRef_line(scope,attr)
::= "<scope>.line"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>.charPositionInLine"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>.channel"
tokenLabelPropertyRef_index(scope,attr) ::= "<scope>.index"

```

```

tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"

ruleLabelPropertyRef_start(scope,attr) ::= "<scope>.start"
ruleLabelPropertyRef_stop(scope,attr) ::= "<scope>.stop"
ruleLabelPropertyRef_tree(scope,attr) ::= "<scope>.tree"
ruleLabelPropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
((<scope> is not None) and [self.input.getTokenStream().toString(
    self.input.getTreeAdaptor().getTokenStartIndex(<scope>.start),
    self.input.getTreeAdaptor().getTokenStopIndex(<scope>.start)
    ]) or [None])[0]
<else>
((<scope> is not None) and [self.input.toString(<scope>.start,<scope>.stop)] or [None])[0]
<endif>
%>
ruleLabelPropertyRef_st(scope,attr) ::= "((<scope> is not None) and [<scope>.st] or [None])[0]"

/** Isolated $RULE ref ok in lexer as
it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::= "((<scope> is not None) and [<scope>.type] or [0])[0]"
lexerRuleLabelPropertyRef_line(scope,attr) ::= "((<scope> is not None) and [<scope>.line] or [0])[0]"
lexerRuleLabelPropertyRef_pos(scope,attr) ::= "((<scope> is not None) and [<scope>.charPositionInLine] or
[0])[0]"
lexerRuleLabelPropertyRef_channel(scope,attr) ::= "((<scope> is not None) and [<scope>.channel] or [0])[0]"
lexerRuleLabelPropertyRef_index(scope,attr) ::= "((<scope> is not None) and [<scope>.index] or [0])[0]"
lexerRuleLabelPropertyRef_text(scope,attr) ::= "((<scope> is not None) and [<scope>.text] or [None])[0]"
lexerRuleLabelPropertyRef_int(scope,attr) ::= "((<scope> is not None) and [int(<scope>.text)] or [0])[0]"

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "retval.start"
rulePropertyRef_stop(scope,attr) ::= "retval.stop" //mmm... or input.LT(-1)??
rulePropertyRef_tree(scope,attr)
::= "retval.tree"
rulePropertyRef_text(scope,attr) ::= "self.input.toString(retval.start, self.input.LT(-1))"
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "self.text"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "self._state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr) ::= "self._state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"
lexerRulePropertyRef_start(scope,attr) ::= "self._state.tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(self.getCharIndex()-1)"
lexerRulePropertyRef_int(scope,attr) ::= "int(<scope>.text)"

```

```

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
rule SetPropertyRef_tree(scope,attr,expr) ::= "retval.tree =<expr>"
rule SetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>"

/**
How to execute an action (only when not backtracking) */
execAction(action) ::= <<
<if(backtracking)>
<if(actions.(actionScope).synpredgate)>
if <actions.(actionScope).synpredgate>:
    pass
    <action>

<else>
if <actions.(actionScope).synpredgate>:
    pass
    <action>

<endif>
<else>
#action start
<action>
#action end
<endif>
>>

/** How to always execute an action even when backtracking */
execForcedAction(action) ::= "<action>"

// M I S C (properties, etc...)

codeFileExtension() ::= ".py"

true_value() ::= "True"
false_value() ::= "False"

Found in path(s):
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Python/Python.stg
No license file was found, but licenses were detected in source scan.

/*
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```



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\*/

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Python3/AST.stg

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\*/

/\*

New style messages. This file contains the actual layout of the messages emitted by ANTLR.

The text itself is coming out of the languages/\*stg files, according to the chosen locale.

This file contains the default format ANTLR uses.

\*/

group antlr;

location(file, line, column) ::= "<file>(<line>,<column>)"

message(id, text) ::= "error <id> : <text>"

report(location, message, type) ::= "<location> : <type> <message.id> : <message.text>"

wantsSingleLineMessage() ::= "true"

Found

in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-  
jar/org/antlr/tool/templates/messages/formats/vs2005.stg

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\*/

```
javaTypeInitMap ::= [
  "int":"0",
  "long":"0",
  "float":"0.0f",
  "double":"0.0",
  "boolean":"false",
  "byte":"0",
  "short":"0",
  "char":"0",
  default:"null" // anything other than an atomic type
]

// System.Boolean.ToString() returns "True" and "False", but the proper C# literals are "true" and "false"
// The Java version of Boolean returns "true" and "false", so they map to themselves here.
booleanLiteral ::= [
  "True":"true",
  "False":"false",
  "true":"true",
  "false":"false",
  default:"false"
]

/**
 * The overall file structure of a recognizer; stores methods for rules
 * and cyclic DFAs plus support code.
 */
outputFile(LEXER,PARSER,TREE_PARSER, actionScope, actions,
  docComment, recognizer,
  name, tokens, tokenNames, rules, cyclicDFAs,
  bitsets, buildTemplate, buildAST, rewriteMode, profile,
  backtracking, synpreds, memoize, numRules,
  fileName, ANTLRVersion, generatedTimestamp, trace,
  scopes, superClass, literals) ::=
<<
// $ANTLR <ANTLRVersion> <fileName> <generatedTimestamp>
<actions.(actionScope).header>
```

```

<@imports>
import org.antlr.runtime.*;
<if(TREE_PARSER)>
import org.antlr.runtime.tree.*;
<endif>
import java.util.Stack;
import java.util.List;
import java.util.ArrayList;
<if(backtracking)>
import java.util.Map;
import java.util.HashMap;
<endif>
<@end>

<docComment>
@SuppressWarnings("all")
<recognizer>

>>

lexer(grammar, name, tokens, scopes, rules, numRules, filterMode, labelType="CommonToken",
    superClass="Lexer")
::= <<
public class <grammar.recognizerName> extends <@superClassName><superClass><@end> {
<tokens:{it | public static final int <it.name>=<it.type>;}; separator="\n">
<scopes:{it |<if(it.isDynamicGlobalScope)><globalAttributeScope(it)><endif>}>
<actions.lexer.members>

// delegates
<grammar.delegates:
{g|public <g.recognizerName> <g.delegateName()>;}; separator="\n">
// delegators
<grammar.delegators:
{g|public <g.recognizerName> <g.delegateName()>;}; separator="\n">
<last(grammar.delegators):{g|public <g.recognizerName> gParent;}>
public <superClass>[] getDelegates() {
return new <superClass>[] {<grammar.delegates: {g|<g.delegateName()>;}; separator = ", ">};
}

public <grammar.recognizerName>() {} <! needed by subclasses !>
public <grammar.recognizerName>(CharStream input<grammar.delegators:{g|, <g.recognizerName>
<g.delegateName()>}>) {
this(input, new RecognizerSharedState()<grammar.delegators:{g|, <g.delegateName()>}>);
}
public <grammar.recognizerName>(CharStream
input, RecognizerSharedState state<grammar.delegators:{g|, <g.recognizerName> <g.delegateName()>}>) {
super(input,state);
<if(memoize)>

```

```

<if(grammar.grammarIsRoot)>
    state.ruleMemo = new HashMap[<numRules>+1];<\n><<! index from 1..n !>
<endif>
<endif>
    <grammar.directDelegates:
        { g|<g.delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators):{p|, <p.delegateName()> }>,
this);}; separator="\n">
    <grammar.delegators:
        { g|this.<g.delegateName()> = <g.delegateName()>;}; separator="\n">
    <last(grammar.delegators):{ g|gParent = <g.delegateName()>;}>
    }
    @Override public String getGrammarFileName() { return "<fileName>"; }

<if(filterMode)>
    <filteringNextToken()>
<endif>
    <rules; separator="\n\n">

    <synpreds:{ p | <lexerSynpred(p)>}>

    <cyclicDFAs:{ dfa | protected DFA<dfa.decisionNumber> dfa<dfa.decisionNumber> = new
DFA<dfa.decisionNumber>(this);}; separator="\n">
    <cyclicDFAs:cyclicDFA(); separator="\n\n"><<! dump tables for all DFA !>

    }
>>

/** A override of
    Lexer.nextToken() that backtracks over mTokens() looking
    * for matches. No error can be generated upon error; just rewind, consume
    * a token and then try again. backtracking needs to be set as well.
    * Make rule memoization happen only at levels above 1 as we start mTokens
    * at backtracking==1.
    */
filteringNextToken() ::= <<
@Override
public Token nextToken() {
    while (true) {
        if ( input.LA(1)==CharStream.EOF ) {
            Token eof = new CommonToken(input,Token.EOF,
                Token.DEFAULT_CHANNEL,
                input.index(),input.index());
            eof.setLine(getLine());
            eof.setCharPositionInLine(getCharPositionInLine());
            return eof;
        }
        state.token = null;
        state.channel = Token.DEFAULT_CHANNEL;

```

```

state.tokenStartCharIndex = input.index();
state.tokenStartCharPositionInLine = input.getCharPositionInLine();
state.tokenStartLine = input.getLine();
state.text = null;
try {
    int m = input.mark();
    state.backtracking=1; <! means we won't throw slow exception !>
    state.failed=false;
    mTokens();
    state.backtracking=0;
    <!
mTokens backtracks with synpred at backtracking==2
    and we set the synpredgate to allow actions at level 1. !>
    if ( state.failed ) {
        input.rewind(m);
        input.consume(); <! advance one char and try again !>
    }
    else {
        emit();
        return state.token;
    }
}
catch (RecognitionException re) {
    // shouldn't happen in backtracking mode, but...
    reportError(re);
    recover(re);
}
}

@Override
public void memoize(IntStream input,
    int ruleIndex,
    int ruleStartIndex)
{
if ( state.backtracking>1 ) super.memoize(input, ruleIndex, ruleStartIndex);
}

@Override
public boolean alreadyParsedRule(IntStream input, int ruleIndex) {
if ( state.backtracking>1 ) return super.alreadyParsedRule(input, ruleIndex);
return false;
}
>>

actionGate() ::= "state.backtracking==0"

filteringActionGate() ::= "state.backtracking==1"

```

```

/** How to generate a parser */
genericParser(grammar, name, scopes, tokens, tokenNames, rules,
numRules,
    bitsets, inputStreamType, superClass,
    labelType, members, rewriteElementType,
    filterMode, ASTLabelType="Object") ::= <<
public class <grammar.recognizerName> extends <@superClassName><superClass><@end> {
<if(grammar.grammarIsRoot)>
public static final String[] tokenNames = new String[] {
    "\<invalid>", "\<EOR>", "\<DOWN>", "\<UP>", <tokenNames; separator=", ", wrap="\n\t">
};
<endif>
<tokens:{it |public static final int <it.name>=<it.type>;}; separator="\n">

// delegates
<grammar.delegates: {g|public <g.recognizerName> <g.delegateName()>;}; separator="\n">
public <superClass>[] getDelegates() {
    return new <superClass>[] {<grammar.delegates: {g|<g.delegateName()>; separator = ", ">};
}

// delegators
<grammar.delegators:
    {g|public <g.recognizerName> <g.delegateName()>;}; separator="\n">
<last(grammar.delegators):{g|public <g.recognizerName> gParent;}>

<scopes:{it |<if(it.isDynamicGlobalScope)><globalAttributeScope(it)><endif>}>

<@members>
<!
WARNING. bug in ST: this is cut-n-paste into Dbg.stg !>
public <grammar.recognizerName>(<inputStreamType> input<grammar.delegators: {g|, <g.recognizerName>
<g.delegateName()>}> {
    this(input, new RecognizerSharedState()<grammar.delegators: {g|, <g.delegateName()>}>);
}
public <grammar.recognizerName>(<inputStreamType> input, RecognizerSharedState
state<grammar.delegators: {g|, <g.recognizerName> <g.delegateName()>}> {
    super(input, state);
<parserCtorBody()>
<grammar.directDelegates:
    {g|<g.delegateName()> = new <g.recognizerName>(input, state<trunc(g.delegators): {p|, <p.delegateName()>}>,
this);}; separator="\n">
    <grammar.indirectDelegates: {g | <g.delegateName()> = <g.delegateName()>.<g.delegateName()>;};
separator="\n">
    <last(grammar.delegators): {g|gParent = <g.delegateName()>;}>
}
<@end>

```

```

@Override public String[] getTokenNames() { return
<grammar.composite.rootGrammar.recognizerName>.tokenNames; }
@Override public String getGrammarFileName()
{ return "<fileName>"; }

<members>

<rules; separator="\n\n">

<! generate rule/method definitions for imported rules so they
appear to be defined in this recognizer. !>
// Delegated rules
<grammar.delegatedRules:{ruleDescriptor|
public <returnType(ruleDescriptor)> <ruleDescriptor.name>(<ruleDescriptor.parameterScope:parameterScope(>)
throws <ruleDescriptor.throwsSpec; separator=", "> { <if(ruleDescriptor.hasReturnValue)>return
<endif><ruleDescriptor.grammar.delegateName(>.<ruleDescriptor.name>(<if(ruleDescriptor.parameterScope)><ru
leDescriptor.parameterScope.attributes:{a|<a.name>}; separator=", "><endif>); \}); separator="\n">

<synpreds:{p | <synpred(p)>}>

<cyclicDFAs:{dfa | protected DFA<dfa.decisionNumber> dfa<dfa.decisionNumber> = new
DFA<dfa.decisionNumber>(this);}; separator="\n">
<cyclicDFAs:cyclicDFA(); separator="\n\n"><! dump tables for all DFA !>

<bitsets:{it | <bitset(name={FOLLOW_<it.name>_in_<it.inName><it.tokenIndex>},
words64=it.bits)>};
separator="\n">
}
>>

parserCtorBody() ::= <<
<if(memoize)>
<if(grammar.grammarIsRoot)>
this.state.ruleMemo = new HashMap[<length(grammar.allImportedRules)>+1];<\n><! index from 1..n !>
<endif>
<endif>
<grammar.delegators:
{g|this.<g.delegateName(> = <g.delegateName(>);}; separator="\n">
>>

parser(grammar, name, scopes, tokens, tokenNames, rules, numRules, bitsets,
ASTLabelType="Object", superClass="Parser", labelType="Token",
members={<actions.parser.members>}) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
bitsets, "TokenStream", superClass,
labelType, members, "Token",
false, ASTLabelType)>
>>

```



```

/** How to generate a tree parser; same as parser except the input
 * stream is a different type.
 */
treeParser(grammar, name, scopes, tokens, tokenNames, globalAction, rules,
    numRules, bitsets, filterMode, labelType={ <ASTLabelType> }, ASTLabelType="Object",
superClass={ <if(filterMode)><if(buildAST)>TreeRewriter<else>TreeFilter<endif><else>TreeParser<endif> },
    members={ <actions.treeparser.members> }
) ::= <<
<genericParser(grammar, name, scopes, tokens, tokenNames, rules, numRules,
    bitsets, "TreeNodeStream", superClass,
    labelType, members, "Node",
    filterMode, ASTLabelType)>
>>

```

```

/** A simpler version of a rule template that is specific to the imaginary
 * rules created for syntactic predicates. As they never have return values
 * nor parameters etc..., just give simplest possible method. Don't do
 * any of the normal memoization stuff in here either; it's a waste.
 * As predicates cannot be inlined into the invoking rule, they need to
 * be in a rule by themselves.
 */
synpredRule(ruleName, ruleDescriptor, block, description, nakedBlock) ::=
<<
// $ANTLR start <ruleName>
public final void <ruleName>_fragment(<ruleDescriptor.parameterScope:parameterScope(>>) throws
<ruleDescriptor.throwsSpec: { x|<x> } );
separator=" " {
<ruleLabelDefs(>
<if(trace)>
traceIn("<ruleName>_fragment", <ruleDescriptor.index>);
try {
<block>
}
finally {
traceOut("<ruleName>_fragment", <ruleDescriptor.index>);
}
<else>
<block>
<endif>
}
// $ANTLR end <ruleName>
>>

```

```

synpred(name) ::= <<
public final boolean <name>() {
state.backtracking++;
<@start(>

```

```

int start = input.mark();
try {
  <name>_fragment(); // can never throw exception
} catch (RecognitionException re) {
  System.err.println("impossible: "+re);
}
boolean success = !state.failed;
input.rewind(start);
<@stop()>
state.backtracking--;
state.failed=false;
return success;
}<\n>
>>

lexerSynpred(name) ::= <<
<synpred(name)>
>>

ruleMemoization(name) ::= <<
<if(memoize)>
if ( state.backtracking>0 && alreadyParsedRule(input, <ruleDescriptor.index> ) ) {
<returnStatement((( <ruleReturn Value()> )))> }
<endif>
>>

/** How to test for failure and return from rule */
checkRuleBacktrackFailure() ::= <<
<if(backtracking)>if
(state.failed) <returnStatement((( <ruleReturn Value()> )))><endif>
>>

/** This rule has failed, exit indicating failure during backtrack */
ruleBacktrackFailure() ::= <<
<if(backtracking)>if (state.backtracking>0) { state.failed=true;
<returnStatement((( <ruleReturn Value()> )))><endif>
>>

/** How to generate code for a rule. This includes any return type
 * data aggregates required for multiple return values.
 */
rule(ruleName,ruleDescriptor,block,emptyRule,description,exceptions,finally,memoize) ::= <<
<ruleAttributeScope(scope=ruleDescriptor.ruleScope)>
<returnScope(scope=ruleDescriptor.returnScope)>

// $ANTLR start "<ruleName>"
// <fileName>:<description>
<if(isPredefinedRewriteRule.(ruleName) && filterMode && buildAST)>

```

```

@Override
<endif>
public final <returnType(ruleDescriptor)> <ruleName>(<ruleDescriptor.parameterScope:parameterScope()>) throws
<ruleDescriptor.throwsSpec:{x|<x>}; separator=", "> {
<if(trace)>traceIn("<ruleName>", <ruleDescriptor.index>);<endif>
<ruleScopeSetUp()>
<ruleDeclarations()>
<ruleLabelDefs()>
<ruleDescriptor.actions.init>
<@preamble()>
try
{
<ruleMemoization(name=ruleName)>
<block>
<ruleCleanUp()>
<(ruleDescriptor.actions.after):execAction()>
}
<if(exceptions)>
<exceptions:{e|<catch(decl=e.decl,action=e.action)><\n>}>
<else>
<if(!emptyRule)>
<if(actions.(actionScope).rulecatch)>
<actions.(actionScope).rulecatch>
<else>
catch (RecognitionException re) {
reportError(re);
recover(input,re);
<@setErrorReturnValue()>
}
<endif>
<endif>
<endif>
finally {
// do for sure before leaving
<if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
<memoize()>
<ruleScopeCleanUp()>
<finally>
}
<@postamble()>
<returnStatement(({{<ruleReturnValue()>}}, false)>
}
// $ANTLR end "<ruleName>"
>>

returnStatement(returnValue, force=true) ::= <%
<if(!isEmptyString.(returnValue))>
return <returnValue>;

```

```

<elseif(force)>
return;
<endif>
%>

catch(decl,action) ::= <<
catch (<e.decl>) {
<e.action>
}
>>

ruleDeclarations()
::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<returnType(ruleDescriptor)> retval = new <returnType(ruleDescriptor)>();
retval.start = input.LT(1);
<elseif(ruleDescriptor.returnScope)>
<ruleDescriptor.returnScope.attributes: { a |
<a.type> <a.name> = <if(a.initValue)><a.initValue><else><initValue(a.type)><endif>;
}>
<endif>
<if(memoize)>
int <ruleDescriptor.name>_startIndex = input.index();
<endif>
>>

ruleScopeSetUp() ::= <<
<ruleDescriptor.useScopes: {it |<it>_stack.push(new <it>_scope());}; separator="\n">
<ruleDescriptor.ruleScope: {it |<it.name>_stack.push(new <it.name>_scope());}; separator="\n">
>>

ruleScopeCleanUp() ::= <<
<ruleDescriptor.useScopes: {it |<it>_stack.pop();}; separator="\n">
<ruleDescriptor.ruleScope: {it |<it.name>_stack.pop();}; separator="\n">
>>

ruleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,ruleDescriptor.tokenListLabels,
ruleDescriptor.wildcardTreeLabels,ruleDescriptor.wildcardTreeListLabels]
: {it |<labelType> <it.label.text>=null;};
separator="\n"
>
<[ruleDescriptor.tokenListLabels,ruleDescriptor.ruleListLabels,ruleDescriptor.wildcardTreeListLabels]
: {it |List\<Object> list_<it.label.text>=null;}; separator="\n"
>
<ruleDescriptor.ruleLabels:ruleLabelDef(); separator="\n">
<ruleDescriptor.ruleListLabels: {ll|RuleReturnScope <ll.label.text> = null;}; separator="\n">

```

>>

```
lexerRuleLabelDefs() ::= <<
<[ruleDescriptor.tokenLabels,
ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleLabels]
: {it |<labelType> <it.label.text>=null;}; separator="\n"
>
<ruleDescriptor.charLabels: {it |int <it.label.text>;}; separator="\n">
<[ruleDescriptor.tokenListLabels,
ruleDescriptor.ruleListLabels]
: {it |List<Object> list_<it.label.text>=null;}; separator="\n"
>
>>
```

```
ruleReturnValue() ::= <%
<if(!ruleDescriptor.isSynPred)>
<if(ruleDescriptor.hasReturnValue)>
<if(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnName>
<else>
retval
<endif>
<endif>
<endif>
%>
```

```
ruleCleanUp() ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
<if(!TREE_PARSER)>
retval.stop
= input.LT(-1);
<endif>
<endif>
>>
```

```
memoize() ::= <<
<if(memoize)>
<if(backtracking)>
if ( state.backtracking>0 ) { memoize(input, <ruleDescriptor.index>, <ruleDescriptor.name>_StartIndex); }
<endif>
<endif>
>>
```

```
/** How to generate a rule in the lexer; naked blocks are used for
 * fragment rules.
 */
```

```
lexerRule(ruleName,nakedBlock,ruleDescriptor,block,memoize) ::= <<
```

```

// $ANTLR start "<ruleName>"
public final void m<ruleName>(<ruleDescriptor.parameterScope:parameterScope()>) throws RecognitionException
{
    <if(trace)>traceIn("<ruleName>", <ruleDescriptor.index>);<endif>
    <ruleScopeSetUp()>
    <ruleDeclarations()>
    try {
    <if(nakedBlock)>
        <ruleMemoization(name=ruleName)>
        <lexerRuleLabelDefs()>
        <ruleDescriptor.actions.init>
        <block>
    <else>
        int _type = <ruleName>;
        int _channel = DEFAULT_TOKEN_CHANNEL;
        <ruleMemoization(name=ruleName)>
        <lexerRuleLabelDefs()>
        <ruleDescriptor.actions.init>
        <block>
        <ruleCleanUp()>
        state.type = _type;
        state.channel
        = _channel;
        <(ruleDescriptor.actions.after):execAction()>
    <endif>
    }
    finally {
        // do for sure before leaving
        <if(trace)>traceOut("<ruleName>", <ruleDescriptor.index>);<endif>
        <ruleScopeCleanUp()>
        <memoize()>
    }
}
// $ANTLR end "<ruleName>"
>>

/** How to generate code for the implicitly-defined lexer grammar rule
 * that chooses between lexer rules.
 */
tokensRule(ruleName,nakedBlock,args,block,ruleDescriptor) ::= <<
@Override
public void mTokens() throws RecognitionException {
    <block>
}
>>

// S U B R U L E S

```

```

/** A (...) subrule with multiple alternatives */
block(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::= <<
// <fileName>:<description>
int alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>
<@prebranch()>
switch (alt<decisionNumber>) {
  <alts:{ a | <altSwitchCase(i,a)>}>
}
<@postbranch()>
>>

/** A rule block with multiple alternatives */
ruleBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description)
::= <<
// <fileName>:<description>
int alt<decisionNumber>=<maxAlt>;
<decls>
<@predecision()>
<decision>
<@postdecision()>
switch (alt<decisionNumber>) {
  <alts:{ a | <altSwitchCase(i,a)>}>
}
>>

ruleBlockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A special case of a (...) subrule with a single alternative */
blockSingleAlt(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,description) ::= <<
// <fileName>:<description>
<decls>
<@prealt()>
<alts>
<@postalt()>
>>

/** A (..)+ block with 1 or more alternatives */
positiveClosureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,descriptio

```

```

n) ::= <<
// <fileName>:<description>
int cnt<decisionNumber>=0;
<decls>
<@preloop()>
loop<decisionNumber>:
while (true) {
int alt<decisionNumber>=<maxAlt>;
<@predecision()>
<decision>
<@postdecision()>
switch
(alt<decisionNumber>) {
<alts:{ a | <altSwitchCase(i,a)>}>
default :
if ( cnt<decisionNumber> >= 1 ) break loop<decisionNumber>;
<ruleBacktrackFailure()>
EarlyExitException eee = new EarlyExitException(<decisionNumber>, input);
<@earlyExitException()>
throw eee;
}
cnt<decisionNumber>++;
}
<@postloop()>
>>

```

positiveClosureBlockSingleAlt ::= positiveClosureBlock

*/\*\* A (..)\* block with 1 or more alternatives \*/*

```

closureBlock(alts,decls,decision,enclosingBlockLevel,blockLevel,decisionNumber,maxK,maxAlt,description) ::=
<<
// <fileName>:<description>
<decls>
<@preloop()>
loop<decisionNumber>:
while (true) {
int alt<decisionNumber>=<maxAlt>;
<@predecision()>
<decision>
<@postdecision()>
switch (alt<decisionNumber>) {
<alts:{ a | <altSwitchCase(i,a)>}>
default :
break loop<decisionNumber>;
}
}
<@postloop()>
>>

```



```

closureBlockSingleAlt ::= closureBlock

/** Optional blocks (x)? are translated to (x|) by before code generation
 * so we can just use the normal block template
 */
optionalBlock ::= block

optionalBlockSingleAlt ::= block

/** A case in a switch that jumps to an alternative given the alternative
 * number. A DFA predicts the alternative and then a simple switch
 * does the jump to the code that actually matches that alternative.
 */
altSwitchCase(altNum,alt) ::= <<
case <altNum> :
  <@prealt()>
  <alt>
  break;<\n>
>>

/** An alternative is just a list of elements; at outermost level */
alt(elements,altNum,description,autoAST,outerAlt,treeLevel,rew) ::= <<
// <fileName>:<description>
{
  <@declarations()>
  <elements:element()>
  <rew>
  <@cleanup()>
}
>>

/** What to emit when there is no rewrite. For auto build
 * mode, does nothing.
 */
noRewrite(rewriteBlockLevel, treeLevel) ::= ""

// E L E M E N T S

/** Dump the elements one per line */
element(e) ::= <<
  <@prematch()>
  <e.el>
>>

/** match a token optionally with a label in front */
tokenRef(token,label,elementIndex,terminalOptions={ }) ::=

```

```

<<
<if(label)><label>=(<labelType>)<endif>match(input,<token>,FOLLOW_<token>_in_<ruleName><elementIndex
>); <checkRuleBacktrackFailure()>
>>

/** ids+=ID */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<tokenRef(token,label,elementIndex,terminalOptions)>
<listLabel(label, label)>
>>

listLabel(label,elem) ::= <<
if (list_<label>==null) list_<label>=new ArrayList<Object>();
list_<label>.add(<elem>);
>>

/** match a character */
charRef(char,label) ::= <<
<if(label)>
<label> = input.LA(1);
<endif>
match(<char>); <checkRuleBacktrackFailure()>
>>

/** match a character range */
charRangeRef(a,b,label) ::= <<
<if(label)>
<label> = input.LA(1);
<endif>
matchRange(<a>,<b>); <checkRuleBacktrackFailure()>
>>

/** For now, sets are interval tests and must be tested inline */
matchSet(s,label,elementIndex,postmatchCode="",terminalOptions={}) ::= <<
<if(label)>
<if(LEXER)>
<label>= input.LA(1);
<else>
<label>=<castToLabelType("input.LT(1)")>;
<endif>
<endif>
if ( <s>
) {
input.consume();
<postmatchCode>
<if(!LEXER)>
state.errorRecovery=false;
<endif>

```

```

<if(backtracking)>state.failed=false;<endif>
}
else {
<ruleBacktrackFailure()>
MismatchedSetException mse = new MismatchedSetException(null,input);
<@mismatchedSetException()>
<if(LEXER)>
recover(mse);
throw mse;
<else>
throw mse;
<! use following code to make it recover inline; remove throw mse;
recoverFromMismatchedSet(input,mse,FOLLOW_set_in_<ruleName><elementIndex>);
!>
<endif>
}
>>

```

```

matchRuleBlockSet ::= matchSet

```

```

matchSetAndListLabel(s,label,elementIndex,postmatchCode) ::= <<
<matchSet(...)>
<listLabel(label, label)>
>>

```

```

/** Match a string literal */
lexerStringRef(string,label,elementIndex="0") ::= <<
<if(label)>
int <label>Start = getCharIndex();
match(<string>); <checkRuleBacktrackFailure()>
int <label>StartLine<elementIndex> = getLine();
int <label>StartCharPos<elementIndex> = getCharPositionInLine();
<label> = new <labelType>(input, Token.INVALID_TOKEN_TYPE, Token.DEFAULT_CHANNEL,
<label>Start, getCharIndex()-1);
<label>.setLine(<label>StartLine<elementIndex>);
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>);
<else>
match(<string>); <checkRuleBacktrackFailure()>
<endif>
>>

```

```

wildcard(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(label)>
<label>=<castToLabelType("input.LT(1)")>;
<endif>
matchAny(input); <checkRuleBacktrackFailure()>
>>

```

```
wildcardAndListLabel(token,label,elementIndex,terminalOptions={}) ::= <<
<wildcard(...)>
<listLabel(label, label)>
>>
```

```
/** Match . wildcard in lexer */
wildcardChar(label, elementIndex) ::= <<
<if(label)>
<label> = input.LA(1);
<endif>
matchAny(); <checkRuleBacktrackFailure()>
>>
```

```
wildcardCharListLabel(label, elementIndex) ::= <<
<wildcardChar(label, elementIndex)>
<listLabel(label, label)>
>>
```

```
/** Match a rule reference by invoking it possibly with arguments
 * and a return value or values. The 'rule' argument was the
 * target rule name, but now is type Rule, whose toString is
 * same: the rule
 * name. Now though you can access full rule
 * descriptor stuff.
 */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
pushFollow(FOLLOW_<rule.name>_in_<ruleName><elementIndex>);
<if(label)><label>=<endif><if(scope)><scope.delegateName()><endif><rule.name>(<args; separator=", ">);
state._fsp--;
<checkRuleBacktrackFailure()>
>>
```

```
/** ids+=1 */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(rule,label,elementIndex,args,scope)>
<listLabel(label, label)>
>>
```

```
/** A lexer rule reference.
 *
 * The 'rule' argument was the target rule name, but now
 * is type Rule, whose toString is same: the rule name.
 * Now though you can access full rule descriptor stuff.
 */
lexerRuleRef(rule,label,args,elementIndex,scope) ::= <<
<if(label)>
int <label>Start<elementIndex> = getCharIndex();
int <label>StartLine<elementIndex> = getLine();
```

```

int <label>StartCharPos<elementIndex> = getCharPositionInLine();
<if(scope)><scope:delegateName()><endif>m<rule.name>(<args; separator=", ">);
<checkRuleBacktrackFailure()>
<label> = new <labelType>(input, Token.INVALID_TOKEN_TYPE, Token.DEFAULT_CHANNEL,
<label>Start<elementIndex>, getCharIndex()-1);
<label>.setLine(<label>StartLine<elementIndex>);
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>);
<else>
<if(scope)><scope:delegateName()><endif>m<rule.name>(<args; separator=", ">);
<checkRuleBacktrackFailure()>
<endif>
>>

/** i+=INT in lexer */
lexerRuleRefAndListLabel(rule,label,args,elementIndex,scope) ::= <<
<lexerRuleRef(rule,label,args,elementIndex,scope)>
<listLabel(label, label)>
>>

/** EOF in the lexer */
lexerMatchEOF(label,elementIndex) ::= <<
<if(label)>
int <label>Start<elementIndex> = getCharIndex();
int <label>StartLine<elementIndex> = getLine();
int <label>StartCharPos<elementIndex> = getCharPositionInLine();
match(EOF); <checkRuleBacktrackFailure()>
<labelType> <label> = new <labelType>(input, EOF, Token.DEFAULT_CHANNEL, <label>Start<elementIndex>,
getCharIndex()-1);
<label>.setLine(<label>StartLine<elementIndex>);
<label>.setCharPositionInLine(<label>StartCharPos<elementIndex>);
<else>
match(EOF);
<checkRuleBacktrackFailure()>
<endif>
>>

// used for left-recursive rules
recRuleDefArg()          ::= "int <recRuleArg()>"
recRuleArg()            ::= "_p"
recRuleAltPredicate(ruleName,opPrec) ::= "<recRuleArg()> \<= <opPrec>"
recRuleSetResultAction() ::= "root_0=$<ruleName>_primary.tree;"
recRuleSetReturnAction(src,name) ::= "$<name>=$<src>.<name>;"

/** match ^(root children) in tree parser */
tree(root, actionsAfterRoot, children, nullableChildList,
enclosingTreeLevel, treeLevel) ::= <<
<root:element()>
<actionsAfterRoot:element()>

```

```

<if(nullableChildList)>
if ( input.LA(1)==Token.DOWN ) {
  match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
  <children:element()>
  match(input, Token.UP, null); <checkRuleBacktrackFailure()>
}
<else>
match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
match(input,
  Token.UP, null); <checkRuleBacktrackFailure()>
<endif>
>>

/** Every predicate is used as a validating predicate (even when it is
 * also hoisted into a prediction expression).
 */
validateSemanticPredicate(pred,description) ::= <<
if ( !(<evalPredicate(pred,description)>) ) {
  <ruleBacktrackFailure()>
  throw new FailedPredicateException(input, "<ruleName>", "<description>");
}
>>

// F i x e d D F A (if-then-else)

dfaState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
int LA<decisionNumber>_<stateNumber> = input.LA(<k>);
<edges; separator="\nelse ">
<if(!isTrue.(last(edges).labelExpr) && (!last(edges).predicates))>
else {
  <if(eotPredictsAlt)>
  alt<decisionNumber>=<eotPredictsAlt>;
  <else>
  <ruleBacktrackFailure()>
  <(nvaExceptionWrapperMap.(k))({NoViableAltException nvae =
  new NoViableAltException("<description>", <decisionNumber>, <stateNumber>, input);
  <@noViableAltException()>
  throw nvae;})>
  <endif>
}
<endif>
>>

nvaExceptionWrapperMap ::= [
  "1": "wrapNvaExceptionForK1",
  "2": "wrapNvaExceptionForK2",
  default: "wrapNvaExceptionForKN"

```

```
]
```

```
wrapNvaExceptionForK1(exceptionCode)  
 ::= <<  
<exceptionCode>  
>>
```

```
wrapNvaExceptionForK2(exceptionCode) ::= <<  
int nvaeMark = input.mark();  
try {  
  input.consume();  
  <exceptionCode>  
} finally {  
  input.rewind(nvaeMark);  
}  
>>
```

```
wrapNvaExceptionForKN(exceptionCode) ::= <<  
int nvaeMark = input.mark();  
try {  
  for (int nvaeConsume = 0; nvaeConsume < <k> - 1; nvaeConsume++) {  
    input.consume();  
  }  
  <exceptionCode>  
} finally {  
  input.rewind(nvaeMark);  
}  
>>
```

```
/** Same as a normal DFA state except that we don't examine lookahead  
 * for the bypass alternative. It delays error detection but this  
 * is faster, smaller, and more what people expect. For (X)? people  
 * expect "if ( LA(1)==X ) match(X);" and that's it.  
 */
```

```
dfaOptionalBlockState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<  
int LA<decisionNumber>_<stateNumber> = input.LA(<k>);  
<edges; separator="\nelse ">  
>>
```

```
/** A DFA
```

```
state that is actually the loopback decision of a closure  
 * loop. If end-of-token (EOT) predicts any of the targets then it  
 * should act like a default clause (i.e., no error can be generated).  
 * This is used only in the lexer so that for ('a')* on the end of a rule  
 * anything other than 'a' predicts exiting.  
 */
```

```
dfaLoopbackState(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<  
int LA<decisionNumber>_<stateNumber> = input.LA(<k>);
```

```

<edges; separator="\nelse ">
<if(eotPredictsAlt)>
<if(!edges)>
alt<decisionNumber>=<eotPredictsAlt>; <! if no edges, don't gen ELSE !>
<else>
else {
alt<decisionNumber>=<eotPredictsAlt>;
}
<endif>
<endif>
>>

/** An accept state indicates a unique alternative has been predicted */
dfaAcceptState(alt) ::= "alt<decisionNumber>=<alt>";

/** A simple edge with an expression. If the expression is satisfied,
 * enter to the target state. To handle gated productions, we may
 * have to evaluate some predicates for this edge.
 */
dfaEdge(labelExpr,
targetState, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif> ) {
<targetState>
}
>>

// F i x e d D F A (switch case)

/** A DFA state where a SWITCH may be generated. The code generator
 * decides if this is possible: CodeGenerator.canGenerateSwitch().
 */
dfaStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( input.LA(<k> ) ) {
<edges; separator="\n">
default:
<if(eotPredictsAlt)>
alt<decisionNumber>=<eotPredictsAlt>;
<else>
<ruleBacktrackFailure()>
<(nvaExceptionWrapperMap.(k))({NoViableAltException nvae =
new NoViableAltException("<description>", <decisionNumber>, <stateNumber>, input);
<@noViableAltException()>
throw nvae;})>
<endif>
}
>>

dfaOptionalBlockStateSwitch(k,edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<

```



```

switch ( input.LA(<k>) ) {
    <edges; separator="\n">
}
>>

```

```

dfaLoopbackStateSwitch(k, edges,eotPredictsAlt,description,stateNumber,semPredState) ::= <<
switch ( input.LA(<k>)
) {
<edges; separator="\n">
<if(eotPredictsAlt)>
default:
    alt<decisionNumber>=<eotPredictsAlt>;
    break;
<endif>
}
>>

```

```

dfaEdgeSwitch(labels, targetState) ::= <<
<labels:{it |case <it>:}; separator="\n">
{
    <targetState>
}
break;
>>

```

```
// C y c l i c D F A
```

```

/** The code to initiate execution of a cyclic DFA; this is used
 * in the rule to predict an alt just like the fixed DFA case.
 * The <name> attribute is inherited via the parser, lexer, ...
 */

```

```

dfaDecision(decisionNumber,description) ::= <<
alt<decisionNumber> = dfa<decisionNumber>.predict(input);
>>

```

```

/* Dump DFA tables as run-length-encoded Strings of octal values.
 * Can't use hex as compiler translates them before compilation.
 * These strings are split into multiple, concatenated strings.
 * Java puts them back together at compile time thankfully.
 * Java cannot handle large static arrays, so we're stuck with this
 * encode/decode approach. See analysis and runtime DFA for
 * the encoding methods.
 */

```

```

cyclicDFA(dfa)
::= <<
static final String DFA<dfa.decisionNumber>_eotS =
"<dfa.javaCompressedEOT; wrap="\t"+\n\t\t"">";
static final String DFA<dfa.decisionNumber>_eofS =

```

```

"<dfa.javaCompressedEOF; wrap="\n\t"");
static final String DFA<dfa.decisionNumber>_minS =
"<dfa.javaCompressedMin; wrap="\n\t"");
static final String DFA<dfa.decisionNumber>_maxS =
"<dfa.javaCompressedMax; wrap="\n\t"");
static final String DFA<dfa.decisionNumber>_acceptS =
"<dfa.javaCompressedAccept; wrap="\n\t"");
static final String DFA<dfa.decisionNumber>_specialS =
"<dfa.javaCompressedSpecial; wrap="\n\t"");>";
static final String[] DFA<dfa.decisionNumber>_transitionS = {
<dfa.javaCompressedTransition:{s|<s; wrap="\n\t""); separator=",\n">
};

static final short[] DFA<dfa.decisionNumber>_eot =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_eotS);
static final short[] DFA<dfa.decisionNumber>_eof =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_eofS);
static final char[] DFA<dfa.decisionNumber>_min
= DFA.unpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_minS);
static final char[] DFA<dfa.decisionNumber>_max =
DFA.unpackEncodedStringToUnsignedChars(DFA<dfa.decisionNumber>_maxS);
static final short[] DFA<dfa.decisionNumber>_accept =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_acceptS);
static final short[] DFA<dfa.decisionNumber>_special =
DFA.unpackEncodedString(DFA<dfa.decisionNumber>_specialS);
static final short[][] DFA<dfa.decisionNumber>_transition;

static {
int numStates = DFA<dfa.decisionNumber>_transitionS.length;
DFA<dfa.decisionNumber>_transition = new short[numStates][];
for (int i=0; i<numStates; i++) {
DFA<dfa.decisionNumber>_transition[i] = DFA.unpackEncodedString(DFA<dfa.decisionNumber>_transitionS[i]);
}
}

protected class DFA<dfa.decisionNumber> extends DFA {

public DFA<dfa.decisionNumber>(BaseRecognizer recognizer) {
this.recognizer = recognizer;
this.decisionNumber = <dfa.decisionNumber>;
this.eot = DFA<dfa.decisionNumber>_eot;
this.eof
= DFA<dfa.decisionNumber>_eof;
this.min = DFA<dfa.decisionNumber>_min;
this.max = DFA<dfa.decisionNumber>_max;
this.accept = DFA<dfa.decisionNumber>_accept;
this.special = DFA<dfa.decisionNumber>_special;
this.transition = DFA<dfa.decisionNumber>_transition;
}
}

```

```

}
@Override
public String getDescription() {
    return "<dfa.description>";
}
<@errorMethod()>
<if(dfa.specialStateSTs)>
@Override
public int specialStateTransition(int s, IntStream _input) throws NoViableAltException {
    <if(LEXER)>
    IntStream input = _input;
    <endif>
    <if(PARSER)>
    TokenStream input = (TokenStream)_input;
    <endif>
    <if(TREE_PARSER)>
    TreeNodeStream input = (TreeNodeStream)_input;
    <endif>
    int _s = s;
    switch ( s ) {
    <dfa.specialStateSTs:{ state |
    case <i0> : <! compressed special state numbers 0..n-1 !>
    <state>}; separator="\n">
    }
    <if(backtracking)>
    if (state.backtracking>0) {state.failed=true; return -1;}
    <endif>
    NoViableAltException nvae =
    new NoViableAltException(getDescription(),
    <dfa.decisionNumber>, _s, input);
    error(nvae);
    throw nvae;
    }
    <endif>
    }
    >>

/** A state in a cyclic DFA; it's a special state and part of a big switch on
 * state.
 */
cyclicDFAState(decisionNumber,stateNumber,edges,needErrorClause,semPredState) ::= <<
int LA<decisionNumber>_<stateNumber> = input.LA(1);
<if(semPredState)> <! get next lookahead symbol to test edges, then rewind !>
int index<decisionNumber>_<stateNumber> = input.index();
input.rewind();
<endif>
s = -1;
<edges; separator="\nelse ">

```

```

<if(semPredState)> <! return input cursor to state before we rewound !>
input.seek(index<decisionNumber>_<stateNumber>);
<endif>
if ( s>=0 ) return s;
break;
>>

/** Just like a fixed DFA edge, test the lookahead and indicate what
 * state to jump to next if successful.
 */
cyclicDFAEdge(labelExpr, targetStateNumber, edgeNumber, predicates) ::= <<
if ( (<labelExpr> <if(predicates)>&& (<predicates>)<endif>) { s = <targetStateNumber>;}
>>

/** An edge pointing
 * at end-of-token; essentially matches any char;
 * always jump to the target.
 */
eotDFAEdge(targetStateNumber,edgeNumber, predicates) ::= <<
s = <targetStateNumber>;
>>

// D F A E X P R E S S I O N S

andPredicates(left,right) ::= "<left>&&<right>"

orPredicates(operands) ::= "<operands; separator=\\|\\>"

notPredicate(pred) ::= "!(<evalPredicate(pred,{}>)"

evalPredicate(pred,description) ::= "<pred>"

evalSynPredicate(pred,description) ::= "<pred>()"

lookaheadTest(atom,k,atomAsInt) ::= "LA<decisionNumber>_<stateNumber>===<atom>"

/** Sometimes a lookahead test cannot assume that LA(k) is in a temp variable
 * somewhere. Must ask for the lookahead directly.
 */
isolatedLookaheadTest(atom,k,atomAsInt) ::= "input.LA(<k>)==<atom>"

lookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt) ::= <%
(LA<decisionNumber>_<stateNumber> >= <lower> && LA<decisionNumber>_<stateNumber> \<= <upper>)
%>

isolatedLookaheadRangeTest(lower,upper,k,rangeNumber,lowerAsInt,upperAsInt)

```

```

::= "(input.LA(<k>) >= <lower> && input.LA(<k>) \<= <upper>)"

setTest(ranges) ::= <<
<ranges; separator="|">
>>

// A T T R I B U T E S

globalAttributeScope(scope) ::= <<
<if(scope.attributes)>
protected static class <scope.name>_scope {
  <scope.attributes:{it |<it.decl>;}; separator="\n">
}
protected Stack\<<scope.name>_scope> <scope.name>_stack = new Stack\<<scope.name>_scope>();
<endif>
>>

ruleAttributeScope(scope) ::= <<
<if(scope)>
<if(scope.attributes)>
protected static class <scope.name>_scope {
  <scope.attributes:{it |<it.decl>;}; separator="\n">
}
protected Stack\<<scope.name>_scope> <scope.name>_stack = new Stack\<<scope.name>_scope>();
<endif>
<endif>
>>

returnStructName(r) ::= "<r.name>_return"

returnType(ruleDescriptor) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
<ruleDescriptor.grammar.recognizerName>.<ruleDescriptor:returnStructName()>
<elseif(ruleDescriptor.hasSingleReturnValue)>
<ruleDescriptor.singleValueReturnType>
<else>
void
<endif>
%>

/** Generate
the Java type associated with a single or multiple return
* values.
*/
ruleLabelType(referencedRule) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
<returnScopeBaseType()>
<elseif(referencedRule.hasSingleReturnValue)>

```

```

<referencedRule.singleValueReturnType>
<else>
void
<endif>
%>

delegateName(d) ::= <<
<if(d.label)><d.label><else>g<d.name><endif>
>>

/** Using a type to init value map, try to init a type; if not in table
 * must be an object, default value is "null".
 */
initValue(typeName) ::= <<
<javaTypeInitMap.(typeName)>
>>

/** Define a rule label including default value */
ruleLabelDef(label) ::= <%
<ruleLabelType(referencedRule=label.referencedRule)> <label.label.text> =
<initValue(typeName=ruleLabelType(referencedRule=label.referencedRule))>;
%>

/** Define a return struct for a rule if the code needs to access its
 * start/stop tokens, tree stuff, attributes, ... Leave a hole for
 * subgroups to stick in members.
 */
returnScope(scope) ::= <<
<if(ruleDescriptor.hasMultipleReturnValues)>
public
static class <ruleDescriptor.returnStructName()> extends <returnScopeBaseType()> {
<if(scope)><scope.attributes:{it |public <it.decl>;}; separator="\n"><endif>
<@ruleReturnMembers()>
};
<endif>
>>

returnScopeBaseType() ::= <%
<if(TREE_PARSER)>Tree<else>Parser<endif>RuleReturnScope
%>

parameterScope(scope) ::= <<
<scope.attributes:{it |<it.decl>;}; separator=", ">
>>

parameterAttributeRef(attr) ::= "<attr.name>"
parameterSetAttributeRef(attr,expr) ::= "<attr.name> =<expr>";"

```

```

scopeAttributeRef(scope,attr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack.elementAt(<scope>_stack.size()-<negIndex>-1).<attr.name>
<else>
<if(index)>
<scope>_stack.elementAt(<index>).<attr.name>
<else>
<scope>_stack.peek().<attr.name>
<endif>
<endif>
%>

scopeSetAttributeRef(scope,attr,expr,index,negIndex) ::= <%
<if(negIndex)>
<scope>_stack.elementAt(<scope>_stack.size()-<negIndex>-1).<attr.name> =<expr>;
<else>
<if(index)>
<scope>_stack.elementAt(<index>).<attr.name> =<expr>;
<else>
<scope>_stack.peek().<attr.name>
=<expr>;
<endif>
<endif>
%>

/** $x is either global scope or x is rule with dynamic scope; refers
 * to stack itself not top of stack. This is useful for predicates
 * like {$function.size()>0 && $function::name.equals("foo")}?
 */
isolatedDynamicScopeRef(scope) ::= "<scope>_stack"

/** reference an attribute of rule; might only have single return value */
ruleLabelRef(referencedRule,scope,attr) ::= <%
<if(referencedRule.hasMultipleReturnValues)>
(<scope>!=null?(<<returnType(referencedRule)>><scope>).<attr.name>:<initValue(attr.type)>)
<else>
<scope>
<endif>
%>

returnAttributeRef(ruleDescriptor,attr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name>
<else>
<attr.name>
<endif>
%>

```

```

returnSetAttributeRef(ruleDescriptor,attr,expr) ::= <%
<if(ruleDescriptor.hasMultipleReturnValues)>
retval.<attr.name> =<expr>;
<else>
<attr.name> =<expr>;
<endif>
%>

/** How to translate $tokenLabel */
tokenLabelRef(label) ::= "<label>"

/**
ids+=ID {$ids} or e+=expr {$e} */
listLabelRef(label) ::= "list_<label>"

// not sure the next are the right approach

tokenLabelPropertyRef_text(scope,attr) ::= "<scope>!=null?<scope>.getText():null"
tokenLabelPropertyRef_type(scope,attr) ::= "<scope>!=null?<scope>.getType():0"
tokenLabelPropertyRef_line(scope,attr) ::= "<scope>!=null?<scope>.getLine():0"
tokenLabelPropertyRef_pos(scope,attr) ::= "<scope>!=null?<scope>.getCharPositionInLine():0"
tokenLabelPropertyRef_channel(scope,attr) ::= "<scope>!=null?<scope>.getChannel():0"
tokenLabelPropertyRef_index(scope,attr) ::= "<scope>!=null?<scope>.getTokenIndex():0"
tokenLabelPropertyRef_tree(scope,attr) ::= "<scope>_tree"
tokenLabelPropertyRef_int(scope,attr) ::= "<scope>!=null?Integer.valueOf(<scope>.getText():0)"

ruleLabelPropertyRef_start(scope,attr) ::= "<scope>!=null?(<castToLabelType({<scope>.start})>):null"
ruleLabelPropertyRef_stop(scope,attr) ::= "<scope>!=null?(<castToLabelType({<scope>.stop})>):null"
ruleLabelPropertyRef_tree(scope,attr)
::= "<scope>!=null?(<ASTLabelType><scope>.getTree():null)"
ruleLabelPropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
<scope>!=null?(input.getTokenStream().toString(
input.getTreeAdaptor().getTokenStartIndex(<scope>.start),
input.getTreeAdaptor().getTokenStopIndex(<scope>.start))):null)
<else>
<scope>!=null?input.toString(<scope>.start,<scope>.stop):null)
<endif>
%>

ruleLabelPropertyRef_st(scope,attr) ::= "<scope>!=null?((StringTemplate)<scope>.getTemplate()):null"

/** Isolated $RULE ref ok in lexer as it's a Token */
lexerRuleLabel(label) ::= "<label>"

lexerRuleLabelPropertyRef_type(scope,attr) ::=
"<scope>!=null?<scope>.getType():0"

```



```

lexerRuleLabelPropertyRef_line(scope,attr) ::=
"(<scope>!=null?<scope>.getLine():0)"
lexerRuleLabelPropertyRef_pos(scope,attr) ::=
"(<scope>!=null?<scope>.getCharPositionInLine():-1)"
lexerRuleLabelPropertyRef_channel(scope,attr) ::=
"(<scope>!=null?<scope>.getChannel():0)"
lexerRuleLabelPropertyRef_index(scope,attr)
::=
"(<scope>!=null?<scope>.getTokenIndex():0)"
lexerRuleLabelPropertyRef_text(scope,attr) ::=
"(<scope>!=null?<scope>.getText():null)"
lexerRuleLabelPropertyRef_int(scope,attr) ::=
"(<scope>!=null?Integer.valueOf(<scope>.getText()):0)"

// Somebody may ref $template or $tree or $stop within a rule:
rulePropertyRef_start(scope,attr) ::= "<castToLabelType(\"retval.start\")>"
rulePropertyRef_stop(scope,attr) ::= "<castToLabelType(\"retval.stop\")>"
rulePropertyRef_tree(scope,attr) ::= "retval.tree"
rulePropertyRef_text(scope,attr) ::= <%
<if(TREE_PARSER)>
input.getTokenStream().toString(
input.getTreeAdaptor().getTokenStartIndex(retval.start),
input.getTreeAdaptor().getTokenStopIndex(retval.start))
<else>
input.toString(retval.start,input.LT(-1))
<endif>
%>
rulePropertyRef_st(scope,attr) ::= "retval.st"

lexerRulePropertyRef_text(scope,attr) ::= "getText()"
lexerRulePropertyRef_type(scope,attr) ::= "_type"
lexerRulePropertyRef_line(scope,attr) ::= "state.tokenStartLine"
lexerRulePropertyRef_pos(scope,attr)
::= "state.tokenStartCharPositionInLine"
lexerRulePropertyRef_index(scope,attr) ::= "-1" // undefined token index in lexer
lexerRulePropertyRef_channel(scope,attr) ::= "_channel"
lexerRulePropertyRef_start(scope,attr) ::= "state.tokenStartCharIndex"
lexerRulePropertyRef_stop(scope,attr) ::= "(getCharIndex()-1)"
lexerRulePropertyRef_int(scope,attr) ::= "Integer.valueOf(<scope>.getText())"

// setting $st and $tree is allowed in local rule. everything else
// is flagged as error
ruleSetPropertyRef_tree(scope,attr,expr) ::= "retval.tree =<expr>;"
ruleSetPropertyRef_st(scope,attr,expr) ::= "retval.st =<expr>;"

/** How to execute an action (only when not backtracking) */
execAction(action) ::= <%
<if(backtracking)>

```

```

if ( <actions.(actionScope).synpredgate> ) {
  <action>
}
<else>
<action>
<endif>
%>

/** How to always execute an action even when backtracking */
execForcedAction(action) ::= "<action>"

// M I S C (properties, etc...)

bitset(name,
  words64) ::= <<
public static final BitSet <name> = new BitSet(new long[] { <words64: { it |<it>L }; separator=", "> });
>>

codeFileExtension() ::= ".java"

true_value() ::= "true"
false_value() ::= "false"

isEmptyString ::= [
  "" : true,
  default : false
]

isTrue ::= [
  "true" : true,
  default : false
]

isDefaultLabelType ::= [
  "Token" : true,
  default : false
]

isPredefinedRewriteRule ::= [
  "topdown" : true,
  "bottomup" : true,
  default : false
]

castToLabelType(value) ::= <%
<if(!isDefaultLabelType.(labelType))>
(<labelType>)
<endif>

```

<value>

%>

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Java/Java.stg

No license file was found, but licenses were detected in source scan.

/\*

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\*/

/\*\* Templates for building ASTs during normal parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* The situation is not too bad as rewrite (->) usage makes ^ and !

\* invalid. There is no huge explosion of combinations.

\*/

@rule.setErrorReturnValue() ::= <<

```

/* ASTParser rule.setErrorReturnValue */
retval.tree
= (<ASTLabelType> *)[treeAdaptor errorNode:input From:retval.start To:[input LT:-1] Exception:re];
<! System.out.println("<ruleName> returns "+((CommonTree)retval.tree).toStringTree()); !>
>>

// TOKEN AST STUFF

/** ID and output=AST */
tokenRef(token, label, elementIndex, terminalOptions) ::= <<
/* ASTParser tokenRef */
<super.tokenRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<label>_tree = <createNodeFromToken(...)>;
[treeAdaptor addChild:<label>_tree toTree:root_0];
<if(backtracking)>}<endif>
>>

/* ID! and output=AST (same as plain tokenRef) */
/* ASTParser tokenRefBang */
tokenRefBang(token,label,elementIndex,terminalOptions) ::= "<super.tokenRef(...)>"

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
<super.tokenRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<label>_tree = <createNodeFromToken(...)>;
root_0 = (<ASTLabelType> *)[treeAdaptor becomeRoot:<label>_tree old:root_0];
<if(backtracking)>}<endif>
>>

/**
ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
/* ASTParser tokenRefBangAndListLabel */
<tokenRefBang(...)>
<listLabel(elem=label,...)>
>>

/** label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
/* ASTParser tokenRefAndListLabel */
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,terminalOptions,elementIndex) ::= <<

```

```

/* ASTParser tokenRefRuleRootAndListLabel */
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending on the operator. I don't like making
// the template
// name have the operator as the number of templates gets
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label plus ... The combinations might require complicated
// rather than just added on code. Investigate that refactoring when
// I have more time.

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <%
/* ASTParser matchSet */
<super.matchSet(postmatchCode={<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
  [treeAdaptor addChild:<createNodeFromToken(...)> toTree:root_0 ];}, ...)>
%>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
/* ASTParser matchRuleBlockSet */
<matchSet(...)>
>>

matchSetBang(s,label,elementIndex,terminalOptions, postmatchCode) ::= "<super.matchSet(...)>"

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts: (A|B|...|C)

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug)
::= <<
/* ASTParser matchSetRuleRoot */
<if(label)>
<label>=<labelType> *) [input LT:1]; /* matchSetRuleRoot */<\n>
<endif>
<super.matchSet(postmatchCode={<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
root_0 = (<ASTLabelType> *) [treeAdaptor becomeRoot:<createNodeFromToken(...)> old:root_0];}, ...)>
>>

// RULE REF AST

/** rule when output=AST */

```

```

ruleRef(rule,label,elementIndex,args,scope) ::= <<
/* ASTParser ruleRef */
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
[treeAdaptor addChild:[<label> getTree] toTree:root_0];
>>

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
/* ASTParser ruleRefRuleRoot */
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
root_0 = (<ASTLabelType> *)[treeAdaptor becomeRoot:[<label>
getTree] old:root_0];
>>

/** x+=rule when output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ASTParser ruleRefAndListLabel */
<ruleRef(...)>
<listLabel(elem = {[<label> getTree]},...)>
>>

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ASTParser ruleRefBangAndListLabel */
<ruleRefBang(...)>
<listLabel(elem = {[<label> getTree]},...)>
>>

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
/* ASTParser ruleRefRuleRootAndListLabel */
<ruleRefRuleRoot(...)>
<listLabel(elem = {[<label> getTree]},...)>
>>

// WILDCARD AST

wildcard(token,label,elementIndex,terminalOptions) ::= <<
/* ASTParser wildcard */
<super.wildcard(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
[treeAdaptor addChild:[treeAdaptor create:<label>] retain] toTree:root_0];
<if(backtracking)>}<endif>

```

>>

```
wildcardBang(token,label,elementIndex,terminalOptions) ::= "<super.wildcard(...)>"
```

```
wildcardRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
/* ASTParser wildcardRuleRoot */
<super.wildcard(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
  <label>_tree = [[treeAdaptor create:<label>] retain]
  root_0 = (<ASTLabelType> *)[treeAdaptor becomeRoot:<label>_tree old:root_0];
<if(backtracking)>}<endif>
>>
```

```
createNodeFromToken(label,terminalOptions) ::= <<
/* ASTParser createNodeFromToken */
<if(terminalOptions.node)>
[<terminalOptions.node> new<terminalOptions.node>:<label>] <! new MethodNode(IDLabel) !>
<else>
(<ASTLabelType> *)[treeAdaptor create:<label>] retain]
<endif>
>>
```

```
// straight from java cleanup ///
ruleCleanUp() ::= <<
/* ASTParser ruleCleanUp */
<super.ruleCleanUp()>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<n><endif>
  retval.tree = (<ASTLabelType> *)[treeAdaptor rulePostProcessing:root_0];
  [treeAdaptor setTokenBoundaries:retval.tree
  From:retval.start To:retval.stopToken];
<if(backtracking)>}<endif>
>>
```

Found in path(s):

```
* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/ObjC/ASTParser.stg
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```

```
/*
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http://www.linkedin.com/in/jimidle
```

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\*/

/\*\* Templates for building ASTs during normal parsing.

\*

- \* Deal with many combinations. Dimensions are:
- \* Auto build or rewrite
- \* no label, label, list label (label/no-label handled together)
- \* child, root
- \* token, set, rule, wildcard
- \*
- \* The situation is not too bad as rewrite (->) usage makes ^ and !
- \* invalid. There is no huge explosion of combinations.

\*/

```
@rule.setErrorReturnValue()
```

```
::= <<
```

```
retval.tree = (<ASTLabelType>)(ADAPTOR->errorNode(ADAPTOR, INPUT, retval.start, LT(-1), EXCEPTION));
```

```
>>
```

```
// TOKEN AST STUFF
```

```
/** ID and output=AST */
```

```
tokenRef(token,label,elementIndex,terminalOptions) ::= <<
```

```
<super.tokenRef(...)>
```

```
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
```

```
<label>_tree = (<ASTLabelType>)(ADAPTOR->create(ADAPTOR, <label>));
```

```
ADAPTOR->addChild(ADAPTOR, root_0, <label>_tree);
```



```

<if(backtracking)></endif>
>>

/** ID! and output=AST (same as plain tokenRef) */
tokenRefBang(token,label,elementIndex,terminalOptions) ::= "<super.tokenRef(...)>"

/** ID^ and output=AST */
tokenRefRuleRoot(token,label,elementIndex,terminalOptions) ::= <<
<super.tokenRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {</endif>
<label>_tree = <createNodeFromToken(...)>;
root_0 = (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, <label>_tree, root_0));
<if(backtracking)></endif>
>>

/** ids+=ID! and output=AST */
tokenRefBangAndListLabel(token,label,elementIndex,terminalOptions)
::= <<
<tokenRefBang(...)>
<listLabel(elem=label,...)>
>>

/** label+=TOKEN when output=AST but not rewrite alt */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions) ::= <<
<tokenRef(...)>
<listLabel(elem=label,...)>
>>

/** Match label+=TOKEN^ when output=AST but not rewrite alt */
tokenRefRuleRootAndListLabel(token,label,terminalOptions,elementIndex) ::= <<
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
>>

// SET AST

// the match set stuff is interesting in that it uses an argument list
// to pass code to the default matchSet; another possible way to alter
// inherited code. I don't use the region stuff because I need to pass
// different chunks depending on the operator. I don't like making
// the template name have the operator as the number of templates gets
// large but this is the most flexible--this is as opposed to having
// the code generator call matchSet then add root code or ruleroot code
// plus list label plus
... The combinations might require complicated
// rather than just added on code. Investigate that refactoring when

```

```

// I have more time.

matchSet(s,label,terminalOptions,elementIndex,postmatchCode) ::= <<
<super.matchSet(postmatchCode={ <if(backtracking)>if ( <actions.(actionScope).synpredgate> )
<endif>ADAPTOR->addChild(ADAPTOR, root_0, <createNodeFromToken(...)>};,...)>
>>

matchRuleBlockSet(s,label,terminalOptions,elementIndex,postmatchCode,treeLevel="0") ::= <<
<matchSet(...)>
>>

matchSetBang(s,label,elementIndex,terminalOptions,postmatchCode) ::= "<super.matchSet(...)>"

// note there is no matchSetTrack because -> rewrites force sets to be
// plain old blocks of alts: (A|B|...|C)

matchSetRuleRoot(s,label,terminalOptions,elementIndex,debug) ::= <<
<if(label)>
<label>=(<labelType>)LT(1);<\n>
<endif>
<super.matchSet(postmatchCode={ <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>root_0 =
(<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, <createNodeFromToken(...)>,
root_0));},,...)>
>>

// RULE REF AST

/** rule when output=AST */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>ADAPTOR->addChild(ADAPTOR, root_0,
<label>.tree);
>>

/** rule! is same as normal rule ref */
ruleRefBang(rule,label,elementIndex,args,scope) ::= "<super.ruleRef(...)>"

/** rule^ */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>root_0 = (<ASTLabelType>)(ADAPTOR-
>becomeRoot(ADAPTOR, <label>.tree, root_0));
>>

/** x+=rule when output=AST */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRef(...)>
<listLabelAST(...)>

```

```

>>

/** x+=rule! when output=AST is a rule ref with list addition */
ruleRefBangAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<ruleRefBang(...)>
<listLabelAST(...)>
>>

/** x+=rule^ */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope)
::= <<
<ruleRefRuleRoot(...)>
<listLabelAST(...)>
>>

// WILDCARD AST

wildcard(token,label,elementIndex,terminalOptions) ::= <<
<super.wildcard(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<label>_tree = (<ASTLabelType>)(ADAPTOR->create(ADAPTOR, <label>));
ADAPTOR->addChild(ADAPTOR, root_0, <label>_tree);
<if(backtracking)>}<endif>
>>

wildcardBang(token,label,elementIndex,terminalOptions) ::= "<super.wildcard(...)>"

wildcardRuleRoot(label,elementIndex) ::= <<
<super.wildcard(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<label>_tree = (<ASTLabelType>)(ADAPTOR->create(ADAPTOR, <label>));
root_0 = (<ASTLabelType>)(ADAPTOR->becomeRoot(ADAPTOR, <label>_tree, root_0));
<if(backtracking)>}<endif>
>>

createNodeFromToken(label,terminalOptions) ::= <<
<if(terminalOptions.node)>
<terminalOptions.node>New(<label>) <! new MethodNode(IDLabel) !>
<else>
(<ASTLabelType>)(ADAPTOR->create(ADAPTOR, <label>))
<endif>
>>

ruleCleanUp()
::= <<
<super.ruleCleanUp()>
<if(backtracking)>
if ( <actions.(actionScope).synpredgate> )

```

```

{<\n>
<endif>
<if(!ruleDescriptor.isSynPred)>
    retval.stop = LT(-1);<\n>
<endif>
retval.tree = (<ASTLabelType>)(ADAPTOR->rulePostProcessing(ADAPTOR, root_0));
ADAPTOR->setTokenBoundaries(ADAPTOR, retval.tree, retval.start, retval.stop);
    <ruleDescriptor.allTokenRefsInAltsWithRewrites
    :{it | if (stream_<it> != NULL) stream_<it>->free(stream_<it>);}; separator="\n">
    <ruleDescriptor.allRuleRefsInAltsWithRewrites
    :{it | if (stream_<it> != NULL) stream_<it>->free(stream_<it>);}; separator="\n">
<if(backtracking)>
}
<endif>
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/C/ASTParser.stg

```

No license file was found, but licenses were detected in source scan.

group Dbg;

```

/*

```

```

[The "BSD license"]

```

```

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```

```

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```

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\*/

```
@parserBody.mixins() ::= <<
include ANTLR3::<if(profile)>Profile<else>Debug<endif>::ParserEvents
>>
```

```
@parserBody.additionalMembers() ::= <<
<if(grammar.grammarIsRoot)>
RULE_NAMES = [
:invalid_rule, <grammar.allImportedRules:{rST|:<rST.name>}; wrap="\n ", separator=", ">
].freeze
<endif>
>>
```

```
@rule.body() ::= <<
in_rule(grammar_file_name, "<ruleName>") do
@debug_listener.location(<ruleDescriptor.tree.line>, <ruleDescriptor.tree.column>)
```

```
<@super.body()>
```

```
@debug_listener.location(<ruleDescriptor.EORNode.line>,
<ruleDescriptor.EORNode.column>)
end
>>
```

```
// Common debug event triggers used by region overrides below
enterSubRule() ::= <<
in_subrule(<decisionNumber>) do<\n>
>>
```

```
exitSubRule() ::= <<
end<\n>
>>
```

```
enterDecision() ::= <<
in_decision(<decisionNumber>) do<\n>
>>
```

```
exitDecision() ::= <<
end<\n>
```

```
>>
```

```
enterAlt(n) ::= <<  
in_alternative(<n><\n>  
>>
```

```
// Region overrides that tell various constructs to add debugging triggers  
@block.body() ::= <<  
in_subrule(<decisionNumber>) do  
  <@super.body()>  
end  
>>
```

```
// @blockBody.predecision() ::= "<enterSubRule()>"  
// @blockBody.postdecision() ::= "<exitDecision()>"  
// @blockBody.postbranch() ::= "<exitSubRule()>"  
@blockBody.decision() ::= <<  
in_decision(<decisionNumber>) do  
  <@super.decision()>  
end  
>>
```

```
@ruleBlock.decision() ::= <<  
in_decision(<decisionNumber>) do  
  <@super.decision()>  
end<\n>  
>>
```

```
@ruleBlockSingleAlt.prealt() ::= "<enterAlt(n={1})>"
```

```
@blockSingleAlt.prealt() ::= "<enterAlt(n={1})>"
```

```
@positiveClosureBlock.loopBody()  
::= <<  
in_subrule(<decisionNumber>) do  
  <@super.loopBody()>  
end  
>>
```

```
@positiveClosureBlockLoop.decisionBody() ::= <<
```

```
in_decision(<decisionNumber>) do
  <@super.decisionBody()>
end
>>
```

```
@positiveClosureBlockLoop.earlyExitException() ::= <<
@debug_listener.recognition_exception(eee)
>>
```

```
@closureBlock.loopBody() ::= <<
in_subrule(<decisionNumber>) do
  <@super.loopBody()>
end
>>
```

```
@closureBlockLoop.decisionBody() ::= <<
in_decision(<decisionNumber>) do
  <@super.decisionBody()>
end
>>
```

```
@altSwitchCase.preatl() ::= "<enterAlt(altNum)>" // altNum is arg of altSwitchCase
```

```
element(e) ::= <<
@debug_listener.location(<e.line>, <e.pos>) // e is arg of element
<super.element(e)>
>>
```

```
@matchSet.mismatchedSetException() ::= "@debug_listener.recognition_exception(mse)"
```

```
@dfaState.noViableAltException() ::= <<
nvae = NoViableAlternative( "<description>", <decisionNumber>, <stateNumber> )
@debug_listener.recognition_exception( nvae )
raise( nvae )<\n>
>>
```

```
@dfaStateSwitch.noViableAltException()
::= <<
nvae = NoViableAlternative( "<description>", <decisionNumber>, <stateNumber> )
@debug_listener.recognition_exception( nvae )
raise( nvae )<\n>
```

>>

```
dfaDecision(decisionNumber,description) ::= <<
begin
  @state.cyclic_decision = true
  <super.dfaDecision(...)>
rescue ANTLR3::Error::NoViableAlternative => nvae
  @debug_listener.recognition_exception(nvae)
  raise
end
>>
```

```
@cyclicDFA.errorMethod() ::= <<
def error(nvae)
  @recognizer.debug_listener.recognition_exception(nvae)
  super
end
>>
/** Force predicate validation to trigger an event */
evalPredicate(pred,description) ::= <<
predicate?("<description>") { <pred> }
>>
```

Found in path(s):

\* /opt/cola/permits/1347859860\_1655734093.589936/0/antlr-3-5-3-jar/org/antlr/codegen/templates/Ruby/Dbg.stg  
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```
/*
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```



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\*/

/\*\* Template overrides to add debugging to normal Java output;

\* If ASTs are built, then you'll also get ASTDbg.stg loaded.

\*/

```
@outputFile.debugPreprocessor() ::= "#define ANTLR_DEBUG"
```

```
@outputFile.imports() ::= <<
```

```
<@super.imports(>
```

```
using Antlr.Runtime.Debug;
```

```
using IOException = System.IO.IOException;
```

```
>>
```

```
@genericParser.members()
```

```
::= <<
```

```
<if(grammar.grammarIsRoot)>
```

```
public static readonly string[] ruleNames =
```

```
new string[]
```

```
{
```

```
"invalidRule", <grammar.allImportedRules:{rST | "<rST.name>"}; wrap="\n ", separator=", ">
```

```
};<\n>
```

```
<endif>
```

```
<if(grammar.grammarIsRoot)><! grammar imports other grammar(s) !>
```

```
int ruleLevel = 0;
```

```
public virtual int RuleLevel { get { return ruleLevel; } }
```

```
public virtual void IncRuleLevel() { ruleLevel++; }
```

```
public virtual void DecRuleLevel() { ruleLevel--; }
```

```
<if(profile)>
```

```
<ctorForProfilingRootGrammar(>
```

```
<else>
```

```
<ctorForRootGrammar(>
```

```
<endif>
```

```
<ctorForPredefinedListener(>
```

```
<else><! imported grammar !>
```

```
public int RuleLevel { get { return <grammar.delegators:{g| <g.delegateName(>>>.RuleLevel; } }
```

```
public void IncRuleLevel() { <grammar.delegators:{g| <g.delegateName(>>>.IncRuleLevel(); }
```

```
public void DecRuleLevel() { <grammar.delegators:{g| <g.delegateName(>>>.DecRuleLevel(); }
```

```
<ctorForDelegateGrammar(>
```

```

<endif>
<if(profile)>
public override bool AlreadyParsedRule( IIntStream input, int
ruleIndex )
{
int stopIndex = GetRuleMemoization(ruleIndex, input.Index);
((Profiler)dbg).ExamineRuleMemoization(input, ruleIndex, stopIndex,
<grammar.composite.rootGrammar.recognizerName>.ruleNames[ruleIndex]);
return base.AlreadyParsedRule(input, ruleIndex);
}<\n>
public override void Memoize( IIntStream input, int ruleIndex, int ruleStartIndex )
{
((Profiler)dbg).Memoize(input, ruleIndex, ruleStartIndex,
<grammar.composite.rootGrammar.recognizerName>.ruleNames[ruleIndex]);
base.Memoize(input, ruleIndex, ruleStartIndex);
}<\n>
<endif>
protected virtual bool EvalPredicate( bool result, string predicate )
{
dbg.SemanticPredicate( result, predicate );
return result;
}<\n>
>>

ctorForRootGrammar() ::= <<
<! bug: can't use <@super.members()> cut-n-paste instead !>
<! Same except we add port number and profile stuff if root grammar !>
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input )
: this( input, DebugEventSocketProxy.DefaultDebuggerPort, new
RecognizerSharedState() )
{
}
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, int port,
RecognizerSharedState state )
: base( input, state )
{
<createListenerAndHandshake()>
<grammar.directDelegates:{g|<g:delegateName()> = new <g.recognizerName>( input, dbg, this.state,
this<grammar.delegates:{g|, <g:delegateName()>}> );}; separator="\n">
<parserCtorBody()>
<@finally()>
}<\n>
>>

ctorForProfilingRootGrammar() ::= <<
<! bug: can't use <@super.members()> cut-n-paste instead !>
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input )
: this( input, new Profiler(null), new RecognizerSharedState() )

```

```

{
}
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, IDebugEventListener dbg,
RecognizerSharedState state )
: base( input, dbg, state )
{
  Profiler p = (Profiler)dbg;
  p.setParser(this);
  <grammar.directDelegates:
  {g|<g:delegateName()> = new <g.recognizerName>( input, dbg, this.state,
this<grammar.delegates:{g|, <g:delegateName()>}> );}; separator="\n">
  <parserCtorBody()>
  <@finally()>
}
<\n>
>>

/** Basically we don't want to set any dbg listeners are root will have it. */
ctorForDelegateGrammar() ::= <<
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, IDebugEventListener dbg,
RecognizerSharedState state<grammar.delegates:{g|, <g.recognizerName> <g:delegateName()>}> )
: base( input, dbg, state )
{
  <grammar.directDelegates:
  {g|<g:delegateName()> = new <g.recognizerName>( input, this, this.state<grammar.delegates:{g|,
<g:delegateName()>}> );}; separator="\n">
  <parserCtorBody()>
}<\n>
>>

ctorForPredefinedListener() ::= <<
<actions.(actionScope).ctorModifier; null="public"> <name>( <inputStreamType> input, IDebugEventListener dbg
)
<@superClassRef>: base( input, dbg, new RecognizerSharedState() )<@end>
{
<if(profile)>
  Profiler p = (Profiler)dbg;
  p.setParser(this);
<endif>
  <grammar.directDelegates:{g|<g:delegateName()>
= new <g.recognizerName>(input, dbg, this.state, this<grammar.delegates:{g|, <g:delegateName()>}>);};
separator="\n">
  <parserCtorBody()>
  <@finally()>
}<\n>
>>

createListenerAndHandshake() ::= <<

```

```

<if(TREE_PARSER)>
DebugEventSocketProxy proxy = new DebugEventSocketProxy( this, port, input.TreeAdaptor );<\n>
<else>
DebugEventSocketProxy proxy = new DebugEventSocketProxy( this, port, null );<\n>
<endif>
DebugListener = proxy;
try
{
proxy.Handshake();
}
catch ( IOException ioe )
{
ReportError( ioe );
}
>>

@genericParser.superClassName() ::= "Debug<@super.superClassName()>"

/*
* Many of the following rules were merged into CSharp2.stg.
*/

@rule.preamble() ::= <<
if (RuleLevel == 0)
DebugListener.Commence();
IncRuleLevel();
>>
//@rule.preamble() ::= <<
//try
//{
// dbg.EnterRule( GrammarFileName, "<ruleName>" );
// if ( RuleLevel == 0 )
// {
// dbg.Commence();
// }
// IncRuleLevel();
// dbg.Location( <ruleDescriptor.tree.line>, <ruleDescriptor.tree.charPositionInLine> );<\n>
//>>

@rule.postamble()
::= <<
DecRuleLevel();
if (RuleLevel == 0)
DebugListener.Terminate();
>>
//@rule.postamble() ::= <<
//dbg.Location(<ruleDescriptor.EORNode.line>, <ruleDescriptor.EORNode.charPositionInLine>);<\n>
//}

```

```

//finally
//{{
// dbg.ExitRule( GrammarFileName, "<ruleName>" );
// DecRuleLevel();
// if ( RuleLevel == 0 )
// {
//   dbg.Terminate();
// }
//}<\n>
//>>

@@insertSynpreds.start() ::= "dbg.BeginBacktrack( state.backtracking );"
@@insertSynpreds.stop() ::= "dbg.EndBacktrack( state.backtracking, success );"

// Common debug event triggers used by region overrides below

//enterSubRule() ::= <<
//try
//{{
// dbg.EnterSubRule( <decisionNumber> );<\n>
//>>

//exitSubRule() ::= <<
//}
//finally
//{{
// dbg.ExitSubRule( <decisionNumber> );
//}<\n>
//>>

//enterDecision() ::= <<
//try
//{{
// dbg.EnterDecision( <decisionNumber> );<\n>
//>>

//exitDecision() ::= <<
//}
//finally
//{{
// dbg.ExitDecision( <decisionNumber> );
//}<\n>
//>>

//enterAlt(n) ::= "dbg.EnterAlt( <n> );<\n>"

//

```

Region overrides that tell various constructs to add debugging triggers

```
//@block.predecision() ::= "<enterSubRule()><enterDecision()>"
//@block.postdecision() ::= "<exitDecision()>"
//@block.postbranch() ::= "<exitSubRule()>"
//@ruleBlock.predecision() ::= "<enterDecision()>"
//@ruleBlock.postdecision() ::= "<exitDecision()>"
//@ruleBlockSingleAlt.prealt() ::= "<enterAlt(n=\"1\")>"
//@blockSingleAlt.prealt() ::= "<enterAlt(n=\"1\")>"
//@positiveClosureBlock.preloop() ::= "<enterSubRule()>"
//@positiveClosureBlock.postloop() ::= "<exitSubRule()>"
//@positiveClosureBlock.predecision() ::= "<enterDecision()>"
//@positiveClosureBlock.postdecision() ::= "<exitDecision()>"
//@positiveClosureBlock.earlyExitException() ::=
// "dbg.RecognitionException( eee<decisionNumber> );<n>"
//@closureBlock.preloop() ::= "<enterSubRule()>"
//@closureBlock.postloop() ::= "<exitSubRule()>"
//@closureBlock.predecision() ::= "<enterDecision()>"
//@closureBlock.postdecision() ::= "<exitDecision()>"
//@altSwitchCase.prealt()
::= "<enterAlt(n=i)>"
//@element.prematch() ::=
// "dbg.Location( <it.line>, <it.pos> );"
//@matchSet.mismatchedSetException() ::=
// "dbg.RecognitionException( mse );"
//@dfaState.noViableAltException() ::= "dbg.RecognitionException( nvae );"
//@dfaStateSwitch.noViableAltException() ::= "dbg.RecognitionException( nvae );"
```

```

//dfaDecision(decisionNumber,description) ::= <<
//try
//{
// isCyclicDecision = true;
// <super.dfaDecision(...)>
//}
//catch ( NoViableAltException nvae )
//{
// dbg.RecognitionException( nvae );
// throw nvae;
//}
//>>

//@cyclicDFA.errorMethod() ::= <<
//public override void Error( NoViableAltException nvae )
//{
// ((DebugParser)recognizer).dbg.RecognitionException( nvae );
//}
//>>

/** Force predicate validation to trigger an event */
evalPredicate(pred,description) ::= <<
EvalPredicate(<pred>, "<description>")
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/CSharp2/Dbg.stg

```

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/\*

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\*/

/\*\* Templates for building ASTs during tree parsing.

\*

\* Deal with many combinations. Dimensions are:

\* Auto build or rewrite

\* no label, label, list label (label/no-label handled together)

\* child, root

\* token, set, rule, wildcard

\*

\* Each combination has its own template except that label/no label

\* is combined into tokenRef, ruleRef, ...

\*/

/\*\* Add a variable to track last element matched \*/

ruleDeclarations() ::= <<

<super.ruleDeclarations()>

<if(!ruleDescriptor.isSynPred)>

<ASTLabelType>

\_first\_0 = null;

<ASTLabelType> \_last = null;<\n>

<endif>

>>

/\*\* What to emit when there is no rewrite rule. For auto build

\* mode, does nothing.

\*/

noRewrite(rewriteBlockLevel=false, treeLevel=false) ::= <<

<if(!ruleDescriptor.isSynPred)>

<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>

<if(rewriteMode)>

retval.tree = \_first\_0;

if ( adaptor.getParent(retval.tree)!=null && adaptor.isNil( adaptor.getParent(retval.tree) ) )

retval.tree = (<ASTLabelType>)adaptor.getParent(retval.tree);

<endif>

<if(backtracking)>}<endif>

<endif>

>>



```

/** match ^(root children) in tree parser; override here to
 * add tree construction actions.
 */
tree(root, actionsAfterRoot, children, nullableChildList,
     enclosingTreeLevel, treeLevel) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
{
<ASTLabelType> _save_last_<treeLevel> = _last;
<ASTLabelType> _first_<treeLevel> = null;
<if(!rewriteMode)>
<ASTLabelType> root_<treeLevel>
= (<ASTLabelType>)adaptor.nil();
<endif>
<root:element()>
<if(rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
<if(root.el.rule)>
if ( _first_<enclosingTreeLevel>==null ) _first_<enclosingTreeLevel> =
(<ASTLabelType>)<root.el.label>.getTree();
<elseif(root.el.label)>
if ( _first_<enclosingTreeLevel>==null ) _first_<enclosingTreeLevel> = <root.el.label>;
<endif>
<endif>
<actionsAfterRoot:element()>
<if(nullableChildList)>
if ( input.LA(1)==Token.DOWN ) {
match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
match(input, Token.UP, null); <checkRuleBacktrackFailure()>
}
<else>
match(input, Token.DOWN, null); <checkRuleBacktrackFailure()>
<children:element()>
match(input, Token.UP, null); <checkRuleBacktrackFailure()>
<endif>
<if(!rewriteMode)>
adaptor.addChild(root_<enclosingTreeLevel>, root_<treeLevel>);
<endif>
_last = _save_last_<treeLevel>;
}<\n>
<else>
<super.tree(...)>
<endif>
>>

// TOKEN AST STUFF

```

```

/** ID!
and output=AST (same as plain tokenRef) 'cept add
* setting of _last
*/
tokenRefBang(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<else>
<super.tokenRefBang(...)>
<endif>
>>

/** ID auto construct */
tokenRef(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = new <terminalOptions.node>(<label>);
<else>
<label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
<endif><\n>
adaptor.addChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>;
<endif>
<else>
<super.tokenRef(...)>
<endif>
>>

/** label+=TOKEN auto
construct */
tokenRefAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(!ruleDescriptor.isSynPred)>
<tokenRef(...)>
<listLabel(elem=label,...)>
<else>
<super.tokenRefAndListLabel(...)>
<endif>
>>

/** ^(ID ...) auto construct */

```

```

tokenRefRuleRoot(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.tokenRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<if(terminalOptions.node)>
<label>_tree = new <terminalOptions.node>(<label>);
<else>
<label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<label>_tree, root_<treeLevel>);
<if(backtracking)>}<endif>
<endif>
<else>
<super.tokenRefRuleRoot(...)>
<endif>
>>

/** Match ^(label+=TOKEN ...) auto construct */
tokenRefRuleRootAndListLabel(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(!ruleDescriptor.isSynPred)>
<tokenRefRuleRoot(...)>
<listLabel(elem=label,...)>
<else>
<super.tokenRefRuleRootAndListLabel(...)>
<endif>
>>

/**
  Match . wildcard and auto dup the node/subtree */
wildcard(token,label,elementIndex,terminalOptions={ }) ::= <<
<if(!ruleDescriptor.isSynPred)>
  _last = (<ASTLabelType>)input.LT(1);
<super.wildcard(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
<label>_tree = (<ASTLabelType>)adaptor.dupTree(<label>);
adaptor.addChild(root_<treeLevel>, <label>_tree);
<if(backtracking)>}<endif>
<else> <! rewrite mode !>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> )<endif>
if ( _first_<treeLevel>==null ) _first_<treeLevel> = <label>;
<endif>
<else>
<super.wildcard(...)>
<endif>
>>

```

```
// SET AST
```

```
matchSet(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= <<  
<if(!ruleDescriptor.isSynPred)>  
  _last = (<ASTLabelType>)input.LT(1);  
  <super.matchSet(postmatchCode={  
    <if(!rewriteMode)>  
    <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>  
    <if(terminalOptions.node)>  
    <label>_tree  
      = new <terminalOptions.node>(<label>);  
    <else>  
    <label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);  
    <endif><\n>  
    adaptor.addChild(root_<treeLevel>, <label>_tree);  
    <if(backtracking)>\}<endif>  
    <endif>  
  } , ...  
  )>  
  <else>  
  <super.matchSet(...)>  
  <endif>  
>>
```

```
matchRuleBlockSet(s,label,elementIndex,postmatchCode,treeLevel="0",terminalOptions={}) ::= <<  
<if(!ruleDescriptor.isSynPred)>  
  <matchSet(...)>  
  <noRewrite(...)> <! set return tree !>  
  <else>  
  <super.matchRuleBlockSet(...)>  
  <endif>  
>>
```

```
matchSetBang(s,label,elementIndex,postmatchCode,terminalOptions={}) ::= <<  
<if(!ruleDescriptor.isSynPred)>  
  _last = (<ASTLabelType>)input.LT(1);  
  <super.matchSet(...)>  
  <else>  
  <super.matchSetBang(...)>  
  <endif>  
>>
```

```
matchSetRuleRoot(s,label,elementIndex,debug,terminalOptions={}) ::= <<  
<if(!ruleDescriptor.isSynPred)>  
  <super.matchSet(postmatchCode={  
    <if(!rewriteMode)>  
    <if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<endif>
```

```

<if(terminalOptions.node)>
<label>_tree
= new <terminalOptions.node>(<label>);
<else>
<label>_tree = (<ASTLabelType>)adaptor.dupNode(<label>);
<endif><\n>
root_<treeLevel> = (<ASTLabelType>)adaptor.becomeRoot(<label>_tree, root_<treeLevel>);
<if(backtracking)>\}<endif>
<endif>
}, ...
)>
<else>
<super.matchSetRuleRoot(...)>
<endif>
>>

```

```
// RULE REF AST
```

```

/** rule auto construct */
ruleRef(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRef(...)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>
<if(!rewriteMode)>
adaptor.addChild(root_<treeLevel>, <label>.getTree());
<else> <! rewrite mode !>
if ( _first_<treeLevel>==null ) _first_<treeLevel> = (<ASTLabelType>)<label>.getTree();
<endif>
<else>
<super.ruleRef(...)>
<endif>
>>

```

```

/** x+=rule auto construct */
ruleRefAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<ruleRef(...)>
<listLabel(label, {<label>.getTree()})>
<else>
<super.ruleRefAndListLabel(...)>
<endif>
>>

```

```

/**
^(rule ...) auto construct */
ruleRefRuleRoot(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>

```

```

_last = (<ASTLabelType>)input.LT(1);
<super.ruleRef(...)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) <endif>root_<treeLevel> =
(<ASTLabelType>)adaptor.becomeRoot(<label>.getTree(), root_<treeLevel>);
<endif>
<else>
<super.ruleRefRuleRoot(...)>
<endif>
>>

/** ^(x+=rule ...) auto construct */
ruleRefRuleRootAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
<ruleRefRuleRoot(...)>
<listLabel(label, {<label>.getTree()})>
<else>
<super.ruleRefRuleRootAndListLabel(...)>
<endif>
>>

/** rule when output=AST and tracking for rewrite */
ruleRefTrack(rule,label,elementIndex,args,scope) ::= <<
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefTrack(...)>
>>

/** x+=rule when output=AST and tracking for rewrite */
ruleRefTrackAndListLabel(rule,label,elementIndex,args,scope) ::=
<<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefTrackAndListLabel(...)>
<else>
<super.ruleRefTrackAndListLabel(...)>
<endif>
>>

/** ^(rule ...) rewrite */
ruleRefRuleRootTrack(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefRootTrack(...)>
<else>
<super.ruleRefRootTrack(...)>
<endif>
>>

```

```

/** ^(x+=rule ...) rewrite */
ruleRefRuleRootTrackAndListLabel(rule,label,elementIndex,args,scope) ::= <<
<if(!ruleDescriptor.isSynPred)>
_last = (<ASTLabelType>)input.LT(1);
<super.ruleRefRuleRootTrackAndListLabel(...)>
<else>
<super.ruleRefRuleRootTrackAndListLabel(...)>
<endif>
>>

/** Streams for token refs are tree nodes now; override to
 * change nextToken to nextNode.
 */
createRewriteNodeFromElement(token,args,terminalOptions={}) ::= <<
<if(terminalOptions.node)>
new <terminalOptions.node>(stream_<token>.nextNode())
<else>
stream_<token>.nextNode()
<endif>
>>

ruleCleanUp() ::=
<<
<super.ruleCleanUp()>
<if(!ruleDescriptor.isSynPred)>
<if(!rewriteMode)>
<if(backtracking)>if ( <actions.(actionScope).synpredgate> ) {<\n><endif>
retval.tree = (<ASTLabelType>)adaptor.rulePostProcessing(root_0);
<if(backtracking)>}<endif>
<endif>
<endif>
>>

```

Found in path(s):

```

* /opt/cola/permits/1347859860_1655734093.589936/0/antlr-3-5-3-
jar/org/antlr/codegen/templates/Java/ASTTreeParser.stg

```

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## 1.230 reactive-streams 1.0.4

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```
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/AppdynamicsAgent.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/impl/NoOpExitCall.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/ExitCall.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/EumDelegate.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/EventPublisher.java  
*  
/opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/MetricPublisher.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/impl/NoOpTransaction.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/Transaction.java
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jar/com/appdynamics/agent/api/bootstrap/IApiBootstrapFacade.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-  
jar/com/appdynamics/agent/api/ExitTypes.java  
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-
```

```
jar/com/appdynamics/agent/api/bootstrap/NoOpTransactionDelegate.java
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-
jar/com/appdynamics/agent/api/bootstrap/IApiTransactionDelegate.java
* /opt/cola/permits/1366801991_1658170427.268079/0/agent-api-4-5-13-27526-sources-
jar/com/appdynamics/agent/api/EntryTypes.java
```

## 1.232 rxjava-server 0.9.0

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## 1.234 zlib 1.2.11

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/\* zlib.h -- interface of the 'zlib' general purpose compression library  
version 1.2.11, January 15th, 2017

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The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://tools.ietf.org/html/rfc1950> (zlib format), [rfc1951](http://tools.ietf.org/html/rfc1951) (deflate format) and [rfc1952](http://tools.ietf.org/html/rfc1952) (gzip format).

\*/

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## 1.236 glibc-common 2.17-326.el7\_9

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For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.



In addition,

mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application

to use the modified definitions.)

- b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

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#### END OF TERMS AND CONDITIONS

#### Appendix: How to Apply These Terms to Your New Libraries

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

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To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use



this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the @dfn{Lesser} General Public License because it does @emph{Less} to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a ``work based on the library" and a ``work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term ``modification".)

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The modified work must itself be a software library.

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You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

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You must

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If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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These requirements apply to the modified work as a whole. If identifiable sections

of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the

entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

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A program that contains no derivative of any portion of the

Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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## 1.239 python-urlgrabber 3.10

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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## 1.241 wsgiref 0.1.2

### 1.241.1 Available under license :

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```
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```

Found in path(s):

```
* /opt/cola/permits/1403963770_1661913703.6112542/0/wsgiref-0-1-2-2-zip/wsgiref-0.1.2/wsgiref/validate.py
```

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```
Metadata-Version: 1.0  
Name: wsgiref  
Version: 0.1.2  
Summary: WSGI (PEP 333) Reference Library  
Home-page: http://cheeseshop.python.org/pypi/wsgiref  
Author: Phillip J. Eby  
Author-email: web-sig@python.org  
License: PSF or ZPL
```



Description: This is a standalone release of the ``wsgiref`` library to be included in Python 2.5. For the standalone version's documentation, see:

HTML

[http://peak.telecommunity.com/wsgiref\\_docs/](http://peak.telecommunity.com/wsgiref_docs/)

PDF

<http://peak.telecommunity.com/wsgiref.pdf>

Platform: UNKNOWN

Found in path(s):

\* /opt/cola/permits/1403963770\_1661913703.6112542/0/wsgiref-0-1-2-2-zip/wsgiref-0.1.2/wsgiref.egg-info/PKG-INFO

\* /opt/cola/permits/1403963770\_1661913703.6112542/0/wsgiref-0-1-2-2-zip/wsgiref-0.1.2/PKG-INFO

## 1.242 rpm-python 4.11.3-48.el7\_9

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Version 2, June 1991

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This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License

treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is

included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or

table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library  
(or with a work based on the Library) on a volume of  
a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work.

(Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a

work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

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This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

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#### END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest

possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>

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You should have received a copy of the GNU Library General Public License along with this library; if not, write to the Free Software Foundation, Inc., 675 Mass Ave, Cambridge, MA 02139, USA.

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

## 1.243 pygobject 3.22.0

## 1.243.1 Available under license :

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Version 2.1, February 1999

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suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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table, the facility still operates, and performs whatever part of its purpose remains meaningful.

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then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.



4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

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Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any

executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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```

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\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtNewClass.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtField.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/convert/TransformBefore.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtMethod.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/DeprecatedAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/Keyword.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/stackmap/Tracer.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/runtime/DotClass.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/util/proxy/ProxyObjectInputStream.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/util/proxy/MethodFilter.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtConstructor.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/ClassFilePrinter.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/reflect/Compiler.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/Lex.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/CodeAnalyzer.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/StackMapTable.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/analysis/MultiArrayType.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/URLClassPath.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/convert/TransformWriteField.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/reflect/Reflection.java

\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/compiler/JvstCodeGen.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/bytecode/Opcode.java  
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 jar/javassist/convert/TransformNew.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/tools/web/Viewer.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
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 jar/javassist/convert/TransformFieldAccess.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/CtNewConstructor.java  
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 jar/javassist/util/proxy/MethodHandler.java  
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 jar/javassist/bytecode/Bytecode.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/expr/Cast.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
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 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
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 /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
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 jar/javassist/compiler/ast/InstanceOfExpr.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/bytecode/LocalVariableTypeAttribute.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/tools/reflect/CannotInvokeException.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
 jar/javassist/compiler/Parser.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
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 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-

jar/javassist/bytecode/ByteArray.java  
\*  
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\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
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jar/javassist/util/proxy/ProxyObject.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/expr/MethodCall.java

```

* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/runtime/Desc.java
*
/opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/CallExpr.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/DoubleConst.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/rmi/ObjectImporter.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/ClassClassPath.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/FieldInfo.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/ClassFileWriter.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/LoaderClassPath.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/ConstPool.java
*
/opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/analysis/MultiType.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/convert/TransformAccessArrayField.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/ConstantAttribute.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/Modifier.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/EnclosingMethodAttribute.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/scopedpool/ScopedClassPoolRepository.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/expr/NewExpr.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/MemberCodeGen.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/rmi/ObjectNotFoundException.java
*
/opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/analysis/Frame.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtArray.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/AssignExpr.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/Declarator.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/ParameterAnnotationsAttribute.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/CtPrimitiveType.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-

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jar/javassist/compiler/SyntaxError.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/DuplicateMemberException.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/SerialVersionUID.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/NestHostAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/SourceFileAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/util/proxy/SerializedProxy.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/compiler/CompileError.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/expr/ExprEditor.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/tools/web/BadHttpRequest.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/ByteArrayClassPath.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/scopedpool/ScopedClassPoolFactoryImpl.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/compiler/ast/Member.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/LocalVariableAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/stackmap/TypeData.java  
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jar/javassist/expr/Instanceof.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/analysis/FramePrinter.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/analysis/SubroutineScanner.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/compiler/KeywordTable.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/scopedpool/SoftValueHashMap.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/CodeAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/bytecode/ExceptionTable.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/tools/rmi/Proxy.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-  
jar/javassist/compiler/ast/Pair.java

\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/ClassPool.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/web/Webserver.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/Expr.java  
 \*  
 /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/Translator.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/stackmap/MapMaker.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/reflect/Sample.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/AnnotationDefaultAttribute.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/InnerClassesAttribute.java  
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 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/convert/TransformCall.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/LongVector.java  
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 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/ClassPoolTail.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/Stmnt.java  
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 /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/framedump.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/util/HotSwapAgent.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/CodeGen.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtBehavior.java  
 \* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/util/proxy/ProxyFactory.java



\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/util/proxy/ProxyObjectOutputStream.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/InstructionPrinter.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/reflect/CannotReflectException.java  
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/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/analysis/IntQueue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtNewMethod.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/NewExpr.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/Symbol.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/CodeIterator.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/analysis/ControlFlow.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/NoSuchClassError.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/TokenId.java  
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/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/FieldDecl.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/convert/TransformReadField.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/stackmap/TypedBlock.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/runtime/Inner.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/LineNumberAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/convert/TransformAfter.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/StackMap.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/analysis/Analyzer.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/tools/Dump.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/compiler/ast/StringL.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/SyntheticAttribute.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/analysis/Subroutine.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-

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jar/javassist/convert/TransformNewClass.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/expr/ConstructorCall.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/CannotCompileException.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/util/proxy/DefinePackageHelper.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/Descriptor.java
*
/opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/util/proxy/RuntimeSupport.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/NestMembersAttribute.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/CondExpr.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/Visitor.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/util/proxy/FactoryHelper.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/reflect/Metaobject.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/util/HotSwapper.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/rmi/StubGenerator.java
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/opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/scopedpool/ScopedClassPoolRepositoryImpl.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/expr/FieldAccess.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/MemberResolver.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/expr/Expr.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/expr/Handler.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/reflect/Metalevel.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/expr/NewArray.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/ByteStream.java
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/opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/stackmap/BasicBlock.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ast/ArrayInit.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/CtNewWrappedMethod.java

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* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/TypeChecker.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/reflect/Loader.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/JvstTypeChecker.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/compiler/ProceedHandler.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/ClassPath.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/ClassFile.java
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jar/javassist/compiler/ast/ASTree.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/util/proxy/Proxy.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/rmi/RemoteException.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/tools/rmi/AppletServer.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/CtClass.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/ClassMap.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/Mnemonic.java
```

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```
/*
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```

Found in path(s):

```
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/annotation/EnumMemberValue.java
* /opt/cola/permits/1417024694_1663223145.316145/0/javassist-3-29-1-ga-sources-
jar/javassist/bytecode/annotation/CharMemberValue.java
*
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/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/ByteMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/FloatMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/Annotation.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/IntegerMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/MemberValueVisitor.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/LongMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/BooleanMemberValue.java  
\*  
/opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/ArrayMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/ClassMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/ShortMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/AnnotationMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/DoubleMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/StringMemberValue.java  
\* /opt/cola/permits/1417024694\_1663223145.316145/0/javassist-3-29-1-ga-sources-jar/javassist/bytecode/annotation/MemberValue.java

## 1.248 jackson-module-parameter-names

### 2.13.4

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## 1.249 metrics 4.2.12

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////

ca-legacy(8)

=====

:doctype: manpage

:man source: ca-legacy

NAME

----

ca-legacy - Manage the system configuration for legacy CA certificates

SYNOPSIS

-----

\*ca-legacy\* ['COMMAND']

DESCRIPTION

-----

ca-legacy(8) is used to include or exclude a set of legacy Certificate Authority (CA) certificates in the system's list of trusted CA certificates.

The list of CA certificates and trust flags

included in the ca-certificates package

are based on the decisions made by Mozilla.org according to the Mozilla CA policy.

Occasionally, removal or distrust decisions made by Mozilla.org might be incompatible with the requirements or limitations of some applications that also use the CA certificates list in the Linux environment.

The ca-certificates package might keep some CA certificates included and trusted by default, as long as it is seen necessary by the maintainers, despite the fact that they have been removed by Mozilla. These certificates are called legacy CA certificates.

The general requirements to keep legacy CA certificates included and trusted might change over time, for example if functional limitations of software packages have been resolved. Future versions of the ca-certificates package might reduce the set of legacy CA certificates that are included and trusted by default.

The ca-legacy(8) command can be used to override the default behaviour.

The mechanisms to individually trust or distrust CA certificates as described in update-ca-trust(8) still apply.

## COMMANDS

-----

### \*check\*::

The current configuration will be shown.

### \*default\*::

Configure the system to use the default configuration, as recommended by the package maintainers.

### \*disable\*::

Configure the system to explicitly disable legacy CA certificates. Using this configuration, the system will use the set of included and trusted CA certificates as released by Mozilla.

### \*install\*::

The configuration file will be read and the system configuration will be set accordingly. This command is executed automatically during upgrades of the ca-certificates package.

## FILES

-----

### /etc/pki/ca-trust/ca-legacy.conf::

A configuration file that will be used and modified by the ca-legacy command. The contents of the configuration file will be read on package upgrades.

## AUTHOR

-----

Written by Kai Engert.

Found in path(s):

\* /opt/cola/permits/1425443200\_1664017022.0583818/0/ca-certificates-2022.2.54-74.el7\_9.src.rpm-cosi-expand-archive-GCjLhYzR/ca-legacy.8.txt

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////

update-ca-trust(8)

=====

:doctype: manpage

:man source: update-ca-trust

NAME

----

update-ca-trust - manage consolidated and dynamic configuration of CA certificates and associated trust

SYNOPSIS

-----

\*update-ca-trust\* ['COMMAND']

DESCRIPTION

-----

update-ca-trust(8) is used to manage a consolidated and dynamic configuration feature of Certificate Authority (CA) certificates and associated trust.

The feature is available for new applications that read the consolidated configuration files found in the /etc/pki/ca-trust/extracted directory or that load the PKCS#11 module p11-kit-trust.so

Parts of the new feature are also provided in a way to make it useful for legacy applications.

Many legacy applications expect CA certificates and trust configuration in a fixed location, contained in files with particular path and name, or by referring to a classic PKCS#11 trust module provided by the NSS cryptographic library.

The dynamic configuration feature provides functionally compatible replacements for classic configuration files and for the classic NSS trust module named libnssckbi.

In order to enable legacy applications, that read the classic files or access the classic module, to make use of the new consolidated and dynamic configuration feature, the classic filenames have been changed to symbolic links.

The symbolic links refer to dynamically created and consolidated output stored below the /etc/pki/ca-trust/extracted directory hierarchy.

The output is produced using the 'update-ca-trust' command (without parameters), or using the 'update-ca-trust extract' command.

In order to produce the output, a flexible set of source configuration is read, as described in section <<sourceconf,SOURCE CONFIGURATION>>.

In addition, the classic PKCS#11 module is replaced with a new PKCS#11 module (p11-kit-trust.so) that dynamically reads the same source configuration.

[[sourceconf]]

SOURCE CONFIGURATION

-----

The dynamic configuration feature uses several source directories that will be scanned for any number of source files. \*It is important to select the correct subdirectory for adding files, as the subdirectory defines how contained certificates will be trusted or distrusted, and which file formats are read.\*

Files in \*subdirectories below the directory hierarchy /usr/share/pki/ca-trust-source/\* contain CA certificates and trust settings in the PEM file format. The trust settings found here will be

interpreted with a *\*low priority\**.

Files in *\*subdirectories* below the directory hierarchy `/etc/pki/ca-trust/source/` contain CA certificates and trust settings in the PEM file format. The trust settings found here will be interpreted with a *\*high priority\**.

.You may use the following rules of thumb to decide, whether your configuration files should be added to the `/etc` or rather to the `/usr` directory hierarchy:

- \* If you are manually adding a configuration file to a system, you probably want it to override any other default configuration, and you most likely should add it to the respective subdirectory in the `/etc` hierarchy.

- \* If you are creating a package that provides additional root CA certificates, that is intended for distribution to several computer systems, but you still want to allow the administrator to override your list, then your package should add your files to the respective subdirectory in the `/usr` hierarchy.

- \* If you are creating a package that is supposed to override the default system trust settings, that is intended for distribution to several computer systems, then your package should install the files to the respective subdirectory in the `/etc` hierarchy.

.*\*QUICK HELP 1\**: To add a certificate in the simple PEM or DER file formats to the list of CAs trusted on the system:

- \* add it as a new file to directory `/etc/pki/ca-trust/source/anchors/`
- \* run `'update-ca-trust extract'`

.*\*QUICK HELP 2\**: If your certificate is in the extended BEGIN TRUSTED file format (which may contain distrust/blacklist trust flags, or trust flags for usages other than TLS) then:

- \* add it as a new file to directory `/etc/pki/ca-trust/source/`
- \* run `'update-ca-trust extract'`

.In order to offer simplicity and flexibility, the way certificate files are treated depends on the subdirectory they are installed to.

- \* simple trust anchors subdirectory: `/usr/share/pki/ca-trust-source/anchors/` or `/etc/pki/ca-trust/source/anchors/`
- \*

simple blacklist (distrust) subdirectory: `/usr/share/pki/ca-trust-source/blacklist/` or `/etc/pki/ca-trust/source/blacklist/`

- \* extended format directory: `/usr/share/pki/ca-trust-source/` or `/etc/pki/ca-trust/source/`

.In the main directories `/usr/share/pki/ca-trust-source/` or `/etc/pki/ca-trust/source/` you may install one or multiple files in the following file formats:

- \* certificate files that include trust flags, in the BEGIN/END TRUSTED CERTIFICATE file format (any file name), which have been created using the `openssl x509` tool and the `-addreject -addtrust` options.

Bundle files with multiple certificates are supported.

- \* files in the p11-kit file format using the `.p11-kit` file name extension, which can (e.g.) be used to distrust certificates based on serial number and issuer name, without having the

full certificate available.

(This is currently an undocumented format, to be extended later.

For examples of the supported formats, see the files shipped with the ca-certificates package.)

\* certificate files without trust flags in either the DER file format or in the PEM (BEGIN/END CERTIFICATE) file format (any file name). Such files will be added with neutral trust, neither trusted nor distrusted.

They will simply be known to the system, which might be helpful to assist cryptographic software in constructing chains of certificates.

(If you want a CA certificate in these file formats to be trusted, you should remove it from this directory and move it to the ./anchors subdirectory instead.)

In the anchors subdirectories /usr/share/pki/ca-trust-source/anchors/ or /etc/pki/ca-trust/source/anchors/ you may install one or multiple certificates in either the DER file format or in the PEM (BEGIN/END CERTIFICATE) file format. Each certificate will be treated as \*trusted\* for all purposes.

In the blacklist subdirectories /usr/share/pki/ca-trust-source/blacklist/ or /etc/pki/ca-trust/source/blacklist/ you may install one or multiple certificates in either the DER file format or in the PEM (BEGIN/END CERTIFICATE) file format. Each certificate will be treated as \*distrusted\* for all purposes.

Please refer to the x509(1) manual page for the documentation of the BEGIN/END CERTIFICATE and BEGIN/END TRUSTED CERTIFICATE file formats.

Applications that rely on a static file for a list of trusted CAs may load one of the files found in the /etc/pki/ca-trust/extracted directory. After modifying any file in the /usr/share/pki/ca-trust-source/ or /etc/pki/ca-trust/source/ directories or in any of their subdirectories, or after adding a file, it is necessary to run the 'update-ca-trust extract' command, in order to update the consolidated files in /etc/pki/ca-trust/extracted/ .

Applications that load the classic PKCS#11 module using filename libnssckbi.so (which has been converted into a symbolic link pointing to the new module) and any application capable of loading PKCS#11 modules and loading p11-kit-trust.so, will benefit from the dynamically merged set of certificates and trust information stored in the /usr/share/pki/ca-trust-source/ and /etc/pki/ca-trust/source/ directories.

[[extractconf]]

EXTRACTED CONFIGURATION

-----

The directory /etc/pki/ca-trust/extracted/ contains generated CA certificate

bundle files which are created and updated, based on the <<sourceconf,SOURCE CONFIGURATION>> by running the 'update-ca-trust extract' command.

If your application isn't able to load the PKCS#11 module p11-kit-trust.so, then you can use these files in your application to load a list of global root CA certificates.

Please never manually edit the files stored in this directory, because your changes will be lost and the files automatically overwritten, each time the 'update-ca-trust extract' command gets executed.

In order to install new trusted or distrusted certificates, please rather install them in the respective subdirectory below the /usr/share/pki/ca-trust-source/ or /etc/pki/ca-trust/source/ directories, as described in the <<sourceconf,SOURCE CONFIGURATION>> section.

The directory /etc/pki/ca-trust/extracted/java/ contains a CA certificate bundle in the java keystore file format. Distrust information cannot be represented in this file format, and distrusted certificates are missing from these files. File cacerts contains CA certificates trusted for TLS server authentication.

The directory /etc/pki/ca-trust/extracted/openssl/ contains CA certificate bundle files in the extended BEGIN/END TRUSTED CERTIFICATE file format, as described in the x509(1) manual page. File ca-bundle.trust.crt contains the full set of all trusted or distrusted certificates, including the associated trust flags.

The directory /etc/pki/ca-trust/extracted/pem/ contains CA certificate bundle files in the simple BEGIN/END CERTIFICATE file format, as described in the x509(1) manual page. Distrust information cannot be represented in this file format, and distrusted certificates are missing from these files. File tls-ca-bundle.pem contains CA certificates trusted for TLS server authentication. File email-ca-bundle.pem contains CA certificates trusted for E-Mail protection. File objsign-ca-bundle.pem contains CA certificates trusted for code signing.

## COMMANDS

-----

(absent/empty command)::

Same as the \*extract\* command described below. (However, the command may print fewer warnings, as this command is being run during rpm package



installation, where non-fatal status output is undesired.)

#### **\*extract\*::**

Instruct update-ca-trust to scan the <<sourceconf,SOURCE CONFIGURATION>> and produce updated versions of the consolidated configuration files stored below the /etc/pki/ca-trust/extracted directory hierarchy.

#### **FILES**

-----

/etc/pki/tls/certs/ca-bundle.crt::

Classic filename, file contains a list of CA certificates trusted for TLS server authentication usage, in the simple BEGIN/END CERTIFICATE file format, without distrust information.

This file is a symbolic link that refers to the consolidated output created by the update-ca-trust command.

/etc/pki/tls/certs/ca-bundle.trust.crt::

Classic filename, file contains a list of CA certificates in the extended BEGIN/END TRUSTED CERTIFICATE file format, which includes trust (and/or distrust) flags specific to certificate usage.

This file is a symbolic link that refers to the consolidated output created by the update-ca-trust command.

/etc/pki/java/cacerts::

Classic filename, file contains a list of CA certificates trusted for TLS server authentication usage, in the Java keystore file format, without distrust information.

This file is a symbolic link that refers to the consolidated output created by the update-ca-trust command.

/usr/share/pki/ca-trust-source::

Contains multiple, low priority source configuration files as explained in section <<sourceconf,SOURCE CONFIGURATION>>. Please pay attention to the specific meanings of the respective subdirectories.

/etc/pki/ca-trust/source::

Contains

multiple, high priority source configuration files as explained in section <<sourceconf,SOURCE CONFIGURATION>>. Please pay attention to the specific meanings of the respective subdirectories.

/etc/pki/ca-trust/extracted::

Contains consolidated and automatically generated configuration files for consumption by applications, which are created using the 'update-ca-trust extract' command. Don't edit files in this directory, because they will be overwritten.

See section <<extractconf,EXTRACTED CONFIGURATION>> for additional details.

#### **AUTHOR**

-----

Written by Kai Engert and Stef Walter.

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# This file contains a list of people who've made non-trivial  
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# here. Please keep the list sorted by first names.

Ajay Joshi <jaj@google.com>

Balzs Dn <balazs.dan@gmail.com>

Benoit Sigoure <tsuna@google.com>

Bharat Mediratta <bharat@menalto.com>

Bogdan Pilocca <boo@google.com>

Chandler Carruth <chandlerc@google.com>

Chris Prince <cprince@google.com>

Chris Taylor <taylorc@google.com>

Dan Egnor <egnor@google.com>  
Dave MacLachlan <dmaclach@gmail.com>  
David Anderson <danderson@google.com>  
Dean Sturtevant  
Eric Roman <eroman@chromium.org>  
Gene Volovich <gv@cite.com>  
Hady Zalek <hady.zalek@gmail.com>  
Hal Burch <gmock@hburch.com>  
Jeffrey Yasskin <jyasskin@google.com>  
Jim Keller <jimkeller@google.com>  
Joe Walnes <joe@truemesh.com>  
Jon Wray <jwray@google.com>  
Ji Sigursson <joi@google.com>  
Keir Mierle <mierle@gmail.com>  
Keith Ray <keith.ray@gmail.com>  
Kenton Varda  
<kenton@google.com>  
Kostya Serebryany <kcc@google.com>  
Krystian Kuzniarek <krystian.kuzniarek@gmail.com>  
Lev Makhlis  
Manuel Klimek <klimek@google.com>  
Mario Tanev <radix@google.com>  
Mark Paskin  
Markus Heule <markus.heule@gmail.com>  
Matthew Simmons <simmonmt@acm.org>  
Mika Raento <mikie@iki.fi>  
Mike Bland <mbland@google.com>  
Mikls Fazekas <mfazekas@szemafor.com>  
Neal Norwitz <nnorwitz@gmail.com>  
Nermin Ozkiranartli <nermin@google.com>  
Owen Carlsen <ocarlsen@google.com>  
Paneendra Ba <paneendra@google.com>  
Pasi Valminen <pasi.valminen@gmail.com>  
Patrick Hanna <phanna@google.com>  
Patrick Riley <pfr@google.com>  
Paul Menage <menage@google.com>  
Peter Kaminski <piotrk@google.com>  
Piotr Kaminski <piotrk@google.com>  
Preston Jackson <preston.a.jackson@gmail.com>  
Rainer Klaffenboeck <rainer.klaffenboeck@dynatrace.com>  
Russ Cox <rsc@google.com>  
Russ Rufer <russ@pentad.com>  
Sean McAfee <eefacm@gmail.com>  
Sigurur sgeirsson <siggi@google.com>  
Sverre Sundsdal <sundsda@gmail.com>  
Takeshi Yoshino <tyoshino@google.com>  
Tracy

Bialik <tracy@pentad.com>  
Vadim Berman <vadimb@google.com>  
Vlad Losev <vladl@google.com>  
Wolfgang Klier <wklier@google.com>  
Zhanyong Wan <wan@google.com>

# 1.254 nspr 4.34.0-3.1.e17\_9

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Ajay Joshi <jaj@google.com>  
Balzs Dn <balazs.dan@gmail.com>  
Benoit Sigoure <tsuna@google.com>  
Bharat Mediratta <bharat@menalto.com>  
Bogdan Piloca <boo@google.com>  
Chandler Carruth <chandlerc@google.com>  
Chris Prince <cprince@google.com>  
Chris Taylor <taylorc@google.com>  
Dan Egnor <egnor@google.com>  
Dave MacLachlan <dmaclach@gmail.com>  
David Anderson <danderson@google.com>  
Dean Sturtevant  
Eric Roman <eroman@chromium.org>  
Gene Volovich <gv@cite.com>  
Hady Zalek <hady.zalek@gmail.com>  
Hal Burch <gmock@hburch.com>  
Jeffrey Yasskin <jyasskin@google.com>  
Jim Keller <jimkeller@google.com>  
Joe Walnes <joe@truemesh.com>  
Jon Wray <jwray@google.com>  
Ji Sigursson <joi@google.com>  
Keir Mierle <mierle@gmail.com>  
Keith Ray <keith.ray@gmail.com>  
Kenton Varda  
<kenton@google.com>  
Kostya Serebryany <kcc@google.com>  
Krystian Kuzniarek <krystian.kuzniarek@gmail.com>  
Lev Makhlis  
Manuel Klimek <klimek@google.com>  
Mario Tanev <radix@google.com>  
Mark Paskin  
Markus Heule <markus.heule@gmail.com>  
Matthew Simmons <simmonmt@acm.org>  
Mika Raento <mikie@iki.fi>  
Mike Bland <mbland@google.com>  
Mikls Fazekas <mfazekas@szemafor.com>  
Neal Norwitz <nnorwitz@gmail.com>  
Nermin Ozkiranartli <nermin@google.com>  
Owen Carlsen <ocarlsen@google.com>  
Paneendra Ba <paneendra@google.com>  
Pasi Valminen <pasi.valminen@gmail.com>



Patrick Hanna <phanna@google.com>  
Patrick Riley <pfr@google.com>  
Paul Menage <menage@google.com>  
Peter Kaminski <piotrk@google.com>  
Piotr Kaminski <piotrk@google.com>  
Preston Jackson <preston.a.jackson@gmail.com>  
Rainer Klaffenboeck <rainer.klaffenboeck@dynatrace.com>  
Russ Cox <rsc@google.com>  
Russ Rufer <russ@pentad.com>  
Sean McAfee <eefacm@gmail.com>  
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Sverre Sundsdal <sundsda@gmail.com>  
Takeshi Yoshino <tyoshino@google.com>  
Tracy  
Bialik <tracy@pentad.com>  
Vadim Berman <vadimb@google.com>  
Vlad Losev <vladl@google.com>  
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cursor\_to\_ll, ll, ll  
cursor\_up, cuu1, up  
cursor\_visible, cvvis, vs  
define\_char, defc, ZE  
delete\_character, dch1, dc  
delete\_line, dl1, dl  
dial\_phone, dial, DI  
dis\_status\_line, dsl, ds  
display\_clock, dclk, DK  
down\_half\_line, hd, hd  
ena\_acs, enacs, eA  
enter\_alt\_charset\_mode, smacs, as  
enter\_am\_mode, smam,  
SA  
enter\_blink\_mode, blink, mb  
enter\_bold\_mode, bold, md  
enter\_ca\_mode, smcup, ti  
enter\_delete\_mode, smdc, dm  
enter\_dim\_mode, dim, mh  
enter\_doublewide\_mode, swidm, ZF  
enter\_draft\_quality, sdrfq, ZG  
enter\_insert\_mode, smir, im  
enter\_italics\_mode, sitm, ZH  
enter\_leftward\_mode, slm, ZI  
enter\_micro\_mode, smicm, ZJ  
enter\_near\_letter\_quality, snlq, ZK  
enter\_normal\_quality, snrmq, ZL  
enter\_protected\_mode, prot, mp  
enter\_reverse\_mode, rev, mr  
enter\_secure\_mode, invis, mk  
enter\_shadow\_mode, sshm, ZM  
enter\_standout\_mode, smso, so  
enter\_subscript\_mode, ssubm, ZN  
enter\_superscript\_mode, ssupm, ZO



enter\_underline\_mode, smul, us  
enter\_upward\_mode, sum, ZP  
enter\_xon\_mode, smxon, SX  
erase\_chars, ech, ec  
exit\_alt\_charset\_mode, rmacs, ae  
exit\_am\_mode, rmam, RA  
exit\_attribute\_mode, sgr0, me  
exit\_ca\_mode, rmcup, te  
exit\_delete\_mode, rmdc, ed  
exit\_doublewide\_mode, rwidm, ZQ  
exit\_insert\_mode, rmir, ei  
exit\_italics\_mode, ritm, ZR  
exit\_leftward\_mode, rlm, ZS  
exit\_micro\_mode, rmicm, ZT  
exit\_shadow\_mode, rshm,  
ZU  
exit\_standout\_mode, rmso, se  
exit\_subscript\_mode, rsubm, ZV  
exit\_superscript\_mode, rsupm, ZW  
exit\_underline\_mode, rmul, ue  
exit\_upward\_mode, rum, ZX  
exit\_xon\_mode, rmxon, RX  
fixed\_pause, pause, PA  
flash\_hook, hook, fh  
flash\_screen, flash, vb  
form\_feed, ff, ff  
from\_status\_line, fsl, fs  
goto\_window, wingo, WG  
hangup, hup, HU  
init\_1string, is1, i1  
init\_2string, is2, is  
init\_3string, is3, i3  
init\_file, if, if  
init\_prog, iprog, iP  
initialize\_color, initc, Ic  
initialize\_pair, initp, Ip  
insert\_character, ich1, ic  
insert\_line, il1, al  
insert\_padding, ip, ip  
key\_a1, ka1, K1  
key\_a3, ka3, K3  
key\_b2, kb2, K2  
key\_backspace, kbs, kb  
key\_beg, kbeg, @1  
key\_btab, kcbt, kB  
key\_c1, kc1, K4  
key\_c3, kc3, K5  
key\_cancel, kcan, @2

key\_catab, ktbc, ka  
key\_clear, kclr, kC  
key\_close, kclo, @3  
key\_command, kcmd, @4  
key\_copy, kcpy, @5  
key\_create, kcrt, @6  
key\_ctab, kctab, kt  
key\_dc, kdch1, kD  
key\_dl, kdl1, kL  
key\_down, kcud1, kd  
key\_eic, krmir, kM  
key\_end, kend, @7  
key\_enter, kent, @8  
key\_eol, kel, kE  
key\_eos,  
ked, kS  
key\_exit, kext, @9  
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key\_f10, kf10, k;  
key\_f11, kf11, F1  
key\_f12, kf12, F2  
key\_f13, kf13, F3  
key\_f14, kf14, F4  
key\_f15, kf15, F5  
key\_f16, kf16, F6  
key\_f17, kf17, F7  
key\_f18, kf18, F8  
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key\_f34, kf34, FO  
key\_f35, kf35, FP  
key\_f36, kf36, FQ

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key\_f38, kf38, FS  
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key\_f4, kf4, k4  
key\_f40, kf40, FU  
key\_f41, kf41, FV  
key\_f42, kf42, FW  
key\_f43, kf43, FX  
key\_f44, kf44, FY  
key\_f45, kf45, FZ  
key\_f46, kf46, Fa  
key\_f47, kf47, Fb  
key\_f48, kf48, Fc  
key\_f49, kf49, Fd  
key\_f5, kf5, k5  
key\_f50, kf50, Fe  
key\_f51, kf51, Ff  
key\_f52, kf52, Fg  
key\_f53, kf53, Fh  
key\_f54, kf54, Fi  
key\_f55, kf55, Fj  
key\_f56, kf56, Fk  
key\_f57, kf57, Fl  
key\_f58, kf58,  
Fm  
key\_f59, kf59, Fn  
key\_f6, kf6, k6  
key\_f60, kf60, Fo  
key\_f61, kf61, Fp  
key\_f62, kf62, Fq  
key\_f63, kf63, Fr  
key\_f7, kf7, k7  
key\_f8, kf8, k8  
key\_f9, kf9, k9  
key\_find, kfnd, @0  
key\_help, khlp, %1  
key\_home, khome, kh  
key\_ic, kich1, kI  
key\_il, kill1, kA  
key\_left, kcub1, kl  
key\_ll, kll, kH  
key\_mark, kmrk, %2  
key\_message, kmsg, %3  
key\_move, kmov, %4  
key\_next, knxt, %5  
key\_npage, knp, kN  
key\_open, kopn, %6  
key\_options, kopt, %7

key\_ppage, kpp, kP  
key\_previous, kprv, %8  
key\_print, kprt, %9  
key\_redo, krdo, %0  
key\_reference, kref, &1  
key\_refresh, krfr, &2  
key\_replace, krpl, &3  
key\_restart, krst, &4  
key\_resume, kres, &5  
key\_right, kcuf1, kr  
key\_save, ksav, &6  
key\_sbeg, kBEG, &9  
key\_scancel, kCAN, &0  
key\_scommand, kCMD, \*1  
key\_scopy, kCPY, \*2  
key\_screate, kCRT, \*3  
key\_sdc, kDC, \*4  
key\_sdl, kDL, \*5  
key\_select, kslt, \*6  
key\_send, kEND, \*7  
key\_seol, kEOL, \*8  
key\_sexit, kEXT, \*9  
key\_sf, kind, kF  
key\_sfind, kFND, \*0  
key\_shelp, kHLP, #1  
key\_shome, kHOM, #2  
key\_sic, kIC, #3  
key\_sleft, kLFT, #4  
key\_smessage,  
kMSG, %a  
key\_smove, kMOV, %b  
key\_snext, kNXT, %c  
key\_soptions, kOPT, %d  
key\_sprevious, kPRV, %e  
key\_sprint, kPRT, %f  
key\_sr, kri, kR  
key\_sredo, kRDO, %g  
key\_sreplace, kRPL, %h  
key\_sright, kRIT, %i  
key\_srsume, kRES, %j  
key\_ssav, kSAV, !1  
key\_ssuspend, kSPD, !2  
key\_stab, khts, kT  
key\_sundo, kUND, !3  
key\_suspend, kspd, &7  
key\_undo, kund, &8  
key\_up, kcuu1, ku  
keypad\_local, rmkx, ke

keypad\_xmit, smkx, ks  
lab\_f0, lf0, l0  
lab\_f1, lf1, l1  
lab\_f10, lf10, la  
lab\_f2, lf2, l2  
lab\_f3, lf3, l3  
lab\_f4, lf4, l4  
lab\_f5, lf5, l5  
lab\_f6, lf6, l6  
lab\_f7, lf7, l7  
lab\_f8, lf8, l8  
lab\_f9, lf9, l9  
label\_format, fln, Lf  
label\_off, rmln, LF  
label\_on, smln, LO  
meta\_off, rmm, mo  
meta\_on, smm, mm  
micro\_column\_address, mhpa, ZY  
micro\_down, mcud1, ZZ  
micro\_left, mcub1, Za  
micro\_right, mcuf1, Zb  
micro\_row\_address, mvpa, Zc  
micro\_up, mciu1, Zd  
newline, nel, nw  
order\_of\_pins, porder, Ze  
orig\_colors, oc, oc  
orig\_pair, op, op  
pad\_char, pad, pc  
parm\_dch, dch, DC  
parm\_delete\_line, dl, DL  
parm\_down\_cursor, cud, DO  
parm\_down\_micro,  
mcud, Zf  
parm\_ich, ich, IC  
parm\_index, indn, SF  
parm\_insert\_line, il, AL  
parm\_left\_cursor, cub, LE  
parm\_left\_micro, mcub, Zg  
parm\_right\_cursor, cuf, RI  
parm\_right\_micro, mcuf, Zh  
parm\_rindex, rin, SR  
parm\_up\_cursor, cuu, UP  
parm\_up\_micro, mciu, Zi  
pkey\_key, pfkey, pk  
pkey\_local, pfloc, pl  
pkey\_xmit, pfx, px  
plab\_norm, pln, pn  
print\_screen, mc0, ps

prtr\_non, mc5p, pO  
prtr\_off, mc4, pf  
prtr\_on, mc5, po  
pulse, pulse, PU  
quick\_dial, qdial, QD  
remove\_clock, rmclk, RC  
repeat\_char, rep, rp  
req\_for\_input, rfi, RF  
reset\_1string, rs1, r1  
reset\_2string, rs2, r2  
reset\_3string, rs3, r3  
reset\_file, rf, rf  
restore\_cursor, rc, rc  
row\_address, vpa, cv  
save\_cursor, sc, sc  
scroll\_forward, ind, sf  
scroll\_reverse, ri, sr  
select\_char\_set, scs, Zj  
set\_attributes, sgr, sa  
set\_background, setb, Sb  
set\_bottom\_margin, smgb, Zk  
set\_bottom\_margin\_parm, smgbp, Zl  
set\_clock, sclk, SC  
set\_color\_pair, scp, sp  
set\_foreground, setf, Sf  
set\_left\_margin, smgl, ML  
set\_left\_margin\_parm, smglp, Zm  
set\_right\_margin,  
smgr, MR  
set\_right\_margin\_parm, smgrp, Zn  
set\_tab, hts, st  
set\_top\_margin, smgt, Zo  
set\_top\_margin\_parm, smgtp, Zp  
set\_window, wind, wi  
start\_bit\_image, sbim, Zq  
start\_char\_set\_def, scsd, Zr  
stop\_bit\_image, rbim, Zs  
stop\_char\_set\_def, rcsd, Zt  
subscript\_characters, subcs, Zu  
superscript\_characters, supcs, Zv  
tab, ht, ta  
these\_cause\_cr, docr, Zw  
to\_status\_line, tsl, ts  
tone, tone, TO  
underline\_char, uc, uc  
up\_half\_line, hu, hu  
user0, u0, u0  
user1, u1, u1

user2, u2, u2  
user3, u3, u3  
user4, u4, u4  
user5, u5, u5  
user6, u6, u6  
user7, u7, u7  
user8, u8, u8  
user9, u9, u9  
wait\_tone, wait, WA  
xoff\_character, xoffc, XF  
xon\_character, xonc, XN  
zero\_motion, zerom, Zx  
alt\_scancode\_esc, scesa, S8  
bit\_image\_carriage\_return, bicr, Yv  
bit\_image\_newline, binel, Zz  
bit\_image\_repeat, birep, Xy  
char\_set\_names, csnm, Zy  
code\_set\_init, csin, ci  
color\_names, colorm, Yw  
define\_bit\_image\_region, defbi, Yx  
device\_type, devt, dv  
display\_pc\_char, dispc, S1  
end\_bit\_image\_region, endbi, Yy  
enter\_pc\_charset\_mode,  
smpch, S2  
enter\_scancode\_mode, smsc, S4  
exit\_pc\_charset\_mode, rmpch, S3  
exit\_scancode\_mode, rmsc, S5  
get\_mouse, getm, Gm  
key\_mouse, kmous, Km  
mouse\_info, minfo, Mi  
pc\_term\_options, pctrm, S6  
pkey\_plab, pfxl, xl  
req\_mouse\_pos, reqmp, RQ  
scancode\_escape, scesc, S7  
set0\_des\_seq, s0ds, s0  
set1\_des\_seq, s1ds, s1  
set2\_des\_seq, s2ds, s2  
set3\_des\_seq, s3ds, s3  
set\_a\_background, setab, AB  
set\_a\_foreground, setaf, AF  
set\_color\_band, setcolor, Yz  
set\_lr\_margin, smglr, ML  
set\_page\_length, slines, YZ  
set\_tb\_margin, smgtb, MT  
enter\_horizontal\_hl\_mode, ehhl, Xh  
enter\_left\_hl\_mode, elhl, Xl  
enter\_low\_hl\_mode, elohl, Xo

enter\_right\_hl\_mode, erhlm, Xr  
enter\_top\_hl\_mode, ethlm, Xt  
enter\_vertical\_hl\_mode, evhlm, Xv  
set\_a\_attributes, sgr1, sA  
set\_pglen\_inch, slength, sL

Found in path(s):

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/utils/capabilities.txt

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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/telnet/ConnectionListener.java

\*

/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/telnet/ConnectionFilter.java

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#

black

maroon

green

olive

navy

purple

teal

silver

grey

red

lime

yellow

blue

fuchsia

aqua

white

grey0

navyblue

darkblue

blue3

blue3a

blue1

darkgreen

deepskyblue4

deepskyblue4a

deepskyblue4b

dodgerblue3

dodgerblue2

green4

springgreen4  
turquoise4  
deepskyblue3  
deepskyblue3a  
dodgerblue1  
green3  
springgreen3  
darkcyan  
lightseagreen  
deepskyblue2  
deepskyblue1  
green3a  
springgreen3a  
springgreen2  
cyan3  
darkturquoise  
turquoise2  
green1  
springgreen2a  
springgreen1  
mediumspringgreen  
cyan2  
cyan1  
darkred  
deeppink4  
purple4  
purple4a  
purple3  
blueviolet  
orange4  
grey37  
mediumpurple4  
slateblue3  
slateblue3a  
royalblue1  
chartreuse4  
darkseagreen4  
paleturquoise4  
steelblue  
steelblue3  
cornflowerblue  
chartreuse3  
darkseagreen4a  
cadetblue  
cadetbluea  
skyblue3  
steelblue1  
chartreuse3a

palegreen3  
seagreen3  
aquamarine3  
mediumpurple3  
steelblue1a  
chartreuse2  
seagreen2  
seagreen1  
seagreen1a  
aquamarine1  
darkslategray2  
darkreda  
deeppink4a  
darkmagenta  
darkmagentaa  
darkviolet  
purplea  
orange4a  
lightpink4  
plum4  
mediumpurple3  
mediumpurple3a  
slateblue1  
yellow4  
wheat4  
grey53  
lightslategrey  
mediumpurple  
lightslateblue  
yellow4a  
darkolivegreen3  
darkseagreen  
lightskyblue3  
lightskyblue3a  
skyblue2  
chartreuse2a  
darkolivegreen3a  
palegreen3a  
darkseagreen3  
darkslategray3  
skyblue1  
chartreuse1  
lightgreen  
lightgreena  
palegreen1  
aquamarine1a  
darkslategray1  
red3

deeppink4b  
mediumvioletred  
magenta3  
darkvioleta  
purpleb  
darkorange3  
indianred  
hotpink3  
mediumorchid3  
mediumorchid  
mediumpurple2  
darkgoldenrod  
lightsalmon3  
rosybrown  
grey63  
mediumpurple2a  
mediumpurple1  
gold3  
darkkhaki  
navajowhite3  
grey69  
lightsteelblue3  
lightsteelblue  
yellow3  
darkolivegreen3b  
darkseagreen3a  
darkseagreen2  
lightcyan3  
lightskyblue1  
greenyellow  
darkolivegreen2  
palegreen1a  
darkseagreen2a  
darkseagreen1  
paleturquoise1  
red3a  
deeppink3  
deeppink3a  
magenta3a  
magenta3b  
magenta2  
darkorange3a  
indianreda  
hotpink3a  
hotpink2  
orchid  
mediumorchid1  
orange3

lightsalmon3a  
lightpink3  
pink3  
plum3  
violet  
gold3a  
lightgoldenrod3  
tan  
mistyrose3  
thistle3  
plum2  
yellow3a  
khaki3  
lightgoldenrod2  
lightyellow3  
grey84  
lightsteelblue1  
yellow2  
darkolivegreen1  
darkolivegreen1a  
darkseagreen1a  
honeydew2  
lightcyan1  
red1  
deeppink2  
deeppink1  
deeppink1a  
magenta2a  
magenta1  
orangered1  
indianred1  
indianred1a  
hotpink  
hotpinka  
mediumorchid1a  
darkorange  
salmon1  
lightcoral  
palevioletred1  
orchid2  
orchid1  
orange1  
sandybrown  
lightsalmon1  
lightpink1  
pink1  
plum1  
gold1

lightgoldenrod2a  
lightgoldenrod2b  
navajowhite1  
mistyrose1  
thistle1  
yellow1  
lightgoldenrod1  
khaki1  
wheat1  
cornsilk1  
grey100  
grey3  
grey7  
grey11  
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grey50  
grey54  
grey58  
grey62  
grey66  
grey70  
grey74  
grey78  
grey82  
grey85  
grey89  
grey93

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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/utils/colors.txt

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- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Expander.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/spi/Pty.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/CursorSupport.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/jna/win/WindowsAnsiWriter.java
- \*
- /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/NullCompleter.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/completer/Levenshtein.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/AggregateCompleter.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/history/package-info.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/keymap/KeyMap.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/completer/OSUtils.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/package-info.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/completer/package-info.java
- \*
- /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/Attributes.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/MouseSupport.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/ExecPty.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/AttributedString.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/ShutdownHooks.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/AbstractPosixTerminal.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/DiffHelper.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/WCWidth.java
- \*
- /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/DefaultExpander.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Source.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/ExecHelper.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/Cursor.java
- \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/Macro.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/Utils/InputStreamReader.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Binding.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/UserInterruptedException.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/UndoTree.java  
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/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/EnumCompleter.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Widget.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/package-info.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/Utils/ClosedException.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/NativeSignalHandler.java  
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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/ReaderUtils.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/widget/AutosuggestionWidgets.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/Utils/Signals.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/CommandInput.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/jansi/JansiNativePty.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/impl/AbstractCommandRegistry.java  
\*  
/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/jna/win/JnaWinSysTerminal.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/LineReaderBuilder.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/SystemCompleter.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/jna/linux/CLibrary.java



\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/terminal/impl/jna/osx/CLibrary.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/widget/Widgets.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
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 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/widget/AutopairWidgets.java  
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 /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/console/CommandRegistry.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Nano.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/console/CommandMethods.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/terminal/spi/JnaSupport.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
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 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/terminal/impl/jna/JnaSupportImpl.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/console/impl/Builtins.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/utils/Display.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/terminal/impl/jansi/win/JansiWinSysTerminal.java  
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 /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/terminal/impl/jna/solaris/SolarisNativePty.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/terminal/impl/jansi/JansiSupportImpl.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/utils/Log.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/reader/impl/DefaultParser.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Parser.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/reader/impl/LineReaderImpl.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/builtins/ConsoleOptionGetter.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/console/impl/JlineCommandRegistry.java  
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 /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/reader/CompletionMatcher.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/CmdLine.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/reader/EndOfFileException.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/TTop.java  
 \* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-  
 jar/org/jline/console/ConsoleEngine.java

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* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/Utils/ColorPalette.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/terminal/impl/jna/solaris/CLibrary.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/CommandDesc.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/terminal/impl/jna/freebsd/CLibrary.java
*
/opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/terminal/spi/JansiSupport.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/console/ScriptEngine.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/terminal/impl/jna/freebsd/FreeBsdNativePty.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/terminal/impl/jna/JnaNativePty.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-
jar/org/jline/terminal/impl/jna/osx/OsXNativePty.java
* /opt/cola/permits/1434683282_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Less.java
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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline-reader/pom.xml

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline/pom.xml

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline-terminal-jna/pom.xml  
\*  
/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline-builtins/pom.xml  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline-style/pom.xml  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline-terminal/pom.xml  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/META-INF/maven/org.jline/jline-remote-telnet/pom.xml

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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Candidate.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/impl/Status.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/AbstractPty.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/ConfigurationPath.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Tmux.java  
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/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/ArgumentCompleter.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/completer/StringsCompleter.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/impl/InfoCmp.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Highlighter.java  
\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/Editor.java

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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/impl/ConsoleEngineImpl.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/PrintAboveWriter.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Commands.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/history/DefaultHistory.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/ArgDesc.java

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\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/widget/TailTipWidgets.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Styles.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/LineReader.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/impl/SystemRegistryImpl.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/utils/AttributedCharSequence.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/impl/CompletionMatcherImpl.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/builtins/Completers.java

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/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/terminal/impl/AbstractTerminal.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/impl/SystemHighlighter.java

\* /opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/console/SystemRegistry.java

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/opt/cola/permits/1434683282\_1665037674.3132415/0/jline-3-20-0-sources-jar/org/jline/reader/EOFError.java

## 1.257 metrics-jvm 4.2.12

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Manifest-Version: 1.0  
Automatic-Module-Name: com.codahale.metrics.jvm  
Build-Jdk-Spec: 11  
Bundle-Description: A set of classes which allow you to monitor critical aspects of your Java Virtual Machine using Metrics.  
Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>  
Bundle-ManifestVersion: 2  
Bundle-Name: JVM Integration for Metrics  
Bundle-SymbolicName: io.dropwizard.metrics.jvm  
Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8  
Export-Package: com.codahale.metrics.jvm;uses:="com.codahale.metrics,javax.management";version="4.2.12"  
Implementation-Title: JVM Integration for Metrics  
Implementation-Version: 4.2.12  
Import-Package: org.slf4j;version="[1.6.0,2.0.0)",com.sun.management;resolution:=optional,com.codahale.metrics;version="[4.2,5)",javax.management  
Require-Capability: osgi.ee;filter:="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1434973136\_1665051951.2958791/0/metrics-jvm-4-2-12-jar/META-INF/MANIFEST.MF

# 1.258 metrics-health-checks 4.2.12

## 1.258.1 Available under license :

No license file was found, but licenses were detected in source scan.

Manifest-Version: 1.0

Automatic-Module-Name: com.codahale.metrics.health

Build-Jdk-Spec: 11

Bundle-Description: An addition to Metrics which provides the ability to run application-specific health checks, allowing you to check your application's health in production.

Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>

Bundle-ManifestVersion: 2

Bundle-Name: Metrics Health Checks

Bundle-SymbolicName: io.dropwizard.metrics.healthchecks

Bundle-Version: 4.2.12

Created-By: Apache Maven Bundle Plugin 5.1.8

Export-Package: com.codahale.metrics.health.jvm;uses:="com.codahale.metrics.health,com.codahale.metrics.jvm";version="4.2.12",com.codahale.metrics.health.annotation;version="4.2.12",com.codahale.metrics.health;uses:="com.codahale.metrics";version="4.2.12"

Implementation-Title: Metrics Health Checks

Implementation-Version: 4.2.12

Import-Package: org.slf4j;version="[1.6.0,2.0.0)",com.codahale.metrics;version="[4.2,5)",com.codahale.metrics.health,com.codahale.metrics.health.annotation,com.codahale.metrics.jvm;version="[4.2,5)";resolution:=optional

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"

Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1434973188\_1665051949.7440183/0/metrics-healthchecks-4-2-12-jar/META-INF/MANIFEST.MF

# 1.259 nss 3.79.0-1.el7\_9

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Balzs Dn <balazs.dan@gmail.com>  
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Chris Prince <cprince@google.com>  
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Mike Bland <mbland@google.com>  
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## 1.260 metrics-annotation 4.2.12

### 1.260.1 Available under license :

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Manifest-Version: 1.0

Automatic-Module-Name: com.codahale.metrics.annotation

Build-Jdk-Spec: 11

Bundle-Description: A dependency-less package of just the annotations used by other Metrics modules.

Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>

Bundle-ManifestVersion: 2

Bundle-Name: Annotations for Metrics

Bundle-SymbolicName: io.dropwizard.metrics.annotation

Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8  
Export-Package: com.codahale.metrics.annotation;version="4.2.12"  
Implementation-Title: Annotations for Metrics  
Implementation-Version: 4.2.12  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1435925682\_1665131991.1248417/0/metrics-annotation-4-2-12-jar/META-INF/MANIFEST.MF

## 1.261 expat 2.1.0-15.el7\_9

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## 1.262 metrics-jetty 4.2.12

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Manifest-Version: 1.0

Automatic-Module-Name: com.codahale.metrics.jetty9

Build-Jdk-Spec: 11  
Bundle-Description: A set of extensions for Jetty 9.3 and higher which provide instrumentation of thread pools, connector metrics, and application latency and utilization.  
Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>  
Bundle-ManifestVersion: 2  
Bundle-Name: Metrics Integration for Jetty 9.3 and higher  
Bundle-SymbolicName: io.dropwizard.metrics.jetty9  
Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8  
Export-Package: com.codahale.metrics.jetty9;uses:="com.codahale.metrics, javax.servlet, javax.servlet.http, org.eclipse.jetty.io, org.eclipse.jetty.server, org.eclipse.jetty.server.handler, org.eclipse.jetty.util.annotation, org.eclipse.jetty.util.component, org.eclipse.jetty.util.thread";version="4.2.12"  
Implementation-Title: Metrics Integration for Jetty 9.3 and higher  
Implementation-Version: 4.2.12  
Import-Package: javax.servlet;version="[2.5.0,4.0.0)", javax.servlet.http;version="[2.5.0,4.0.0)", com.codahale.metrics;version="[4.2,5)", org.eclipse.jetty.http;version="[9.4,10)", org.eclipse.jetty.io;version="[9.4,10)", org.eclipse.jetty.server;version="[9.4,10)", org.eclipse.jetty.server.handler;version="[9.4,10)", org.eclipse.jetty.util.annotation;version="[9.4,10)", org.eclipse.jetty.util.component;version="[9.4,10)", org.eclipse.jetty.util.thread;version="[9.4,10)"  
Require-Capability: osgi.ee;filter:="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1437913149\_1665412945.7540498/0/metrics-jetty9-4-2-12-jar/META-INF/MANIFEST.MF

## 1.263 metrics-json 4.2.12

### 1.263.1 Available under license :

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Manifest-Version: 1.0  
Automatic-Module-Name: com.codahale.metrics.json  
Build-Jdk-Spec: 11  
Bundle-Description: A set of Jackson modules which provide serializers for most Metrics classes.  
Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>  
Bundle-ManifestVersion: 2  
Bundle-Name: Jackson Integration for Metrics  
Bundle-SymbolicName: io.dropwizard.metrics.json  
Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8

Export-Package: com.codahale.metrics.json;uses:="com.codahale.metrics, com.fasterxml.jackson.core,com.fasterxml.jackson.databind";version="4.2.12"

Implementation-Title: Jackson Integration for Metrics

Implementation-Version: 4.2.12

Import-Package: com.codahale.metrics;version="[4.2,5)",com.codahale.metrics.health;version="[4.2,5)";resolution:=optional,com.fasterxml.jackson.core;version="[2.12,3)",com.fasterxml.jackson.databind;version="[2.12,3)",com.fasterxml.jackson.databind.module;version="[2.12,3)",com.fasterxml.jackson.databind.ser;version="[2.12,3)",com.fasterxml.jackson.databind.ser.std;version="[2.12,3)"

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"

Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1437913142\_1665412927.3404572/0/metrics-json-4-2-12-jar/META-INF/MANIFEST.MF

## 1.264 metrics-jmx 4.2.12

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Manifest-Version: 1.0

Automatic-Module-Name: com.codahale.metrics.jmx

Build-Jdk-Spec: 11

Bundle-Description: A set of classes which allow you to report metrics via JMX.

Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>

Bundle-ManifestVersion: 2

Bundle-Name: Metrics Integration with JMX

Bundle-SymbolicName: io.dropwizard.metrics.jmx

Bundle-Version: 4.2.12

Created-By: Apache Maven Bundle Plugin 5.1.8

Export-Package: com.codahale.metrics.jmx;uses:="com.codahale.metrics,javax.management";version="4.2.12"

Implementation-Title: Metrics Integration with JMX

Implementation-Version: 4.2.12

Import-Package: org.slf4j;version="[1.6.0,2.0.0)",com.codahale.metrics;version="[4.2,5)",javax.management

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"

Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1437913191\_1665412996.190549/0/metrics-jmx-4-2-12-jar/META-INF/MANIFEST.MF

# 1.265 metrics-logback 4.2.12

## 1.265.1 Available under license :

No license file was found, but licenses were detected in source scan.

Manifest-Version: 1.0  
Automatic-Module-Name: com.codahale.metrics.logback  
Build-Jdk-Spec: 11  
Bundle-Description: An instrumented appender for Logback.  
Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>  
Bundle-ManifestVersion: 2  
Bundle-Name: Metrics Integration for Logback  
Bundle-SymbolicName: io.dropwizard.metrics.logback  
Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8  
Export-Package: com.codahale.metrics.logback;uses:="ch.qos.logback.classic.spi,ch.qos.logback.core,com.codahale.metrics";version="4.2.12"  
Implementation-Title: Metrics Integration for Logback  
Implementation-Version: 4.2.12  
Import-Package: ch.qos.logback.classic;version="[1.2,2)",ch.qos.logback.classic.spi;version="[1.2,2)",ch.qos.logback.core;version="[1.2,2)",com.codahale.metrics;version="[4.2,5)"  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.3.1.202206071316

Found in path(s):

\*

/opt/cola/permits/1437913135\_1665412964.3274512/0/metrics-logback-4-2-12-jar/META-INF/MANIFEST.MF

# 1.266 metrics-jersey2 4.2.12

## 1.266.1 Available under license :

No license file was found, but licenses were detected in source scan.

Manifest-Version: 1.0  
Automatic-Module-Name: com.codahale.metrics.jersey2  
Build-Jdk-Spec: 11  
Bundle-Description: A set of class providing Metrics integration for Jersey, the reference JAX-RS implementation.  
Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>  
Bundle-ManifestVersion: 2  
Bundle-Name: Metrics Integration for Jersey 2.x  
Bundle-SymbolicName: io.dropwizard.metrics.jersey2  
Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8  
Export-Package: com.codahale.metrics.jersey2;uses:="com.codahale.metri

cs,javax.ws.rs.core,javax.ws.rs.ext,org.glassfish.jersey.server.model  
,org.glassfish.jersey.server.monitoring";version="4.2.12"  
Implementation-Title: Metrics Integration for Jersey 2.x  
Implementation-Version: 4.2.12  
Import-Package: com.codahale.metrics;version="[4.2,5)",com.codahale.me  
trics.annotation;version="[4.2,5)",javax.ws.rs.core;version="[2.1,3)"  
,javax.ws.rs.ext;version="[2.1,3)",org.glassfish.jersey.server;versio  
n="[2.36,3)",org.glassfish.jersey.server.model;version="[2.36,3)",org  
.glassfish.jersey.server.monitoring;version="[2.36,3)"  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.3.1.202206071316

Found in path(s):

\* /opt/cola/permits/1437913170\_1665412973.240013/0/metrics-jersey2-4-2-12-jar/META-INF/MANIFEST.MF

## 1.267 metrics-servlets 4.2.12

### 1.267.1 Available under license :

No license file was found, but licenses were detected in source scan.

Manifest-Version: 1.0  
Automatic-Module-Name: com.codahale.metrics.servlets  
Build-Jdk-Spec: 11  
Bundle-Description: A set of utility servlets for Metrics, allowing yo  
u to expose valuable information about your production environ  
ment.  
Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0.html>  
Bundle-ManifestVersion: 2  
Bundle-Name: Metrics Utility Servlets  
Bundle-SymbolicName: io.dropwizard.metrics.servlets  
Bundle-Version: 4.2.12  
Created-By: Apache Maven Bundle Plugin 5.1.8  
Export-Package: com.codahale.metrics.servlets;uses:="com.codahale.metr  
ics,com.codahale.metrics.health,com.fasterxml.jackson.databind,javax.  
servlet,javax.servlet.http";version="4.2.12"  
Implementation-Title: Metrics Utility Servlets  
Implementation-Version: 4.2.12  
Import-Package: javax.servlet;version="[2.5.0,4.0.0)",javax.servlet.ht  
tp;version="[2.5.0,4.0.0)",com.codahale.metrics;version="[4.2,5)",com  
.codahale.metrics.health;version="[4.2,5)",com.codahale.metrics.json;  
version="[4.2,5)",com.codahale.metrics.jvm;version="[4.2,5)",com.fast  
erxml.jackson.databind;version="[2.12,3)",com.fasterxml.jackson.datab  
ind.util;version="[2.12,3)",com.papertrail.profiler;version="[1.1,2)"  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.3.1.202206071316

Found in path(s):

# 1.268 kotlin 1.7.10

## 1.268.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
{ "version":3,"file":"kotlin.js","sources":["wrapper.js","js/arrayUtils.js","js/callableReferenceUtils.js","js/conversions.js","js/core.js","js/long.js","js/markerFunctions.js","js/misc.js","js/polyfills.js","js/rtti.js","runtime/arrayUtils.kt","runtime/Enum.kt","primitiveCompanionObjects.kt","common/src/generated/_Arrays.kt","common/src/generated/_Ranges.kt","unsigned/src/kotlin/UByte.kt","unsigned/src/kotlin/UInt.kt","unsigned/src/kotlin/UShort.kt","builtin-sources/Ranges.kt","src/kotlin/collections/Collections.kt","src/kotlin/collections/Maps.kt","src/kotlin/collections/Sets.kt","src/kotlin/text/StringNumberConversions.kt","src/kotlin/time/Duration.kt","unsigned/src/kotlin/UnsignedUtils.kt","src/kotlin/collections/Iterables.kt","src/kotlin/collections/Sequences.kt","src/kotlin/util/Preconditions.kt","js/src/generated/_ArraysJs.kt","src/kotlin/comparisons/Comparisons.kt","src/kotlin/util/Standard.kt","js/src/generated/_ComparisonsJs.kt","unsigned/src/kotlin/ULong.kt","common/src/generated/_Collections.kt","js/src/kotlin/collections.kt","src/kotlin/collections/Iterators.kt","common/src/generated/_Comparisons.kt","common/src/generated/_Maps.kt","common/src/generated/_OneToManyTitlecaseMappings.kt","js/src/kotlin/text/char.kt","js/src/kotlin/text/string.kt","src/kotlin/text/Char.kt","src/kotlin/CharCode.kt","common/src/generated/_Sequences.kt","common/src/generated/_Sets.kt","common/src/generated/_Strings.kt","src/kotlin/text/Strings.kt","unsigned/src/kotlin/UByteArray.kt","unsigned/src/kotlin/UIntArray.kt","unsigned/src/kotlin/ULongArray.kt","unsigned/src/kotlin/UShortArray.kt","common/src/generated/_UArrays.kt","common/src/generated/_UCollections.kt","common/src/generated/_UComparisons.kt","common/src/generated/_URanges.kt","common/src/generated/_USequences.kt","common/src/kotlin/ExceptionsH.kt","common/src/kotlin/JsAnnotationsH.kt","common/src/kotlin/ioH.kt","builtin-sources/Collections.kt","builtin-sources/Iterators.kt","builtin-sources/ProgressionIterators.kt","builtin-sources/Progressions.kt","builtin-sources/Range.kt","builtin-sources/Unit.kt","builtin-sources/annotation/Annotations.kt","builtin-sources/internal/InternalAnnotations.kt","builtin-sources/internal/progressionUtil.kt","src/kotlin/builtins.kt","src/kotlin/jsTypeOf.kt","src/kotlin/kotlin.kt","src/kotlin/CharCode_js-v1.kt","src/kotlin/coroutines/CoroutineImpl.kt","src/kotlin/util/Result.kt","src/kotlin/coroutines/Continuation.kt","src/kotlin/coroutines/intrinsics/IntrinsicsJs.kt","src/kotlin/currentBeMisc.kt","src/kotlin/exceptions.kt","src/kotlin/jsOperators.kt","src/kotlin/math_js-v1.kt","src/kotlin/numbers_js-v1.kt","src/kotlin/reflection_js-v1.kt","src/kotlin/text/numberConversions_js-v1.kt","js/src/kotlin/js.arrays/fill.kt","js/src/kotlin/js.arrays/sort.kt","js/src/generated/_CharCategories.kt","js/src/generated/_CollectionsJs.kt","js/src/generated/_DigitChars.kt","js/src/generated/_LetterChars.kt","js/src/generated/_OtherLowercaseChars.kt","js/src/generated/_OtherUppercaseChars.kt","js/src/generated/_StringsJs.kt","js/src/generated/_TitlecaseMappings.kt","js/src/generated/_UArraysJs.kt","js/src/generated/_WhitespaceChars.kt","js/src/kotlin/Comparator.kt","js/src/kotlin/annotations.kt","js/src/kotlin/annotationsJVM.kt","js/src/kotlin/collections/AbstractMutableCollection.kt","js/src/kotlin/collections/AbstractMutableList.kt","js/src/kotlin/collections/AbstractMutableMap.kt","js/src/kotlin/collections/AbstractMutableSet.kt","js/src/kotlin/collections/ArrayList.kt","js/src/kotlin/collections/ArraySorting.kt","js/src/kotlin/collections/ArraysJs.kt","js/src/kotlin/collections/EqualityComparator.kt","js/src/kotlin/collections/HashMap.kt","js/src/kotlin/collections/HashSet.kt","js/src/kotlin/collections/InternalHashCodeMap.kt","js/src/kotlin/collections/InternalMap.kt","js/src/kotlin/collections/InternalStringMap.kt","js/src/kotlin/collections/LinkedHashMap.kt","js/src/kotlin/collections/LinkedHashSet.kt","js/src/kotlin/concurrent.kt","js/src/kotlin/console.kt","js/src/kotlin/coroutines/SafeContinuationJs.kt","js/src/kotlin/coroutines/cancellation/CancellationException.kt","js/src/kotlin/coroutines/js/internal/EmptyContinuation.kt","js/src/kotlin/date.kt","js/src/kotlin/dom/Builders.kt","js/src/kotlin/dom/Classes.kt","js/src/kotlin/dom/Dom.kt","js/src/kotlin/dom/EventListener.kt","js/src/kotlin/dom/ItemArra
```



yLike.kt", "js/src/kotlin/dom/Mutations.kt", "js/src/kotlin/dynamic.kt", "js/src/kotlin/exceptionUtils.kt", "js/src/kotlin/grouping.kt", "src/kotlin/collections/Grouping.kt", "js/src/kotlin/internalAnnotations.kt", "js/src/kotlin/json.kt", "js/src/kotlin/math.kt", "js/src/kotlin/numbers.kt", "js/src/kotlin/promise.kt", "js/src/kotlin/random/PlatformRandom.kt", "js/src/kotlin/reflect/AssociatedObjects.kt", "js/src/kotlin/reflect/JsClass.kt", "js/src/kotlin/reflect/KClassImpl.kt", "js/src/kotlin/reflect/KClassesImpl.kt", "js/src/kotlin/reflect/KTypeHelpers.kt", "js/src/kotlin/reflect/KTypeImpl.kt", "js/src/kotlin/reflect/KTypeParameterImpl.kt", "js/src/kotlin/reflect/primitives.kt", "js/src/kotlin/reflect/reflection.kt", "js/src/kotlin/regex.kt", "js/src/kotlin/sequence.kt", "js/src/kotlin/text/CharCategoryJS.kt", "js/src/kotlin/text/CharacterCodingExceptionJs.kt", "js/src/kotlin/text/StringBuilderJs.kt", "js/src/kotlin/text/numberConversions.kt", "js/src/kotlin/text/regex.kt", "src/kotlin/text/StringBuilder.kt", "js/src/kotlin/text/stringsCode.kt", "js/src/kotlin/text/utf8Encoding.kt", "js/src/kotlin/throwableExtensions.kt", "js/src/kotlin/time/DurationJs.kt", "js/src/kotlin/time/DurationUnit.kt", "js/src/kotlin/time/MonoTimeSource.kt", "js/src/kotlinx/dom/Builders.kt", "js/src/kotlinx/dom/Classes.kt", "src/kotlin/text/regex/RegexExtensions.kt", "js/src/kotlinx/dom/Dom.kt", "js/src/kotlinx/dom/Mutations.kt", "js/src/org.w3c/deprecated.kt", "js/src/org.w3c/org.khronos.webgl.kt", "js/src/org.w3c/org.w3c.dom.clipboard.kt", "js/src/org.w3c/org.w3c.dom.css.kt", "js/src/org.w3c/org.w3c.dom.encryptedmedia.kt", "js/src/org.w3c/org.w3c.dom.events.kt", "js/src/org.w3c/org.w3c.dom.kt", "js/src/org.w3c/org.w3c.fetch.kt", "js/src/org.w3c/org.w3c.dom.mediacapture.kt", "js/src/org.w3c/org.w3c.dom.media.source.kt", "js/src/org.w3c/org.w3c.dom.pointerevents.kt", "js/src/org.w3c/org.w3c.dom.svg.kt", "js/src/org.w3c/org.w3c.files.kt", "js/src/org.w3c/org.w3c.notifications.kt", "js/src/org.w3c/org.w3c.workers.kt", "js/src/org.w3c/org.w3c.xhr.kt", "src/kotlin/annotations/Experimental.kt", "src/kotlin/annotations/ExperimentalStdlibApi.kt", "src/kotlin/annotations/Inference.kt", "src/kotlin/annotations/Multiplatform.kt", "src/kotlin/annotations/OptIn.kt", "src/kotlin/collections/AbstractCollection.kt", "src/kotlin/collections/AbstractIterator.kt", "src/kotlin/collections/AbstractList.kt", "src/kotlin/collections/AbstractMap.kt", "src/kotlin/collections/AbstractSet.kt", "src/kotlin/collections/ArrayDeque.kt", "src/kotlin/collections/Arrays.kt", "src/kotlin/collections/BrittleContainsOptimization.kt", "src/kotlin/collections/IndexedValue.kt", "src/kotlin/collections/MapAccessors.kt", "src/kotlin/collections/MapWithDefault.kt", "src/kotlin/collections/MutableCollections.kt", "src/kotlin/collections/ReversedViews.kt", "src/kotlin/collections/SequenceBuilder.kt", "src/kotlin/collections/SlidingWindow.kt", "src/kotlin/collections/UArraySorting.kt", "src/kotlin/comparisons/compareTo.kt", "src/kotlin/contracts/ContractBuilder.kt", "src/kotlin/coroutines/ContinuationInterceptor.kt", "src/kotlin/coroutines/CoroutineContext.kt", "src/kotlin/coroutines/CoroutineContextImpl.kt", "src/kotlin/coroutines/intrinsics/Intrinsics.kt", "src/kotlin/experimental/bitwiseOperations.kt", "src/kotlin/experimental/inferenceMarker.kt", "src/kotlin/internal/Annotations.kt", "src/kotlin/properties/Delegates.kt", "src/kotlin/properties/Interfaces.kt", "src/kotlin/properties/ObservableProperty.kt", "src/kotlin/properties/PropertyReferenceDelegates.kt", "src/kotlin/random/Random.kt", "src/kotlin/random/URandom.kt", "src/kotlin/random/XorWowRandom.kt", "src/kotlin/ranges/Ranges.kt", "src/kotlin/reflect/KClasses.kt", "src/kotlin/reflect/KTypeProjection.kt", "src/kotlin/reflect/KVariance.kt", "src/kotlin/reflect/typeOf.kt", "src/kotlin/text/Appendable.kt", "src/kotlin/text/Indent.kt", "src/kotlin/text/Typography.kt", "src/kotlin/text/regex/MatchResult.kt", "src/kotlin/time/DurationUnit.kt", "src/kotlin/time/ExperimentalTime.kt", "src/kotlin/time/TimeSource.kt", "src/kotlin/time/TimeSources.kt", "src/kotlin/time/longSaturatedMath.kt", "src/kotlin/time/measureTime.kt", "src/kotlin/util/DeepRecursive.kt", "src/kotlin/util/FloorDivMod.kt", "src/kotlin/util/HashCode.kt", "src/kotlin/util/KotlinVersion.kt", "src/kotlin/util/Lateinit.kt", "src/kotlin/util/Lazy.kt", "src/kotlin/util/Numbers.kt", "src/kotlin/util/Suspend.kt", "src/kotlin/util/Tuples.kt", "unsigned/src/kotlin/UIntRange.kt", "unsigned/src/kotlin/ULongRange.kt", "unsigned/src/kotlin/UMath.kt", "unsigned/src/kotlin/UNumbers.kt", "unsigned/src/kotlin/UProgressionUtil.kt", "unsigned/src/kotlin/UStrings.kt", "unsigned/src/kotlin/annotations/Unsigned.kt", "common/src/kotlin/MathH.kt", "js/src/kotlin/js/js.math.kt"], "sourcesContent": ["(function (root, factory) {\n if (typeof define === 'function' && define.amd) {\n define('kotlin', ['exports'], factory);\n }\n else if (typeof exports === 'object') {\n factory(module.exports);\n }\n else {\n root.kotlin = {};\n }\n factory(root.kotlin);\n})(this, function (Kotlin) {\n var \_ = Kotlin;\n\n insertContent();\n});\n", "/\*\n \* Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n\n \*\n\nKotlin.isArray = function (a) {\n return (Array.isArray(a) || a instanceof Int8Array) && a.\$type\$ === \"BooleanArray\";\n}\n\nKotlin.isByteArray = function (a) {\n return a instanceof Int8Array && a.\$type\$

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!=="BooleanArray"\n};\n\nKotlin.isShortArray = function (a) {\n
    return a instanceof Int16Array\n};\n\nKotlin.isCharArray = function (a) {\n    return a instanceof Uint16Array &&
a.$type$ === "CharArray"\n};\n\nKotlin.isIntArray = function (a) {\n    return a instanceof
Int32Array\n};\n\nKotlin.isFloatArray = function (a) {\n    return a instanceof
Float32Array\n};\n\nKotlin.isDoubleArray = function (a) {\n    return a instanceof
Float64Array\n};\n\nKotlin.isLongArray = function (a) {\n    return Array.isArray(a) && a.$type$ ===
"LongArray"\n};\n\nKotlin.isArray = function (a) {\n    return Array.isArray(a) &&
!a.$type$;\n};\n\nKotlin.isArrayish = function (a) {\n    return Array.isArray(a) ||
ArrayBuffer.isView(a)\n};\n\nKotlin.arrayToString = function (a) {\n    if (a === null) return "null"\n    var
toString = Kotlin.isCharArray(a) ? String.fromCharCode : Kotlin.toString;\n    return "[" +
Array.prototype.map.call(a, function(e) { return toString(e); }).join(", ") + "]";\n};\n\nKotlin.arrayDeepToString
= function (arr) {\n    return
Kotlin.kotlin.collections.contentDeepToStringImpl(arr);\n};\n\nKotlin.arrayEquals = function (a, b) {\n    if (a ===
b) {\n        return true;\n    }\n    if (a === null || b === null || !Kotlin.isArrayish(b) || a.length !== b.length) {\n
return false;\n    }\n    for (var i = 0, n = a.length; i < n; i++) {\n        if (!Kotlin.equals(a[i], b[i])) {\n
return false;\n        }\n    }\n    return true;\n};\n\nKotlin.arrayDeepEquals = function (a, b) {\n    return
Kotlin.kotlin.collections.contentDeepEqualsImpl(a, b);\n};\n\nKotlin.arrayHashCode = function (arr) {\n    if (arr
=== null) return 0\n    var result = 1;\n    for (var i = 0, n = arr.length; i < n; i++) {\n        result = ((31 * result | 0) +
Kotlin.hashCode(arr[i])) | 0;\n    }\n    return result;\n};\n\nKotlin.arrayDeepHashCode = function (arr) {\n    return
Kotlin.kotlin.collections.contentDeepHashCodeImpl(arr);\n};\n\nKotlin.primitiveArraySort = function (array) {\n
array.sort(Kotlin.doubleCompareTo)\n};\n\n"/*\n
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code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\nKotlin.getCallableRef = function(name, f) {\n    f.callableName = name;\n    return
f;\n};\n\nKotlin.getPropertyCallableRef = function(name, paramCount, getter, setter) {\n    getter.get = getter;\n
getter.set = setter;\n    getter.callableName = name;\n    return getPropertyRefClass(getter, setter,
propertyRefClassMetadataCache[paramCount]);\n};\n\nfunction getPropertyRefClass(obj, setter, cache) {\n
obj.$metadata$ = getPropertyRefMetadata(typeof setter === "function" ? cache.mutable : cache.immutable);\n
obj.constructor = obj;\n    return obj;\n}\n\nvar propertyRefClassMetadataCache = [\n    {\n        mutable: { value:
null, implementedInterface: function () {\n            return Kotlin.kotlin.reflect.KMutableProperty0 }\n        },\n
immutable:
{ value: null, implementedInterface: function () {\n            return Kotlin.kotlin.reflect.KProperty0 }\n        },\n
Kotlin.kotlin.reflect.KMutableProperty1 }\n    },\n    {\n        mutable: { value: null, implementedInterface: function
() {\n            return Kotlin.kotlin.reflect.KProperty1 }\n        },\n        immutable: { value: null, implementedInterface: function
() {\n            return Kotlin.kotlin.reflect.KProperty1 }\n        }\n    }\n];\n\nfunction getPropertyRefMetadata(cache)
{\n    if (cache.value === null) {\n        cache.value = {\n            interfaces: [cache.implementedInterface()],\n
baseClass: null,\n            functions: {},\n            properties: {},\n            types: {},\n            staticMembers: {}
}\n    }\n    return cache.value;\n}\n\n"/*\n
* Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors. \n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\nKotlin.toShort
= function (a) {\n    return (a & 0xFFFF) << 16 >> 16;\n};\n\nKotlin.toByte = function (a) {\n    return (a & 0xFF)
<< 24 >> 24;\n};\n\nKotlin.toChar = function (a) {\n    return a & 0xFFFF;\n};\n\nKotlin.numberToLong = function
(a) {\n    return a instanceof Kotlin.Long ? a : Kotlin.Long.fromNumber(a);\n};\n\nKotlin.numberToInt = function
(a) {\n    return a instanceof Kotlin.Long ? a.toInt() : Kotlin.doubleToInt(a);\n};\n\nKotlin.numberToShort =
function (a) {\n    return Kotlin.toShort(Kotlin.numberToInt(a));\n};\n\nKotlin.numberToByte = function (a) {\n
return Kotlin.toByte(Kotlin.numberToInt(a));\n};\n\nKotlin.numberToDouble = function (a) {\n    return
+a;\n};\n\nKotlin.numberToChar = function (a) {\n    return
Kotlin.toChar(Kotlin.numberToInt(a));\n};\n\nKotlin.doubleToInt = function(a) {\n    if (a > 2147483647) return

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2147483647;\n  if (a < -2147483648) return -2147483648;\n  return a | 0;\n};\n\nKotlin.toBoxedChar = function
(a) {\n  if (a == null) return a;\n
  if (a instanceof Kotlin.BoxedChar) return a;\n  return new Kotlin.BoxedChar(a);\n};\n\nKotlin.unboxChar =
function(a) {\n  if (a == null) return a;\n  return Kotlin.toChar(a);\n};\n";\n\n/*\n * Copyright 2010-2018 JetBrains
s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.equals = function (obj1, obj2) {\n  if (obj1
== null) {\n    return obj2 == null;\n  }\n\n  if (obj2 == null) {\n    return false;\n  }\n\n  if (obj1 !== obj1)
{\n    return obj2 !== obj2;\n  }\n\n  if (typeof obj1 === "object" && typeof obj1.equals === "function") {\n
  return obj1.equals(obj2);\n  }\n\n  if (typeof obj1 === "number" && typeof obj2 === "number") {\n
return obj1 === obj2 && (obj1 !== 0 || 1 / obj1 === 1 / obj2)\n  }\n\n  return obj1 ===
obj2;\n};\n\nKotlin.hashCode = function (obj) {\n  if (obj == null)
{\n    return 0;\n  }\n  var objType = typeof obj;\n  if ("object" === objType) {\n    return "function" ===
typeof obj.hashCode ? obj.hashCode() : getObjectHashCode(obj);\n  }\n  if ("function" === objType) {\n
return getObjectHashCode(obj);\n  }\n  if ("number" === objType) {\n    return
Kotlin.numberHashCode(obj);\n  }\n  if ("boolean" === objType) {\n    return Number(obj)\n  }\n\n  var str
= String(obj);\n  return getStringHashCode(str);\n};\n\nKotlin.toString = function (o) {\n  if (o == null) {\n
return "null";\n  }\n  else if (Kotlin.isArrayish(o)) {\n    return "["+...";\n  }\n  else {\n    return
o.toString();\n  }\n};\n\n/** @const */\nvar POW_2_32 = 4294967296;\n// TODO: consider switching to Symbol
type once we are on ES6.\n/** @const */\nvar OBJECT_HASH_CODE_PROPERTY_NAME =
"kotlinHashCodeValue";\n\nfunction getObjectHashCode(obj) {\n  if
(! (OBJECT_HASH_CODE_PROPERTY_NAME in obj))
{\n    var hash = (Math.random() * POW_2_32) | 0; // Make 32-bit signed integer.\n
Object.defineProperty(obj, OBJECT_HASH_CODE_PROPERTY_NAME, { value: hash, enumerable: false });\n
}\n  return obj[OBJECT_HASH_CODE_PROPERTY_NAME];\n}\n\nfunction getStringHashCode(str) {\n  var
hash = 0;\n  for (var i = 0; i < str.length; i++) {\n    var code = str.charCodeAt(i);\n    hash = (hash * 31 +
code) | 0; // Keep it 32-bit.\n  }\n  return hash;\n}\n\nKotlin.identityHashCode = getObjectHashCode;\n";\n\n/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Copyright 2009
The Closure Library Authors. All Rights Reserved.\n\n// Licensed under the Apache License, Version 2.0 (the
"License");\n\n// you may not use this file except in compliance with the License.\n\n// You may obtain a copy of the
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at\n\n// http://www.apache.org/licenses/LICENSE-2.0\n\n// Unless required by applicable law or agreed to in
writing, software\n\n// distributed under the License is distributed on an "AS-IS" BASIS,\n\n// WITHOUT
WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n\n/**\n * Constructs a 64-bit two's-
complement integer, given its low and high 32-bit\n * values as *signed* integers. See the from* functions below
for more\n * convenient ways of constructing Longs.\n * The internal representation of a long is the two given
signed, 32-bit values.\n * We use 32-bit pieces because these are the size of integers on which\n * Javascript
performs bit-operations. For operations like addition and\n * multiplication, we split each number into 16-bit
pieces, which can easily be\n * multiplied within Javascript's floating-point representation without overflow\n * or
change in sign.\n * In the algorithms below, we frequently reduce the negative case to the\n * positive case
by negating the input(s) and then post-processing the result.\n * Note that we must ALWAYS check specially
whether those values are MIN_VALUE\n * (-2^63) because -MIN_VALUE == MIN_VALUE (since 2^63 cannot
be represented as\n * a positive number, it overflows back into a negative). Not handling this\n * case would often
result in infinite recursion.\n */\n * @param {number} low The low (signed) 32 bits of the long.\n * @param
{number} high The high (signed) 32 bits of the long.\n * @constructor\n * @final\n */\nKotlin.Long =
function(low, high) {\n  /**\n * @type {number}\n * @private\n */\n this.low_ = low | 0; // force into 32
signed bits.\n\n  /**\n * @type {number}\n * @private\n */\n this.high_ = high | 0; // force into 32 signed
bits.\n};\n\nKotlin.Long.$metadata$ = {\n  kind: "class",\n  simpleName: "Long",\n  interfaces: []\n};\n\n//

```

NOTE: Common constant values ZERO, ONE, NEG\_ONE, etc. are defined below the\n// from\* methods on which they depend.\n\n/\*\*\n

```
* A cache of the Long representations of small integer values.\n * @type {!Object}\n * @private\n\n* Kotlin.Long.IntCache_ = {};\n\n/**\n * Returns a Long representing the given (32-bit) integer value.\n * @param {number} value The 32-bit integer in question.\n * @return {!Kotlin.Long} The corresponding Long value.\n\nKotlin.Long.fromInt = function(value) {\n  if (-128 <= value && value < 128) {\n    var cachedObj = Kotlin.Long.IntCache_[value];\n    if (cachedObj) {\n      return cachedObj;\n    }\n  }\n  var obj = new Kotlin.Long(value | 0, value < 0 ? -1 : 0);\n  if (-128 <= value && value < 128) {\n    Kotlin.Long.IntCache_[value] = obj;\n  }\n  return obj;\n};\n\n/**\n * Converts this number value to `Long`. The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Double` value is `NaN`, `Long.MIN_VALUE` if it's less than `Long.MIN_VALUE`,\n * `Long.MAX_VALUE` if it's bigger than `Long.MAX_VALUE`. \n * @param {number} value The number in question.\n * @return {!Kotlin.Long} The corresponding Long value.\n\nKotlin.Long.fromNumber = function(value) {\n  if (isNaN(value)) {\n    return Kotlin.Long.ZERO;\n  } else if (value <= -Kotlin.Long.TWO_PWR_63_DBL_) {\n    return Kotlin.Long.MIN_VALUE;\n  } else if (value + 1 >= Kotlin.Long.TWO_PWR_63_DBL_) {\n    return Kotlin.Long.MAX_VALUE;\n  } else if (value < 0) {\n    return Kotlin.Long.fromNumber(-value).negate();\n  } else {\n    return new Kotlin.Long((value % Kotlin.Long.TWO_PWR_32_DBL_) | 0, (value / Kotlin.Long.TWO_PWR_32_DBL_) | 0);\n  }\n};\n\n/**\n * Returns a Long representing the 64-bit integer that comes by concatenating the given high and low bits. Each is assumed to use 32 bits.\n * @param {number} lowBits The low 32-bits.\n * @param {number} highBits The high 32-bits.\n * @return {!Kotlin.Long} The corresponding Long value.\n\nKotlin.Long.fromBits = function(lowBits, highBits) {\n  return new Kotlin.Long(lowBits, highBits);\n};\n\n/**\n * Returns a Long representation of the given string, written using the given radix.\n * @param {string} str The textual representation of the Long.\n * @param {number=} opt_radix The radix in which the text is written.\n * @return {!Kotlin.Long} The corresponding Long value.\n\nKotlin.Long.fromString = function(str, opt_radix) {\n  if (str.length == 0) {\n    throw Error('number format error: empty string');\n  }\n  var radix = opt_radix || 10;\n  if (radix < 2 || 36 < radix) {\n    throw Error('radix out of range: ' + radix);\n  }\n  if (str.charAt(0) == '-') {\n    return Kotlin.Long.fromString(str.substring(1), radix).negate();\n  } else if (str.indexOf('-') >= 0) {\n    throw Error('number format error: interior "-" character: ' + str);\n  }\n  // Do several (8) digits each time through the loop, so as to minimize the calls to the very expensive emulated div.\n  var radixToPower = Kotlin.Long.fromNumber(Math.pow(radix, 8));\n  var result = Kotlin.Long.ZERO;\n  for (var i = 0; i < str.length; i += 8) {\n    var size = Math.min(8, str.length - i);\n    var value = parseInt(str.substring(i, i + size), radix);\n    if (size < 8) {\n      var power = Kotlin.Long.fromNumber(Math.pow(radix, size));\n      result = result.multiply(power).add(Kotlin.Long.fromNumber(value));\n    } else {\n      result = result.multiply(radixToPower).add(Kotlin.Long.fromNumber(value));\n    }\n  }\n  return result;\n};\n\n// NOTE: the compiler should inline these constant values below and then remove these variables, so there should be no runtime penalty for these.\n\n/**\n * Number used repeated below in calculations. This must appear before the first call to any from* function below.\n * @type {number}\n * @private\n\nKotlin.Long.TWO_PWR_16_DBL_ = 1 << 16;\n\n/**\n * @type {number}\n * @private\n\nKotlin.Long.TWO_PWR_24_DBL_ = 1 << 24;\n\n/**\n * @type {number}\n * @private\n\nKotlin.Long.TWO_PWR_32_DBL_ =\n  Kotlin.Long.TWO_PWR_16_DBL_ * Kotlin.Long.TWO_PWR_16_DBL_;\n\n/**\n * @type {number}\n * @private\n\nKotlin.Long.TWO_PWR_31_DBL_ =\n  Kotlin.Long.TWO_PWR_32_DBL_ / 2;\n\n/**\n * @type {number}\n * @private\n\nKotlin.Long.TWO_PWR_48_DBL_ =\n  Kotlin.Long.TWO_PWR_32_DBL_ * Kotlin.Long.TWO_PWR_16_DBL_;\n\n/**\n * @type {number}\n * @private\n\nKotlin.Long.TWO_PWR_64_DBL_ =\n  Kotlin.Long.TWO_PWR_32_DBL_ * Kotlin.Long.TWO_PWR_32_DBL_;\n\n/**\n * @type {number}\n * @private\n
```

```

*^ Kotlin.Long.TWO_PWR_63_DBL_ = Kotlin.Long.TWO_PWR_64_DBL_ / 2;
*^ Kotlin.Long.ZERO = Kotlin.Long.fromInt(0);
*^ Kotlin.Long.ONE = Kotlin.Long.fromInt(1);
*^ Kotlin.Long.NEG_ONE = Kotlin.Long.fromInt(-1);
*^ Kotlin.Long.MAX_VALUE = Kotlin.Long.fromBits(0xFFFFFFFF | 0, 0x7FFFFFFF | 0);
*^ Kotlin.Long.MIN_VALUE = Kotlin.Long.fromBits(0, 0x80000000 | 0);
Kotlin.Long.TWO_PWR_24_ = Kotlin.Long.fromInt(1 << 24);
*^ Kotlin.Long.prototype.toInt = function() {
    return this.low_;
}
*^ Kotlin.Long.prototype.toNumber = function() {
    return this.high_ * Kotlin.Long.TWO_PWR_32_DBL_ + this.getLowBitsUnsigned();
}
*^ Kotlin.Long.prototype.hashCode = function() {
    return this.high_ ^ this.low_;
}
* @param {number=} opt_radix The radix in which the text should be written.
* @return {string} The textual representation of this value.
* @override Kotlin.Long.prototype.toString = function(opt_radix) {
    var radix = opt_radix || 10;
    if (radix < 2 || 36 < radix) {
        throw Error('radix out of range: ' + radix);
    }
    if (this.isZero()) {
        return '0';
    }
    if (this.isNegative()) {
        if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {
            // We need to change the Long value before it can be negated,
            // so we remove the bottom-most digit in this base and then recurse to do the rest.
            var radixLong = Kotlin.Long.fromNumber(radix);
            var div = this.div(radixLong);
            var rem = div.multiply(radixLong).subtract(this);
            return div.toString(radix) + rem.toInt().toString(radix);
        } else {
            return '-' + this.negate().toString(radix);
        }
    }
    // Do several (5) digits each time through the loop, so as to
    // minimize the calls to the very expensive emulated div.
    var radixToPower = Kotlin.Long.fromNumber(Math.pow(radix, 5));
    var rem = this;
    var result = '';
    while (true) {
        var remDiv = rem.div(radixToPower);
        var intval = rem.subtract(remDiv.multiply(radixToPower)).toInt();
        var digits = intval.toString(radix);
        rem = remDiv;
        if (rem.isZero()) {
            return digits + result;
        } else {
            while (digits.length < 5) {
                digits = '0' + digits;
            }
            result = ' ' + digits + result;
        }
    }
}
*^ Kotlin.Long.prototype.getHighBits = function() {
    return this.high_;
}
*^ Kotlin.Long.prototype.getHighBitsSigned = function() {
    return this.high_ < 0 ? this.high_ : this.high_ < 0 ? this.high_ : this.low_;
}
*^ Kotlin.Long.prototype.getLowBits = function() {
    return this.low_;
}
*^ Kotlin.Long.prototype.getLowBitsUnsigned = function() {
    return (this.low_ >= 0) ? this.low_ : Kotlin.Long.TWO_PWR_32_DBL_ + this.low_;
}
*^ Kotlin.Long.prototype.getNumBitsAbs = function() {
    if (this.isNegative()) {
        if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {
            return 64;
        } else {
            return this.negate().getNumBitsAbs();
        }
    } else {
        var val = this.high_ != 0 ? this.high_ : this.low_;
        for (var bit = 31; bit > 0; bit--) {
            if ((val & (1 << bit)) != 0) {
                break;
            }
        }
        return this.high_ != 0 ? bit + 33 : bit + 1;
    }
}
*^ Kotlin.Long.prototype.isZero = function() {
    return this.high_ == 0 && this.low_ == 0;
}
*^ Kotlin.Long.prototype.isNegative = function() {
    return this.high_ < 0;
}
*^ Kotlin.Long.prototype.isOdd = function() {
    return (this.low_ & 1) == 1;
}
* @param {Kotlin.Long} other Long to compare against.
* @return {boolean} Whether this Long equals the other.
* @param {Kotlin.Long} other Long to compare against.
* @return {boolean} Whether this Long does not equal the other.
* @param {Kotlin.Long} other Long to compare against.
* @return {boolean} Whether this Long equals the other.
* @param {Kotlin.Long} other Long to compare against.
* @return {boolean} Whether this Long is less than the other.

```

```

this.compare(other) < 0;\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to compare against.\n * @return
{boolean} Whether this Long is less than or equal to the other.\n */\nKotlin.Long.prototype.lessThanOrEqualTo =
function(other) {\n return this.compare(other) <= 0;\n};\n\n\n/**\n * @param {Kotlin.Long} other Long to
compare against.\n * @return {boolean} Whether this Long is greater than the other.\n
*/\nKotlin.Long.prototype.greaterThan = function(other) {\n return this.compare(other) > 0;\n};\n\n\n/**\n *
@param {Kotlin.Long} other Long to compare against.\n * @return {boolean} Whether this Long is greater than or equal to the other.\n
*/\nKotlin.Long.prototype.greaterThanOrEqualTo = function(other) {\n return this.compare(other) >=
0;\n};\n\n\n\n/**\n * Compares this Long with the given one.\n * @param {Kotlin.Long} other Long to compare
against.\n * @return {number} 0 if they are the same, 1 if the this is greater, and -1\n * if the given one is
greater.\n */\nKotlin.Long.prototype.compare = function(other) {\n if (this.equalsLong(other)) {\n return 0;\n
}\n\n var thisNeg = this.isNegative();\n var otherNeg = other.isNegative();\n if (thisNeg && !otherNeg) {\n
return -1;\n }\n if (!thisNeg && otherNeg) {\n return 1;\n }\n\n // at this point, the signs are the same, so
subtraction will not overflow\n if (this.subtract(other).isNegative()) {\n return -1;\n } else {\n return 1;\n
}\n};\n\n\n\n/**\n * @return {!Kotlin.Long} The negation of this value. */\nKotlin.Long.prototype.negate = function()
{\n if (this.equalsLong(Kotlin.Long.MIN_VALUE))\n {\n return Kotlin.Long.MIN_VALUE;\n } else {\n return this.not().add(Kotlin.Long.ONE);\n
}\n};\n\n\n\n/**\n * Returns the sum of this and the given Long.\n * @param {Kotlin.Long} other Long to add to this one.\n * @return
{!Kotlin.Long} The sum of this and the given Long.\n */\nKotlin.Long.prototype.add = function(other) {\n //
Divide each number into 4 chunks of 16 bits, and then sum the chunks.\n\n var a48 = this.high_ >>> 16;\n var a32
= this.high_ & 0xFFFF;\n var a16 = this.low_ >>> 16;\n var a00 = this.low_ & 0xFFFF;\n var b48 = other.high_
>>> 16;\n var b32 = other.high_ & 0xFFFF;\n var b16 = other.low_ >>> 16;\n var b00 = other.low_ &
0xFFFF;\n\n var c48 = 0, c32 = 0, c16 = 0, c00 = 0;\n c00 += a00 + b00;\n c16 += c00 >>> 16;\n c00 &=
0xFFFF;\n c16 += a16 + b16;\n c32 += c16 >>> 16;\n c16 &= 0xFFFF;\n c32 += a32 + b32;\n c48 += c32 >>>
16;\n c32 &= 0xFFFF;\n c48 += a48 + b48;\n c48 &= 0xFFFF;\n return Kotlin.Long.fromBits((c16
<<< 16) | c00, (c48 <<< 16) | c32);\n};\n\n\n\n/**\n * Returns the difference of this and the given Long.\n * @param
{Kotlin.Long} other Long to subtract from this.\n * @return {!Kotlin.Long} The difference of this and the given
Long.\n */\nKotlin.Long.prototype.subtract = function(other) {\n return this.add(other.negate());\n};\n\n\n\n/**\n *
Returns the product of this and the given long.\n * @param {Kotlin.Long} other Long to multiply with this.\n *
@return {!Kotlin.Long} The product of this and the other.\n */\nKotlin.Long.prototype.multiply = function(other)
{\n if (this.isZero()) {\n return Kotlin.Long.ZERO;\n } else if (other.isZero()) {\n return Kotlin.Long.ZERO;\n
}\n\n if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n return other.isOdd() ? Kotlin.Long.MIN_VALUE :
Kotlin.Long.ZERO;\n } else if (other.equalsLong(Kotlin.Long.MIN_VALUE)) {\n return this.isOdd() ?
Kotlin.Long.MIN_VALUE : Kotlin.Long.ZERO;\n }\n\n if (this.isNegative()) {\n if (other.isNegative())\n {\n return this.negate().multiply(other.negate());\n } else {\n return this.negate().multiply(other).negate();\n
}\n } else if (other.isNegative()) {\n return this.multiply(other.negate()).negate();\n }\n\n // If both longs are
small, use float multiplication\n if (this.lessThan(Kotlin.Long.TWO_PWR_24_) &&\n
other.lessThan(Kotlin.Long.TWO_PWR_24_)) {\n return Kotlin.Long.fromNumber(this.toNumber() *
other.toNumber());\n }\n\n // Divide each long into 4 chunks of 16 bits, and then add up 4x4 products.\n // We can
skip products that would overflow.\n\n var a48 = this.high_ >>> 16;\n var a32 = this.high_ & 0xFFFF;\n var a16 =
this.low_ >>> 16;\n var a00 = this.low_ & 0xFFFF;\n var b48 = other.high_ >>> 16;\n var b32 = other.high_ &
0xFFFF;\n var b16 = other.low_ >>> 16;\n var b00 = other.low_ & 0xFFFF;\n var c48 = 0, c32 = 0, c16 = 0, c00
= 0;\n c00 += a00 * b00;\n c16 += c00 >>> 16;\n c00 &= 0xFFFF;\n c16 += a16 * b00;\n c32 +=
c16 >>> 16;\n c16 &= 0xFFFF;\n c16 += a00 * b16;\n c32 += c16 >>> 16;\n c16 &= 0xFFFF;\n c32 += a32 *
b00;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n c32 += a16 * b16;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n
c32 += a00 * b32;\n c48 += c32 >>> 16;\n c32 &= 0xFFFF;\n c48 += a48 * b00 + a32 * b16 + a16 * b32 + a00 *
b48;\n c48 &= 0xFFFF;\n return Kotlin.Long.fromBits((c16 <<< 16) | c00, (c48 <<< 16) | c32);\n};\n\n\n\n\n/**\n *
Returns this Long divided by the given one.\n * @param {Kotlin.Long} other Long by which to divide.\n * @return

```

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{!Kotlin.Long} This Long divided by the given one.\n *\nKotlin.Long.prototype.div = function(other) {\n if
(other.isZero()) {\n throw Error('division by zero');\n } else if (this.isZero()) {\n return Kotlin.Long.ZERO;\n
}\n\n if (this.equalsLong(Kotlin.Long.MIN_VALUE)) {\n if (other.equalsLong(Kotlin.Long.ONE) ||\n other.equalsLong(Kotlin.Long.NEG_ONE)) {\n return Kotlin.Long.MIN_VALUE; // recall that -MIN_VALUE
== MIN_VALUE\n
} else if (other.equalsLong(Kotlin.Long.MIN_VALUE)) {\n return Kotlin.Long.ONE;\n } else {\n // At
this point, we have |other| >= 2, so |this/other| < |MIN_VALUE|.\n var halfThis = this.shiftRight(1);\n var
approx = halfThis.div(other).shiftLeft(1);\n if (approx.equalsLong(Kotlin.Long.ZERO)) {\n return
other.isNegative() ? Kotlin.Long.ONE : Kotlin.Long.NEG_ONE;\n } else {\n var rem =
this.subtract(other.multiply(approx));\n var result = approx.add(rem.div(other));\n return result;\n
}\n } else if (other.equalsLong(Kotlin.Long.MIN_VALUE)) {\n return Kotlin.Long.ZERO;\n }\n\n if
(this.isNegative()) {\n if (other.isNegative()) {\n return this.negate().div(other.negate());\n } else {\n return
this.negate().div(other.negate());\n }\n } else if (other.isNegative()) {\n return
this.div(other.negate()).negate();\n }\n\n // Repeat the following until the remainder is less than other:
find a\n // floating-point that approximates remainder / other *from below*, add this\n // into the result, and
subtract it from the remainder. It is critical that\n // the approximate value is less than or equal to the real value so
that the\n // remainder never becomes negative.\n var res = Kotlin.Long.ZERO;\n var rem = this;\n while
(rem.greaterThanOrEqual(other)) {\n // Approximate the result of division. This may be a little greater or\n //
smaller than the actual value.\n var approx = Math.max(1, Math.floor(rem.toNumber() / other.toNumber()));\n\n
// We will tweak the approximate result by changing it in the 48-th digit or\n // the smallest non-fractional digit,
whichever is larger.\n var log2 = Math.ceil(Math.log(approx) / Math.LN2);\n var delta = (log2 <= 48) ? 1 :
Math.pow(2, log2 - 48);\n // Decrease the approximation until it is smaller than the remainder. Note\n // that if
it is too large, the product overflows and is negative.\n
var approxRes = Kotlin.Long.fromNumber(approx);\n var approxRem = approxRes.multiply(other);\n while
(approxRem.isNegative() || approxRem.greaterThan(rem)) {\n approx -= delta;\n approxRes =
Kotlin.Long.fromNumber(approx);\n approxRem = approxRes.multiply(other);\n }\n\n // We know the
answer can't be zero... and actually, zero would cause\n // infinite recursion since we would make no progress.\n
if (approxRes.isZero()) {\n approxRes = Kotlin.Long.ONE;\n }\n\n res = res.add(approxRes);\n rem =
rem.subtract(approxRem);\n }\n return res;\n};\n\n\n**\n * Returns this Long modulo the given one.\n * @param
{Kotlin.Long} other Long by which to mod.\n * @return {!Kotlin.Long} This Long modulo the given one.\n
*\nKotlin.Long.prototype.modulo = function(other) {\n return
this.subtract(this.div(other).multiply(other));\n};\n\n\n** @return {!Kotlin.Long} The bitwise-NOT of this value.
*\nKotlin.Long.prototype.not = function() {\n return Kotlin.Long.fromBits(~this.low_,
~this.high_);\n};\n\n\n**\n * Returns the bitwise-AND of this Long and the given one.\n * @param {Kotlin.Long}
other The Long with which to AND.\n * @return {!Kotlin.Long} The bitwise-AND of this and the other.\n
*\nKotlin.Long.prototype.and = function(other) {\n return Kotlin.Long.fromBits(this.low_ & other.low_,\n
this.high_ & other.high_);\n};\n\n\n**\n * Returns the bitwise-OR of this Long and the given one.\n *
@param {Kotlin.Long} other The Long with which to OR.\n * @return {!Kotlin.Long} The bitwise-OR of this and
the other.\n *\nKotlin.Long.prototype.or = function(other) {\n return Kotlin.Long.fromBits(this.low_ |
other.low_,\n this.high_ | other.high_);\n};\n\n\n**\n * Returns the bitwise-XOR of this Long
and the given one.\n * @param {Kotlin.Long} other The Long with which to XOR.\n * @return {!Kotlin.Long}
The bitwise-XOR of this and the other.\n *\nKotlin.Long.prototype.xor
= function(other) {\n return Kotlin.Long.fromBits(this.low_ ^ other.low_,\n this.high_ ^
other.high_);\n};\n\n\n**\n * Returns this Long with bits shifted to the left by the given amount.\n * @param
{number} numBits The number of bits by which to shift.\n * @return {!Kotlin.Long} This shifted to the left by the
given amount.\n *\nKotlin.Long.prototype.shiftLeft = function(numBits) {\n numBits &= 63;\n if (numBits == 0)
{\n return this;\n } else {\n var low = this.low_;\n if (numBits < 32) {\n var high = this.high_;\n return
Kotlin.Long.fromBits(\n low << numBits,\n (high << numBits) | (low >>> (32 - numBits)));\n } else

```





```

"string" || typeA === "boolean") {\n    return Kotlin.primitiveCompareTo(a, b);\n } \n return
a.compareTo_11rb$(b);\n};\n\nKotlin.primitiveCompareTo = function (a, b) {\n    return a < b ? -1 : a > b ? 1 :
0;\n};\n\nKotlin.doubleCompareTo = function (a, b) {\n    if (a < b) return -1;\n    if (a
> b) return 1;\n\n    if (a === b) {\n        if (a !== 0) return 0;\n\n        var ia = 1 / a;\n        return ia === 1 / b ? 0 : (ia
< 0 ? -1 : 1);\n    }\n\n    return a !== a ? (b !== b ? 0 : 1) : -1;\n};\n\nKotlin.charInc = function (value) {\n    return
Kotlin.toChar(value+1);\n};\n\nKotlin.charDec = function (value) {\n    return Kotlin.toChar(value-
1);\n};\n\nKotlin.imul = Math.imul || imul;\n\nKotlin.imulEmulated = imul;\n\nfunction imul(a, b) {\n    return ((a &
0xffff0000) * (b & 0xffff) + (a & 0xffff) * (b | 0)) | 0;\n}\n\n(function() {\n    var buf = new ArrayBuffer(8);\n    var
bufFloat64 = new Float64Array(buf);\n    var bufFloat32 = new Float32Array(buf);\n    var bufInt32 = new
Int32Array(buf);\n    var lowIndex = 0;\n    var highIndex = 1;\n\n    bufFloat64[0] = -1; // bff00000_00000000\n    if
(bufInt32[lowIndex] !== 0) {\n        lowIndex = 1;\n        highIndex = 0;\n    }\n\n    Kotlin.doubleToBits =
function(value) {\n        return Kotlin.doubleToRawBits(isNaN(value)
? NaN : value);\n    };\n\n    Kotlin.doubleToRawBits = function(value) {\n        bufFloat64[0] = value;\n        return
Kotlin.Long.fromBits(bufInt32[lowIndex], bufInt32[highIndex]);\n    };\n\n    Kotlin.doubleFromBits =
function(value) {\n        bufInt32[lowIndex] = value.low_;\n        bufInt32[highIndex] = value.high_;\n        return
bufFloat64[0];\n    };\n\n    Kotlin.floatToBits = function(value) {\n        return Kotlin.floatToRawBits(isNaN(value)
? NaN : value);\n    };\n\n    Kotlin.floatToRawBits = function(value) {\n        bufFloat32[0] = value;\n        return
bufInt32[0];\n    };\n\n    Kotlin.floatFromBits = function(value) {\n        bufInt32[0] = value;\n        return
bufFloat32[0];\n    };\n\n    // returns zero value for number with positive sign bit and non-zero value for number
with negative sign bit.\n    Kotlin.doubleSignBit = function(value) {\n        bufFloat64[0] = value;\n        return
bufInt32[highIndex] & 0x80000000;\n    };\n\n    Kotlin.numberHashCode
= function(obj) {\n        if ((obj | 0) === obj) {\n            return obj | 0;\n        }\n        else {\n            bufFloat64[0] =
obj;\n            return (bufInt32[highIndex] * 31 | 0) + bufInt32[lowIndex] | 0;\n        }\n    };\n\n    Kotlin.ensureNotNull = function(x) {\n        return x != null ? x : Kotlin.throwNPE();\n    }; \n\n    /*\n    Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n    * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n    */\n\n    nif (typeof
String.prototype.startsWith === "undefined") {\n        Object.defineProperty(String.prototype, "startsWith", {\n
value: function (searchString, position) {\n            position = position || 0;\n            return
this.lastIndexOf(searchString, position) === position;\n        }\n    });\n\n    nif (typeof String.prototype.endsWith ===
"undefined") {\n        Object.defineProperty(String.prototype, "endsWith", {\n
value: function (searchString, position) {\n            var subjectString = this.toString();\n            if (position ===
undefined || position > subjectString.length) {\n                position = subjectString.length;\n            }\n
position -= searchString.length;\n            var lastIndex = subjectString.indexOf(searchString, position);\n
return lastIndex !== -1 && lastIndex === position;\n        }\n    });\n\n    // ES6 Math polyfills\n    nif (typeof Math.sign
=== "undefined") {\n        Math.sign = function(x) {\n            x = +x; // convert to a number\n            if (x === 0 ||
isNaN(x)) {\n                return Number(x);\n            }\n            return x > 0 ? 1 : -1;\n        };\n    }\n\n    nif (typeof Math.trunc ===
"undefined") {\n        Math.trunc = function(x) {\n            if (isNaN(x)) {\n                return NaN;\n            }\n            if (x > 0)
{\n                return Math.floor(x);\n            }\n            return Math.ceil(x);\n        };\n    }\n\n    (function() {\n        var epsilon =
2.220446049250313E-16;\n\n        var taylor_2_bound = Math.sqrt(epsilon);\n        var taylor_n_bound = Math.sqrt(taylor_2_bound);\n        var
upper_taylor_2_bound = 1/taylor_2_bound;\n        var upper_taylor_n_bound = 1/taylor_n_bound;\n\n        if (typeof
Math.sinh === "undefined") {\n            Math.sinh = function(x) {\n                if (Math.abs(x) < taylor_n_bound) {\n
var result = x;\n                if (Math.abs(x) > taylor_2_bound) {\n                    result += (x * x * x) / 6;\n                }\n
return result;\n            } else {\n                var y = Math.exp(x);\n                var y1 = 1 / y;\n                if
(!isFinite(y)) return Math.exp(x - Math.LN2);\n                if (!isFinite(y1)) return -Math.exp(-x - Math.LN2);\n                return (y - y1) / 2;\n            }\n        };\n    }\n\n    if (typeof Math.cosh === "undefined") {\n        Math.cosh =
function(x) {\n            var y = Math.exp(x);\n            var y1 = 1 / y;\n            if (!isFinite(y)

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|| lisFinite(y1)) return Math.exp(Math.abs(x) - Math.LN2);\n      return (y + y1) / 2;\n    });\n  }\n\n  if\n  (typeof Math.tanh === \"undefined\") {\n    Math.tanh = function(x){\n      if (Math.abs(x) < taylor_n_bound)\n      {\n        var result = x;\n        if (Math.abs(x) > taylor_2_bound) {\n          result -= (x * x * x) / 3;\n        }\n        return result;\n      }\n      else {\n        var a = Math.exp(+x), b = Math.exp(-x);\n        return a === Infinity ? 1 : b === Infinity ? -1 : (a - b) / (a + b);\n      }\n    };\n  }\n\n  // Inverse\n  hyperbolic function implementations derived from boost special math functions,\n  // Copyright Eric Ford &\n  Hubert Holin 2001.\n\n  if (typeof Math.asinh === \"undefined\") {\n    var asinh = function(x) {\n      if (x\n      >= +taylor_n_bound)\n      {\n        if (x > upper_taylor_n_bound)\n        {\n          // approximation by laurent series in 1/x\n          at 0+ order from -1 to 0\n          return Math.log(x) + Math.LN2;\n        }\n        else\n        {\n          // approximation by laurent series in 1/x at 0+ order from -1 to 1\n          return\n          Math.log(x * 2 + (1 / (x * 2)));\n        }\n      }\n      else\n      {\n        return\n        Math.log(x + Math.sqrt(x * x + 1));\n      }\n      else if (x <= -taylor_n_bound)\n      {\n        return\n        -asinh(-x);\n      }\n      else\n      {\n        // approximation by taylor series in x at 0 up to\n        order 2\n        var result = x;\n        if (Math.abs(x) >= taylor_2_bound)\n        {\n          var x3 =\n          x * x * x;\n          // approximation by taylor series in x at 0 up to order 4\n          result -= x3 / 6;\n        }\n        return result;\n      }\n    };\n\n    Math.asinh = asinh;\n  }\n\n  if (typeof Math.acosh === \"undefined\") {\n    Math.acosh = function(x) {\n      if (x < 1)\n      {\n        return NaN;\n      }\n      else if (x - 1\n      >= taylor_n_bound)\n      {\n        if (x > upper_taylor_2_bound)\n        {\n          //\n          approximation by laurent series in 1/x at 0+ order from -1 to 0\n          return Math.log(x) + Math.LN2;\n        }\n        else\n        {\n          return Math.log(x + Math.sqrt(x * x - 1));\n        }\n      }\n      else\n      {\n        var y = Math.sqrt(x - 1);\n        // approximation by taylor series in y at 0 up to\n        order 2\n        var result =\n        y;\n        if (y >= taylor_2_bound)\n        {\n          var y3 = y * y * y;\n          // approximation\n          by taylor series in y at 0 up to order 4\n          result -= y3 / 12;\n        }\n        return Math.sqrt(2) * result;\n      }\n    };\n\n    if (typeof Math.atanh === \"undefined\") {\n      Math.atanh = function(x) {\n        if (Math.abs(x) < taylor_n_bound) {\n          var result = x;\n          if (Math.abs(x) > taylor_2_bound) {\n            result += (x * x * x) / 3;\n          }\n          return result;\n        }\n        return Math.log((1 + x)\n        / (1 - x)) / 2;\n      };\n    }\n\n    if (typeof Math.log1p === \"undefined\") {\n      Math.log1p = function(x) {\n        if (Math.abs(x) < taylor_n_bound) {\n          var x2 = x * x;\n          var x3 = x2 * x;\n          var x4 = x3 * x;\n          // approximation by\n          taylor series in x at 0 up to order 4\n          return (-x4 / 4 + x3 / 3 - x2 / 2 + x);\n        }\n        return\n        Math.log(x + 1);\n      };\n    }\n\n    if (typeof Math.expm1 === \"undefined\") {\n      Math.expm1 = function(x)\n      {\n        if (Math.abs(x) < taylor_n_bound) {\n          var x2 = x * x;\n          var x3 = x2 * x;\n          var\n          x4 = x3 * x;\n          // approximation by taylor series in x at 0 up to order 4\n          return (x4 / 24 + x3 / 6 +\n          x2 / 2 + x);\n        }\n        return Math.exp(x) - 1;\n      };\n    }\n\n    if (typeof Math.hypot === \"undefined\") {\n      Math.hypot = function()\n      {\n        var y = 0;\n        var length = arguments.length;\n        for\n        (var i = 0; i < length; i++) {\n          if (arguments[i] === Infinity || arguments[i] === -Infinity) {\n            return\n            Infinity;\n          }\n          y += arguments[i] * arguments[i];\n        }\n        return Math.sqrt(y);\n      };\n    }\n\n    if (typeof Math.log10 === \"undefined\") {\n      Math.log10 = function(x) {\n        return Math.log(x) * Math.LOG10E;\n      };\n    }\n\n    if (typeof Math.log2 === \"undefined\") {\n      Math.log2 = function(x) {\n        return Math.log(x) * Math.LOG2E;\n      };\n    }\n\n    if (typeof Math.clz32 === \"undefined\") {\n      Math.clz32 = (function(log, LN2)\n      {\n        return function(x) {\n          var asUInt = x >>> 0;\n          if (asUInt === 0) {\n            return\n            32;\n          }\n          return 31 - (log(asUInt) / LN2 | 0) | 0; // the \"| 0\" acts like math.floor\n        };\n      })(Math.log, Math.LN2);\n    }\n\n    // For HtmlUnit and PhantomJs\n    if (typeof ArrayBuffer.isView === \"undefined\")\n    {\n      ArrayBuffer.isView = function(a) {\n        return a != null && a.__proto__ != null && a.__proto__.__proto__\n        === Int8Array.prototype.__proto__;\n      };\n    }\n\n    if (typeof Array.prototype.fill === \"undefined\") {\n      // Polyfill

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from https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Array/fill#Polyfill\n
Object.defineProperty(Array.prototype, 'fill', {\n    value: function (value) {\n        // Steps 1-2.\n        if\n        (this === null) {\n            throw new TypeError('this is null or not defined');\n        }\n        var O =\n        Object(this);\n        // Steps 3-5.\n        var len = O.length >>> 0;\n        // Steps 6-7.\n        var start =\n        arguments[1];\n        var relativeStart = start >> 0;\n        // Step 8.\n        var k = relativeStart < 0 ?\n        Math.max(len + relativeStart, 0) :\n        Math.min(relativeStart, len);\n        // Steps 9-10.\n        var end = arguments[2];\n        var relativeEnd = end === undefined ?\n        len : end >> 0;\n        // Step 11.\n        var finalValue = relativeEnd < 0 ?\n        Math.max(len + relativeEnd, 0) :\n        Math.min(relativeEnd, len);\n        // Step 12.\n        while (k < finalValue) {\n            O[k] =\n            value;\n            k++;\n        }\n        // Step 13.\n        return O;\n    };\n});\n\n(function() {\n    function normalizeOffset(offset, length) {\n        if (offset < 0) return Math.max(0, offset + length);\n        return\n        Math.min(offset, length);\n    }\n    function typedArraySlice(begin, end) {\n        if (typeof end === \"undefined\")\n        {\n            end = this.length;\n        }\n        begin = normalizeOffset(begin || 0, this.length);\n        end =\n        Math.max(begin, normalizeOffset(end, this.length));\n        return new this.constructor(this.subarray(begin, end));\n    }\n    var arrays = [Int8Array, Int16Array, Uint16Array, Int32Array, Float32Array, Float64Array];\n    for (var i =\n    0; i < arrays.length; ++i) {\n        var TypedArray = arrays[i];\n        if (typeof TypedArray.prototype.fill ===\n        \"undefined\")\n        {\n            Object.defineProperty(TypedArray.prototype, 'fill', {\n                value: Array.prototype.fill\n            });\n        }\n        if (typeof TypedArray.prototype.slice === \"undefined\") {\n            Object.defineProperty(TypedArray.prototype, 'slice', {\n                value: typedArraySlice\n            });\n        }\n    }\n    // Patch apply to work with TypedArrays if needed.\n    try {\n        (function() {}).apply(null, new\n        Int32Array(0))\n    } catch (e) {\n        var apply = Function.prototype.apply;\n        Object.defineProperty(Function.prototype, 'apply', {\n            value: function(self, array) {\n                return\n                apply.call(this, self, [].slice.call(array));\n            }\n        });\n    }\n    // Patch map to work with TypedArrays if\n    needed.\n    for (var i = 0; i < arrays.length; ++i) {\n        var TypedArray = arrays[i];\n        if (typeof\n        TypedArray.prototype.map === \"undefined\") {\n            Object.defineProperty(TypedArray.prototype,\n            'map', {\n                value: function(callback, self) {\n                    return\n                    [].slice.call(this).map(callback, self);\n                }\n            });\n        }\n    }\n    // Patch sort to work with TypedArrays if needed.\n    // TODO: consider to\n    remove following function and replace it with `Kotlin.doubleCompareTo` (see misc.js)\n    var\n    totalOrderComparator = function (a, b) {\n        if (a < b) return -1;\n        if (a > b) return 1;\n        if (a === b) {\n            if (a !== 0) return 0;\n            var ia = 1 / a;\n            return ia === 1 / b ? 0 : (ia < 0 ? -1 : 1);\n        }\n        return a !== a ? (b !== b ? 0 : 1) : -1\n    };\n    for (var i = 0; i < arrays.length; ++i) {\n        var TypedArray =\n        arrays[i];\n        if (typeof TypedArray.prototype.sort === \"undefined\") {\n            Object.defineProperty(TypedArray.prototype, 'sort', {\n                value: function(compareFunction) {\n                    return\n                    Array.prototype.sort.call(this, compareFunction || totalOrderComparator);\n                }\n            });\n        }\n    }\n});\n\n\"/>\n\n/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use\n of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\nKotlin.Kind = {\n    CLASS: \"class\",\n    INTERFACE: \"interface\",\n    OBJECT:\n    \"object\"\n};\n\nKotlin.callGetter = function (thisObject, klass, propertyName) {\n    var propertyDescriptor =\n    Object.getOwnPropertyDescriptor(klass, propertyName);\n    if (propertyDescriptor != null &&\n    propertyDescriptor.get != null) {\n        return propertyDescriptor.get.call(thisObject);\n    }\n    propertyDescriptor =\n    Object.getOwnPropertyDescriptor(thisObject, propertyName);\n    if (propertyDescriptor != null && \"value\" in\n    propertyDescriptor) {\n        return thisObject[propertyName];\n    }\n    return Kotlin.callGetter(thisObject,\n    Object.getPrototypeOf(klass), propertyName);\n};\n\nKotlin.callSetter = function (thisObject, klass, propertyName,\n    value) {\n    var propertyDescriptor =\n    Object.getOwnPropertyDescriptor(klass, propertyName);\n    if\n    (propertyDescriptor != null && propertyDescriptor.set != null) {\n        propertyDescriptor.set.call(thisObject,\n        value);\n        return;\n    }\n    propertyDescriptor =\n    Object.getOwnPropertyDescriptor(thisObject,\n    propertyName);\n    if (propertyDescriptor != null && \"value\" in propertyDescriptor) {\n        thisObject[propertyName] = value;\n    }\n};

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thisObject[propertyName] = value;\n    return\n }\n\n Kotlin.callSetter(thisObject,
Object.getPrototypeOf(klass), propertyName, value);\n};\n\nfunction isInheritanceFromInterface(ctor, iface) {\n if
(ctor === iface) return true;\n\n    var metadata = ctor.$metadata$;\n    if (metadata != null) {\n        var interfaces =
metadata.interfaces;\n        for (var i = 0; i < interfaces.length; i++) {\n            if
(isInheritanceFromInterface(interfaces[i],
iface)) {\n                return true;\n            }\n        }\n\n        var superPrototype = ctor.prototype != null ?
Object.getPrototypeOf(ctor.prototype) : null;\n        var superConstructor = superPrototype != null ?
superPrototype.constructor : null;\n        return superConstructor != null &&
isInheritanceFromInterface(superConstructor, iface);\n}\n\n/**\n * \n * @param {*} object\n * @param
{Function|Object} klass\n * @returns {Boolean}\n */\nKotlin.isType = function (object, klass) {\n if (klass ===
Object) {\n    switch (typeof object) {\n        case "string":\n            case "number":\n            case
"boolean":\n            case "function":\n                return true;\n            default:\n                return object instanceof
Object;\n    }\n }\n\n if (object == null || klass == null || (typeof object !== 'object' && typeof object !==
'function')) {\n    return false;\n }\n\n if (typeof klass === "function" && object instanceof
klass) {\n    return true;\n }\n\n    var proto = Object.getPrototypeOf(klass);\n    var constructor = proto != null ?
proto.constructor : null;\n    if (constructor != null && "$metadata$" in constructor) {\n        var metadata =
constructor.$metadata$;\n        if (metadata.kind === Kotlin.Kind.OBJECT) {\n            return object === klass;\n        }\n    }\n\n    var klassMetadata = klass.$metadata$;\n    // In WebKit (JavaScriptCore) for some interfaces from
DOM typeof returns "object", nevertheless they can be used in RHS of instanceof\n    if (klassMetadata == null) {\n        return object instanceof klass;\n    }\n\n    if (klassMetadata.kind === Kotlin.Kind.INTERFACE &&
object.constructor != null) {\n        return isInheritanceFromInterface(object.constructor, klass);\n    }\n\n    return
false;\n};\n\nKotlin.isNumber = function (a) {\n    return typeof a == "number" || a instanceof
Kotlin.Long;\n};\n\nKotlin.isChar = function (value) {\n    return
value instanceof Kotlin.BoxedChar;\n};\n\nKotlin.isComparable = function (value) {\n    var type = typeof
value;\n    return type === "string" ||\n        type === "boolean" ||\n        Kotlin.isNumber(value) ||\n        Kotlin.isType(value, Kotlin.kotlin.Comparable);\n};\n\nKotlin.isCharSequence = function (value) {\n    return
typeof value === "string" || Kotlin.isType(value, Kotlin.kotlin.CharSequence);\n};\n\n/*\n * Copyright 2010-2020
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// a package is omitted to get
declarations directly under the module\n\n@PublishedApi\ninternal fun <T> Array(size: Int):
Array<T>\n\n@JsName("newArray")\nfun <T> newArray(size: Int, initValue: T) = fillArrayVal(Array<T>(size),
initValue)\n\n@JsName("newArrayF")\ninline fun <T> arrayWithFun(size: Int, init: (Int) -> T) =
fillArrayFun(Array<T>(size),
init)\n\n@JsName("fillArray")\ninline fun <T> fillArrayFun(array: Array<T>, init: (Int) -> T): Array<T> {\n for
(i in 0..array.size - 1) {\n    array[i] = init(i)\n }\n    return array\n}\n\n@JsName("booleanArray")\nfun
booleanArray(size: Int, init: dynamic): Array<Boolean> {\n    val result: dynamic = Array<Boolean>(size)\n    result.`$type$` = "BooleanArray"\n    return when (init) {\n        null, true -> fillArrayVal(result, false)\n        false -
> result\n        else -> fillArrayFun<Boolean>(result, init)\n    }\n}\n\n@JsName("booleanArrayF")\ninline fun
booleanArrayWithFun(size: Int, init: (Int) -> Boolean): Array<Boolean> = fillArrayFun(booleanArray(size, false),
init)\n\n@JsName("charArray")\n@Suppress("UNUSED_PARAMETER")\nfun charArray(size: Int, init:
dynamic): Array<Char> {\n    val result = js("new Uint16Array(size)")\n    result.`$type$` = "CharArray"\n    return when (init) {\n        null, true, false -> result // For consistency\n        else -> fillArrayFun<Char>(result, init)\n    }\n}\n\n@JsName("charArrayF")\ninline fun
charArrayWithFun(size: Int, init: (Int) -> Char): Array<Char> {\n    val array = charArray(size, null)\n    for (i in
0..array.size - 1) {\n        @Suppress("UNUSED_VARIABLE") // used in js block\n        val value = init(i)\n        js("array[i] = value;")\n    }\n    return array\n}\n\n@JsName("untypedCharArrayF")\ninline fun
untypedCharArrayWithFun(size: Int, init: (Int) -> Char): Array<Char> {\n    val array = Array<Char>(size)\n    for
(i in 0..array.size - 1) {\n        @Suppress("UNUSED_VARIABLE") // used in js block\n        val value = init(i)\n

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js("array[i] = value;")\n } \n return array\n}\n\n@jsName("longArray")\nfun longArray(size: Int, init:
dynamic): Array<Long> {\n val result: dynamic = Array<Long>(size)\n result.`$type$` = "LongArray"\n
return when (init) {\n null, true -> fillArrayVal(result, 0L)\n false -> result\n
else -> fillArrayFun<Long>(result, init)\n }\n}\n\n@jsName("longArrayF")\ninline fun
longArrayWithFun(size: Int, init: (Int) -> Long): Array<Long> = fillArrayFun(longArray(size, false),
init)\n\nprivate fun <T> fillArrayVal(array: Array<T>, initialValue: T): Array<T> {\n for (i in 0..array.size - 1) {\n
array[i] = initialValue\n }\n return array\n}", /*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\npublic class Enum<T : Enum<T>> :
Comparable<Enum<T>> {\n @JsName("name$") private var _name: String = ""\n @JsName("ordinal$")
private var _ordinal: Int = 0\n val name: String\n get() = _name\n val ordinal: Int\n get() =
_ordinal\n\n override fun compareTo(other: Enum<T>) = ordinal.compareTo(other.ordinal)\n\n override fun
equals(other: Any?) = this ===
other\n\n override fun hashCode(): Int = js("Kotlin.identityHashCode")(this)\n\n override fun toString() =
name\n\n companion object\n}", /*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.js.internal\n\n@jsName("DoubleCompanionObject")\n\ninternal
object DoubleCompanionObject {\n @JsName("MIN_VALUE")\n const val MIN_VALUE: Double = 4.9E-
324\n\n @JsName("MAX_VALUE")\n const val MAX_VALUE: Double = 1.7976931348623157E308\n\n
@jsName("POSITIVE_INFINITY")\n @Suppress("DIVISION_BY_ZERO")\n const val
POSITIVE_INFINITY: Double = 1.0 / 0.0\n\n @JsName("NEGATIVE_INFINITY")\n
@Suppress("DIVISION_BY_ZERO")\n const val NEGATIVE_INFINITY: Double = -1.0 / 0.0\n\n
@jsName("NaN")\n @Suppress("DIVISION_BY_ZERO")\n const val NaN: Double = -(0.0 / 0.0)\n\n
@jsName("SIZE_BYTES")\n
const val SIZE_BYTES = 8\n\n @JsName("SIZE_BITS")\n const val SIZE_BITS =
64\n}\n\n@jsName("FloatCompanionObject")\n\ninternal object FloatCompanionObject {\n
@jsName("MIN_VALUE")\n const val MIN_VALUE: Float = 1.4E-45F\n\n @JsName("MAX_VALUE")\n
const val MAX_VALUE: Float = 3.4028235E38F\n\n @JsName("POSITIVE_INFINITY")\n
@Suppress("DIVISION_BY_ZERO")\n const val POSITIVE_INFINITY: Float = 1.0F / 0.0F\n\n
@jsName("NEGATIVE_INFINITY")\n @Suppress("DIVISION_BY_ZERO")\n const val
NEGATIVE_INFINITY: Float = -1.0F / 0.0F\n\n @JsName("NaN")\n
@Suppress("DIVISION_BY_ZERO")\n const val NaN: Float = -(0.0F / 0.0F)\n\n
@jsName("SIZE_BYTES")\n const val SIZE_BYTES = 4\n\n @JsName("SIZE_BITS")\n const val
SIZE_BITS = 32\n}\n\n@jsName("IntCompanionObject")\n\ninternal object IntCompanionObject {\n
@jsName("MIN_VALUE")\n val MIN_VALUE: Int = -2147483647 - 1\n\n @JsName("MAX_VALUE")\n
val MAX_VALUE: Int = 2147483647\n\n @JsName("SIZE_BYTES")\n const val SIZE_BYTES = 4\n\n
@jsName("SIZE_BITS")\n const val SIZE_BITS = 32\n}\n\n@jsName("LongCompanionObject")\n\ninternal
object LongCompanionObject {\n @JsName("MIN_VALUE")\n val MIN_VALUE: Long =
js("Kotlin.Long.MIN_VALUE")\n\n @JsName("MAX_VALUE")\n val MAX_VALUE: Long =
js("Kotlin.Long.MAX_VALUE")\n\n @JsName("SIZE_BYTES")\n const val SIZE_BYTES = 8\n\n
@jsName("SIZE_BITS")\n const val SIZE_BITS = 64\n}\n\n@jsName("ShortCompanionObject")\n\ninternal
object ShortCompanionObject {\n @JsName("MIN_VALUE")\n val MIN_VALUE: Short = -32768\n\n
@jsName("MAX_VALUE")\n val MAX_VALUE: Short = 32767\n\n @JsName("SIZE_BYTES")\n const
val SIZE_BYTES = 2\n\n @JsName("SIZE_BITS")\n const val SIZE_BITS =
16\n}\n\n@jsName("ByteCompanionObject")\n\ninternal object ByteCompanionObject {\n
@jsName("MIN_VALUE")\n val MIN_VALUE: Byte = -128\n\n
@jsName("MAX_VALUE")\n val MAX_VALUE: Byte = 127\n\n @JsName("SIZE_BYTES")\n const
val SIZE_BYTES = 1\n\n @JsName("SIZE_BITS")\n const val SIZE_BITS =

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8\n}\n\n@JsName("CharCompanionObject")\ninternal object CharCompanionObject {\n
@JsName("MIN_VALUE")\n public const val MIN_VALUE: Char = "\u0000"\n\n
@JsName("MAX_VALUE")\n public const val MAX_VALUE: Char = "\uFFFF"\n\n
@JsName("MIN_HIGH_SURROGATE")\n public const val MIN_HIGH_SURROGATE: Char = "\uD800"\n\n
@JsName("MAX_HIGH_SURROGATE")\n public const val MAX_HIGH_SURROGATE: Char =
"\uDBFF"\n\n @JsName("MIN_LOW_SURROGATE")\n public const val MIN_LOW_SURROGATE: Char =
"\uDC00"\n\n @JsName("MAX_LOW_SURROGATE")\n public const val MAX_LOW_SURROGATE: Char
= "\uDFFF"\n\n @JsName("MIN_SURROGATE")\n public const val MIN_SURROGATE: Char =
MIN_HIGH_SURROGATE\n\n @JsName("MAX_SURROGATE")\n public const val MAX_SURROGATE:
Char = MAX_LOW_SURROGATE\n\n
@JsName("SIZE_BYTES")\n const val SIZE_BYTES = 2\n\n @JsName("SIZE_BITS")\n const val
SIZE_BITS = 16\n}\n\ninternal object StringCompanionObject {\n\ninternal object BooleanCompanionObject
{\n}\n\n"/\n\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n\n@file:kotlin.jvm.JvmName("ArraysKt")\n\npackage
kotlin.collections\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\nimport kotlin.random.*\nimport
kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the
size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior
is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic
inline operator fun <T> Array<out T>.component1(): T {\n return get(0)\n}\n\n/**\n * Returns 1st *element*
from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in
Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun
ByteArray.component1(): Byte {\n return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the
size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior
is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component1(): Short {\n
return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1,
throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component1():
Int {\n return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less
than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component1(): Long {\n
return
get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an
[IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component1(): Float {\n
return
get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is less than 1, throws an
[IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component1(): Double {\n
return
get(0)\n}\n\n/**\n * Returns 1st *element*
from the array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in
Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun
BooleanArray.component1(): Boolean {\n return get(0)\n}\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the
size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior
is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun CharArray.component1():
Char {\n return get(0)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less
than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n */\n\n@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out T>.component2(): T {\n
return
get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this

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array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

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*^@kotlin.internal.InlineOnly\npublic inline operator fun ByteArray.component2(): Byte {\n
return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2,
throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component2(): Short {\n
return
get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an
[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component2(): Int {\n
return
get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an
[IndexOutOfBoundsException] except
in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun
LongArray.component2(): Long {\n
return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If
the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the
behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component2():
Float {\n
return get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less
than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component2(): Double {\n
return
get(1)\n}\n\n/**\n * Returns 2nd *element* from the array.\n * \n * If the size of this array is less than 2, throws an
[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic
inline operator fun BooleanArray.component2(): Boolean {\n
return get(1)\n}\n\n/**\n * Returns 2nd *element*
from the array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in
Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun
CharArray.component2(): Char {\n
return get(1)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If
the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the
behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun <T> Array<out
T>.component3(): T {\n
return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of
this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is
unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator
fun ByteArray.component3(): Byte {\n
return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If
the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the
behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun ShortArray.component3():
Short {\n
return get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less
than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun IntArray.component3(): Int {\n
return
get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an
[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun LongArray.component3(): Long {\n
return
get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an
[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun FloatArray.component3(): Float {\n
return
get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an
[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun DoubleArray.component3(): Double {\n
return
get(2)\n}\n\n/**\n * Returns 3rd *element* from the array.\n * \n * If the size of this array is less than 3, throws an
[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.\n
*^@kotlin.internal.InlineOnly\npublic inline operator fun BooleanArray.component3(): Boolean {\n
return

```





`get(4)` Returns 5th *element* from the array.  
 \* If the size of this array is less than 5, throws an `[IndexOutOfBoundsException]` except in Kotlin/JS where the behavior is unspecified.  
`@kotlin.internal.InlineOnly` public inline operator fun  
`DoubleArray.component5(): Double` {  
   return `get(4)`  
} Returns 5th *element* from the array.  
 If the size of this array is less than 5, throws an `[IndexOutOfBoundsException]` except in Kotlin/JS where the behavior is unspecified.  
`@kotlin.internal.InlineOnly` public inline operator fun  
`BooleanArray.component5(): Boolean` {  
   return `get(4)`  
} Returns 5th *element* from the array.  
 If the size of this array is less than 5, throws an `[IndexOutOfBoundsException]` except in Kotlin/JS where the behavior is unspecified.  
`@kotlin.internal.InlineOnly` public inline operator fun  
`CharArray.component5(): Char` {  
   return `get(4)`  
} Returns `'true'` if `[element]` is found in the array.  
`@kotlin.internal.OnlyInputTypes`  
`T> Array<out T>.contains(element: T): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns `'true'` if `[element]` is found in the array.  
`ByteArray.contains(element: Byte): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns `'true'` if `[element]` is found in the array.  
`ShortArray.contains(element: Short): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns `'true'` if `[element]` is found in the array.  
`IntArray.contains(element: Int): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns `'true'` if `[element]` is found in the array.  
`LongArray.contains(element: Long): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns `'true'` if `[element]` is found in the array.  
`@Deprecated("The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'any { it == element }' instead to continue using this behavior, or 'asList().contains(element: T)' to get the same search behavior as in a list.", ReplaceWith("any { it == element }"))` public operator fun  
`FloatArray.contains(element: Float): Boolean` {  
   return `any { it == element }`  
} Returns `'true'` if `[element]` is found in the array.  
`@Deprecated("The function has unclear behavior when searching for NaN or zero values and will be removed soon. Use 'any { it == element }' instead to continue using this behavior, or 'asList().contains(element: T)' to get the same search behavior as in a list.", ReplaceWith("any { it == element }"))` public operator fun  
`DoubleArray.contains(element: Double): Boolean` {  
   return `any { it == element }`  
} Returns `'true'` if `[element]` is found in the array.  
`BooleanArray.contains(element: Boolean): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns `'true'` if `[element]` is found in the array.  
`CharArray.contains(element: Char): Boolean` {  
   return `indexOf(element) >= 0`  
} Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]` is out of bounds of this array.  
`@sample`  
`samples.collections.Collections.Elements.elementAt` public expect fun  
`<T> Array<out T>.elementAt(index: Int): T` Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]` is out of bounds of this array.  
`@sample`  
`samples.collections.Collections.Elements.elementAt` public expect fun  
`ByteArray.elementAt(index: Int): Byte` Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]` is out of bounds of this array.  
`@sample`  
`samples.collections.Collections.Elements.elementAt` public expect fun  
`ShortArray.elementAt(index: Int): Short` Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]` is out of bounds of this array.  
`@sample`  
`samples.collections.Collections.Elements.elementAt` public expect fun  
`IntArray.elementAt(index: Int): Int` Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]` is out of bounds of this array.  
`@sample`  
`samples.collections.Collections.Elements.elementAt` public expect fun  
`LongArray.elementAt(index: Int): Long` Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]` is out of bounds of this array.  
`@sample`  
`samples.collections.Collections.Elements.elementAt` public expect fun  
`FloatArray.elementAt(index: Int): Float` Returns an element at the given `[index]` or throws an `[IndexOutOfBoundsException]` if the `[index]`

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is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n * \npublic
expect fun DoubleArray.elementAt(index: Int): Double\n\n/**\n * Returns an element at the given [index] or throws
an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAt\n * \npublic expect fun BooleanArray.elementAt(index: Int):
Boolean\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the
[index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n
* \npublic expect fun CharArray.elementAt(index: Int): Char\n\n/**\n * Returns an element at the given [index] or
the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
<T> Array<out
T>.elementAtOrElse(index: Int, defaultValue: (Int) -> T): T {\n    return if (index >= 0 && index <= lastIndex)
get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the
[defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
ByteArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Byte): Byte {\n    return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of
calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
ShortArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Short): Short {\n    return if (index >= 0 && index <=
lastIndex)
get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the
[defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
IntArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Int): Int {\n    return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of
calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Long): Long {\n    return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of
calling
the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
FloatArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Float): Float {\n    return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of
calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
DoubleArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Double): Double {\n    return if (index >= 0 &&
index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the
result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n
* \n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.elementAtOrElse(index: Int, defaultValue: (Int) ->
Boolean): Boolean {\n    return if (index >= 0 && index <= lastIndex) get(index) else
defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue]
function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n@kotlin.internal.InlineOnly\npublic inline fun
CharArray.elementAtOrElse(index: Int, defaultValue: (Int) -> Char): Char {\n    return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the
[index] is out of bounds of this array.\n * \n * @sample

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samples.collections.Collections.Elements.elementAtOrNull\n *^n@kotlin.internal.InlineOnly\npublic inline fun
<T> Array<out T>.elementAtOrNull(index: Int): T? {\n
    return this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of
bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n
*^n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.elementAtOrNull(index: Int): Byte? {\n    return
this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds
of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n
*^n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.elementAtOrNull(index: Int): Short? {\n    return
this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds
of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n
*^n@kotlin.internal.InlineOnly\npublic inline fun IntArray.elementAtOrNull(index: Int): Int? {\n    return
this.getOrNull(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n *^n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.elementAtOrNull(index: Int): Long? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an element
at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n *^n@kotlin.internal.InlineOnly\npublic inline fun
FloatArray.elementAtOrNull(index: Int): Float? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an element
at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n *^n@kotlin.internal.InlineOnly\npublic inline fun
DoubleArray.elementAtOrNull(index: Int): Double? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an
element at the given
[index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n *^n@kotlin.internal.InlineOnly\npublic inline fun
BooleanArray.elementAtOrNull(index: Int): Boolean? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an
element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n *^n@kotlin.internal.InlineOnly\npublic inline fun
CharArray.elementAtOrNull(index: Int): Char? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns the first
element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n *^n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out
T>.find(predicate: (T) -> Boolean): T? {\n    return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element
matching the given [predicate], or `null` if
no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*^n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.find(predicate: (Byte) -> Boolean): Byte? {\n    return
firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such
element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*^n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.find(predicate: (Short) -> Boolean): Short? {\n
return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no
such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*^n@kotlin.internal.InlineOnly\npublic inline fun IntArray.find(predicate: (Int) -> Boolean): Int? {\n    return
firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such
element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*^n@kotlin.internal.InlineOnly\npublic inline fun LongArray.find(predicate: (Long) -> Boolean): Long? {\n
return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no
such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*^n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.find(predicate: (Float) -> Boolean): Float? {\n
return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no
such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n

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*@\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.find(predicate: (Double) -> Boolean): Double? {\n
return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no
such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.find(predicate: (Boolean) -> Boolean): Boolean?
{\n
return firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if
no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.find(predicate: (Char) -> Boolean): Char? {\n
return
firstOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such
element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.findLast(predicate: (T) -> Boolean): T? {\n
return
lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no
such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic
inline fun ByteArray.findLast(predicate: (Byte) -> Boolean): Byte? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun
ShortArray.findLast(predicate: (Short) -> Boolean): Short? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns
the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun
IntArray.findLast(predicate: (Int) -> Boolean): Int? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns the last
element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.findLast(predicate:
(Long) -> Boolean): Long? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the
given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun
FloatArray.findLast(predicate: (Float) -> Boolean): Float? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns
the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun
DoubleArray.findLast(predicate: (Double) -> Boolean): Double? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun
BooleanArray.findLast(predicate: (Boolean) -> Boolean): Boolean?
{\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if
no such element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n
*@\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.findLast(predicate: (Char) -> Boolean): Char? {\n
return lastOrNull(predicate)\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if
the array is empty.\n * \n\npublic fun <T> Array<out T>.first(): T {\n
if (isEmpty())\n
throw
NoSuchElementException("Array is empty.")\n
return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * \n * @throws NoSuchElementException if the array is empty.\n * \n\npublic fun ByteArray.first(): Byte {\n
if
(isEmpty())\n
throw NoSuchElementException("Array is empty.")\n
return this[0]\n}\n\n/**\n * Returns the
first element.\n * \n * \n * @throws NoSuchElementException if the array is empty.\n * \n\npublic fun ShortArray.first():
Short
{\n
if (isEmpty())\n
throw NoSuchElementException("Array is empty.")\n
return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * \n * @throws NoSuchElementException if the array is empty.\n * \n\npublic fun
IntArray.first(): Int {\n
if (isEmpty())\n
throw NoSuchElementException("Array is empty.")\n
return
this[0]\n}\n\n/**\n * Returns the first element.\n * \n * \n * @throws NoSuchElementException if the array is empty.\n * \n\npublic fun LongArray.first(): Long {\n
if (isEmpty())\n
throw NoSuchElementException("Array is

```

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empty.}\n    return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if
the array is empty.\n */\npublic fun FloatArray.first(): Float {\n    if (isEmpty())\n        throw
NoSuchElementException("Array is empty.}\n    return this[0]\n}\n\n/**\n * Returns the first element.\n * \n *
@throws NoSuchElementException if the array is empty.\n */\npublic fun DoubleArray.first(): Double {\n    if
(isEmpty())\n        throw NoSuchElementException("Array is empty.}\n    return this[0]\n}\n\n/**\n * Returns the
first element.\n * \n * @throws NoSuchElementException if the array is empty.\n */\npublic fun
BooleanArray.first(): Boolean {\n    if (isEmpty())\n        throw NoSuchElementException("Array is empty.}\n
return this[0]\n}\n\n/**\n * Returns the first element.\n * \n * @throws NoSuchElementException if the array is
empty.\n */\npublic fun CharArray.first(): Char {\n    if (isEmpty())\n        throw NoSuchElementException("Array
is empty.}\n    return this[0]\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws
[NoSuchElementException] if no such element is found.\n */\npublic inline fun <T> Array<out T>.first(predicate:
(T) -> Boolean): T {\n    for (element in this) if (predicate(element)) return element\n    throw
NoSuchElementException("Array contains no element matching the predicate.}\n}\n\n/**\n * Returns the first
element
matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic
inline fun ByteArray.first(predicate: (Byte) -> Boolean): Byte {\n    for (element in this) if (predicate(element))
return element\n    throw NoSuchElementException("Array contains no element matching the
predicate.}\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws
[NoSuchElementException] if no such element is found.\n */\npublic inline fun ShortArray.first(predicate: (Short) -
> Boolean): Short {\n    for (element in this) if (predicate(element)) return element\n    throw
NoSuchElementException("Array contains no element matching the predicate.}\n}\n\n/**\n * Returns the first
element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n
*/\npublic inline fun IntArray.first(predicate: (Int) -> Boolean): Int {\n    for (element in this) if (predicate(element))
return element\n    throw NoSuchElementException("Array
contains no element matching the predicate.}\n}\n\n/**\n * Returns the first element matching the given
[predicate].\n * @throws [NoSuchElementException] if no such element is found.\n */\npublic inline fun
LongArray.first(predicate: (Long) -> Boolean): Long {\n    for (element in this) if (predicate(element)) return
element\n    throw NoSuchElementException("Array contains no element matching the predicate.}\n}\n\n/**\n *
Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such
element is found.\n */\npublic inline fun FloatArray.first(predicate: (Float) -> Boolean): Float {\n    for (element in
this) if (predicate(element)) return element\n    throw NoSuchElementException("Array contains no element
matching the predicate.}\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws
[NoSuchElementException] if no such element is found.\n */\npublic inline fun DoubleArray.first(predicate:
(Double) -> Boolean): Double {\n    for (element in this) if (predicate(element)) return element\n    throw
NoSuchElementException("Array contains no element matching the predicate.}\n}\n\n/**\n * Returns the first
element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n
*/\npublic inline fun BooleanArray.first(predicate: (Boolean) -> Boolean): Boolean {\n    for (element in this) if
(predicate(element)) return element\n    throw NoSuchElementException("Array contains no element matching the
predicate.}\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws
[NoSuchElementException] if no such element is found.\n */\npublic inline fun CharArray.first(predicate: (Char) ->
Boolean): Char {\n    for (element in this) if (predicate(element)) return element\n    throw
NoSuchElementException("Array contains no element matching the predicate.}\n}\n\n/**\n * Returns the first
non-null value produced
by [transform] function being applied to elements of this array in iteration order,\n * or throws
[NoSuchElementException] if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any> Array<out
T>.firstNotNullOf(transform: (T) -> R?): R {\n    return firstNotNullOfOrNull(transform) ?: throw

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NoSuchElementException("No element of the array was transformed to a non-null value.")\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to elements of this array in iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample\n samples.collections.Collections.Transformations.firstNotNullOf\n *\n @SinceKotlin("1.5")\n @kotlin.internal.InlineOnly\n public inline fun <T, R : Any> Array<out T>.firstNotNullOfOrNull(transform: (T) -> R?): R? {\n     for (element in this) {\n         val result =\n transform(element)\n         if (result != null) {\n             return result\n         }\n     }\n     return null\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun <T> Array<out T>.firstOrNull(): T? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun\n ByteArray.firstOrNull(): Byte? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun ShortArray.firstOrNull(): Short? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun IntArray.firstOrNull(): Int? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun LongArray.firstOrNull(): Long? {\n     return if (isEmpty()) null else this[0]\n }\n\n Returns the first element, or `null` if the array is empty.\n *\n public fun FloatArray.firstOrNull(): Float? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun\n DoubleArray.firstOrNull(): Double? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun BooleanArray.firstOrNull(): Boolean? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element, or `null` if the array is empty.\n *\n public fun CharArray.firstOrNull(): Char? {\n     return if (isEmpty()) null else this[0]\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun <T> Array<out T>.firstOrNull(predicate: (T) -> Boolean): T? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun\n ByteArray.firstOrNull(predicate: (Byte) -> Boolean): Byte? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun\n ShortArray.firstOrNull(predicate: (Short) -> Boolean): Short? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun IntArray.firstOrNull(predicate: (Int) -> Boolean): Int? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun\n LongArray.firstOrNull(predicate: (Long) -> Boolean): Long? {\n     for (element in this) if (predicate(element)) return\n element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun FloatArray.firstOrNull(predicate: (Float) -> Boolean): Float? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun\n DoubleArray.firstOrNull(predicate: (Double) -> Boolean): Double? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun BooleanArray.firstOrNull(predicate: (Boolean) -> Boolean): Boolean? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n\n /**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n public inline fun\n CharArray.firstOrNull(predicate: (Char) -> Boolean): Char? {\n     for (element in this) if (predicate(element)) return element\n     return null\n }\n }\n\n /**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n *\n @kotlin.internal.InlineOnly\n public inline

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fun <T> Array<out T>.getOrElse(index: Int, defaultValue: (Int) -> T): T {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun ByteArray.getOrElse(index: Int, defaultValue: (Int) -> Byte): Byte {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun ShortArray.getOrElse(index: Int, defaultValue: (Int) -> Short): Short {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun IntArray.getOrElse(index: Int, defaultValue: (Int) -> Int): Int {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun LongArray.getOrElse(index: Int, defaultValue: (Int) -> Long): Long {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun FloatArray.getOrElse(index: Int, defaultValue: (Int) -> Float): Float {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun DoubleArray.getOrElse(index: Int, defaultValue: (Int) -> Double): Double {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun BooleanArray.getOrElse(index: Int, defaultValue: (Int) -> Boolean): Boolean {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.

@kotlin.internal.InlineOnly
public inline fun CharArray.getOrElse(index: Int, defaultValue: (Int) -> Char): Char {
    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun <T> Array<out T>.getOrElseOrNull(index: Int): T? {
    return if (index >= 0 && index <= lastIndex) get(index) else null
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun ByteArray.getOrElseOrNull(index: Int): Byte? {
    return if (index >= 0 && index <= lastIndex) get(index) else null
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun ShortArray.getOrElseOrNull(index: Int): Short? {
    return if (index >= 0 && index <= lastIndex) get(index) else null
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun IntArray.getOrElseOrNull(index: Int): Int? {
    return if (index >= 0 && index <= lastIndex) get(index) else null
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun LongArray.getOrElseOrNull(index: Int): Long? {
    return if (index >= 0 && index <= lastIndex) get(index) else null
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun FloatArray.getOrElseOrNull(index: Int): Float? {
    return if (index >= 0 && index <= lastIndex) get(index) else null
}

Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.

@sample
samples.collections.Collections.Elements.getOrElseOrNull

public fun DoubleArray.getOrElseOrNull(index: Int): Double?

```

```

{\n  return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the
given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.getOrNull\n */\npublic fun BooleanArray.getOrNull(index: Int): Boolean?
{\n  return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the
given [index] or `null` if the [index] is out of bounds
of this array.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n */\npublic fun
CharArray.getOrNull(index: Int): Char? {\n  return if (index >= 0 && index <= lastIndex) get(index) else
null\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun
<@kotlin.internal.OnlyInputTypes T> Array<out T>.indexOf(element: T): Int {\n  if (element == null) {\n    for
(index in indices) {\n      if (this[index] == null) {\n        return index\n      }\n    } else {\n
for (index in indices) {\n      if (element == this[index]) {\n        return index\n      }\n    }\n  }\n
return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun
ByteArray.indexOf(element: Byte): Int {\n  for (index in indices) {\n    if (element == this[index]) {\n
return index\n    }\n  }\n  return
-1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun
ShortArray.indexOf(element: Short): Int {\n  for (index in indices) {\n    if (element == this[index]) {\n
return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not
contain element.\n */\npublic fun IntArray.indexOf(element: Int): Int {\n  for (index in indices) {\n    if (element
== this[index]) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns first index of [element], or -
1 if the array does not contain element.\n */\npublic fun LongArray.indexOf(element: Long): Int {\n  for (index in
indices) {\n    if (element == this[index]) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns
first index of [element], or -1 if the array does not contain element.\n */\n@Deprecated("The function has unclear
behavior when searching
for NaN or zero values and will be removed soon. Use 'indexOfFirst { it == element }' instead to continue using this
behavior, or '.asList().indexOf(element: T)' to get the same search behavior as in a list.\n",
ReplaceWith("indexOfFirst { it == element }"))\n@DeprecatedSinceKotlin(warningSince = "1.4", errorSince =
"1.6", hiddenSince = "1.7")\npublic fun FloatArray.indexOf(element: Float): Int {\n  for (index in indices) {\n
if (element == this[index]) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns first index of
[element], or -1 if the array does not contain element.\n */\n@Deprecated("The function has unclear behavior when
searching for NaN or zero values and will be removed soon. Use 'indexOfFirst { it == element }' instead to continue
using this behavior, or '.asList().indexOf(element: T)' to get the same search behavior as in a list.\n",
ReplaceWith("indexOfFirst { it == element }"))\n@DeprecatedSinceKotlin(warningSince = "1.4",
errorSince = "1.6", hiddenSince = "1.7")\npublic fun DoubleArray.indexOf(element: Double): Int {\n  for
(index in indices) {\n    if (element == this[index]) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n
* Returns first index of [element], or -1 if the array does not contain element.\n */\npublic fun
BooleanArray.indexOf(element: Boolean): Int {\n  for (index in indices) {\n    if (element == this[index]) {\n
return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns first index of [element], or -1 if the array does not
contain element.\n */\npublic fun CharArray.indexOf(element: Char): Int {\n  for (index in indices) {\n    if
(element == this[index]) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns index of the first
element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun <T>
Array<out T>.indexOfFirst(predicate: (T) ->
Boolean): Int {\n  for (index in indices) {\n    if (predicate(this[index])) {\n      return index\n    }\n  }\n
return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not
contain such element.\n */\npublic inline fun ByteArray.indexOfFirst(predicate: (Byte) -> Boolean): Int {\n  for
(index in indices) {\n    if (predicate(this[index])) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n
* Returns index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n
*/\npublic inline fun ShortArray.indexOfFirst(predicate: (Short) -> Boolean): Int {\n  for (index in indices) {\n
if (predicate(this[index])) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns index of the first

```



```

element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun
IntArray.indexOfFirst(predicate:
(Int) -> Boolean): Int {\n for (index in indices) {\n if (predicate(this[index])) {\n return index\n }\n
}\n return -1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array
does not contain such element.\n */\npublic inline fun LongArray.indexOfFirst(predicate: (Long) -> Boolean): Int
{\n for (index in indices) {\n if (predicate(this[index])) {\n return index\n }\n }\n return -
1\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the array does not contain
such element.\n */\npublic inline fun FloatArray.indexOfFirst(predicate: (Float) -> Boolean): Int {\n for (index in
indices) {\n if (predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns
index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n
*/\npublic
inline fun DoubleArray.indexOfFirst(predicate: (Double) -> Boolean): Int {\n for (index in indices) {\n if
(predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns index of the first
element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun
BooleanArray.indexOfFirst(predicate: (Boolean) -> Boolean): Int {\n for (index in indices) {\n if
(predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns index of the first
element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun
CharArray.indexOfFirst(predicate: (Char) -> Boolean): Int {\n for (index in indices) {\n if
(predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns index of the last
element matching the given [predicate], or -1 if the array
does not contain such element.\n */\npublic inline fun <T> Array<out T>.indexOfLast(predicate: (T) -> Boolean):
Int {\n for (index in indices.reversed()) {\n if (predicate(this[index])) {\n return index\n }\n }\n
return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not
contain such element.\n */\npublic inline fun ByteArray.indexOfLast(predicate: (Byte) -> Boolean): Int {\n for
(index in indices.reversed()) {\n if (predicate(this[index])) {\n return index\n }\n }\n return -
1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain
such element.\n */\npublic inline fun ShortArray.indexOfLast(predicate: (Short) -> Boolean): Int {\n for (index in
indices.reversed()) {\n if (predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n
* Returns index of the last
element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun
IntArray.indexOfLast(predicate: (Int) -> Boolean): Int {\n for (index in indices.reversed()) {\n if
(predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns index of the last
element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun
LongArray.indexOfLast(predicate: (Long) -> Boolean): Int {\n for (index in indices.reversed()) {\n if
(predicate(this[index])) {\n return index\n }\n }\n return -1\n}\n\n/**\n * Returns index of the last
element matching the given [predicate], or -1 if the array does not contain such element.\n */\npublic inline fun
FloatArray.indexOfLast(predicate: (Float) -> Boolean): Int {\n for (index in indices.reversed()) {\n if
(predicate(this[index])) {\n return index\n }\n }\n
return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array
does not contain such element.\n */\npublic inline fun DoubleArray.indexOfLast(predicate: (Double) -> Boolean):
Int {\n for (index in indices.reversed()) {\n if (predicate(this[index])) {\n return index\n }\n }\n
return -1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not
contain such element.\n */\npublic inline fun BooleanArray.indexOfLast(predicate: (Boolean) -> Boolean): Int {\n
for (index in indices.reversed()) {\n if (predicate(this[index])) {\n return index\n }\n }\n return -
1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain
such element.\n */\npublic inline fun CharArray.indexOfLast(predicate: (Char) -> Boolean): Int {\n for (index in
indices.reversed()) {\n if

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(predicate(this[index])) {\n      return index\n    }\n  }\n  return -1\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun <T> Array<out T>.last(): T {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun ByteArray.last(): Byte {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun ShortArray.last(): Short {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun IntArray.last(): Int {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun LongArray.last(): Long {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun FloatArray.last(): Float {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun DoubleArray.last(): Double {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun BooleanArray.last(): Boolean {\n  if (isEmpty())\n  throw NoSuchElementException("Array is empty.")\n  return this[lastIndex]\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Array<out T>.last(predicate: (T) -> Boolean): T {\n  for (index in this.indices.reversed()) {\n    val element = this[index]\n    if (predicate(element)) return element\n  }\n  throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun ByteArray.last(predicate: (Byte) -> Boolean): Byte {\n  for (index in this.indices.reversed()) {\n    val element = this[index]\n    if (predicate(element)) return element\n  }\n  throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun ShortArray.last(predicate: (Short) -> Boolean): Short {\n  for (index in this.indices.reversed()) {\n    val element = this[index]\n    if (predicate(element)) return element\n  }\n  throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun IntArray.last(predicate: (Int) -> Boolean): Int {\n  for (index in this.indices.reversed()) {\n    val element = this[index]\n    if (predicate(element)) return element\n  }\n  throw NoSuchElementException("Array contains no element matching the

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predicate.\")\n}\n\n/**\n * Returns the last element matching
the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun LongArray.last(predicate: (Long) -> Boolean):
Long {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if (predicate(element))
return element\n    }\n    throw NoSuchElementException("\nArray contains no element matching the
predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws
NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun FloatArray.last(predicate: (Float) -> Boolean):
Float {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if (predicate(element))
return element\n    }\n    throw NoSuchElementException("\nArray contains no element matching the
predicate.\")\n}\n\n/**\n * Returns the last
element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n
* \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun DoubleArray.last(predicate:
(Double) -> Boolean): Double {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if
(predicate(element)) return element\n    }\n    throw NoSuchElementException("\nArray contains no element
matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws
NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun BooleanArray.last(predicate: (Boolean) ->
Boolean): Boolean {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if
(predicate(element)) return element\n    }\n    throw NoSuchElementException("\nArray contains no element
matching the predicate.\")\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws
NoSuchElementException if no such
element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun
CharArray.last(predicate: (Char) -> Boolean): Char {\n    for (index in this.indices.reversed()) {\n        val element =
this[index]\n        if (predicate(element)) return element\n    }\n    throw NoSuchElementException("\nArray contains
no element matching the predicate.\")\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not
contain element.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Array<out T>.lastIndexOf(element: T): Int
{\n    if (element == null) {\n        for (index in indices.reversed()) {\n            if (this[index] == null) {\n
return index\n            }\n        }\n    } else {\n        for (index in indices.reversed()) {\n            if (element ==
this[index]) {\n                return index\n            }\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain
element.\n */\npublic fun ByteArray.lastIndexOf(element: Byte): Int {\n    for (index in indices.reversed()) {\n        if
(element == this[index]) {\n            return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of
[element], or -1 if the array does not contain element.\n */\npublic fun ShortArray.lastIndexOf(element: Short): Int
{\n    for (index in indices.reversed()) {\n        if (element == this[index]) {\n            return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain element.\n */\npublic fun
IntArray.lastIndexOf(element: Int): Int {\n    for (index in indices.reversed()) {\n        if (element == this[index]) {\n
return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not
contain element.\n */\npublic fun LongArray.lastIndexOf(element: Long): Int {\n    for (index in indices.reversed()) {\n        if (element
== this[index]) {\n            return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of [element], or -
1 if the array does not contain element.\n */\n@Deprecated("\nThe function has unclear behavior when searching for
NaN or zero values and will be removed soon. Use 'indexOfLast { it == element }' instead to continue using this
behavior, or 'asList().lastIndexOf(element: T)' to get the same search behavior as in a list.\n",
ReplaceWith("\nindexOfLast { it == element }"))\npublic fun FloatArray.lastIndexOf(element: Float): Int {\n    for (index in
indices.reversed()) {\n        if (element == this[index]) {\n            return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does not contain

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element.\n *\n@Deprecated("The function has unclear behavior when searching for NaN or zero values and will
be removed soon. Use 'indexOfLast { it == element }' instead to continue using this behavior, or
'.asList().lastIndexOf(element: T)' to get the same search behavior as in a list.\n", ReplaceWith("indexOfLast { it ==
element }"))\n@DeprecatedSinceKotlin(warningSince = "1.4", errorSince = "1.6", hiddenSince =
"1.7")\npublic fun DoubleArray.lastIndexOf(element: Double): Int {\n    for (index in indices.reversed()) {\n        if
(element == this[index]) {\n            return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of
[element], or -1 if the array does not contain element.\n *\npublic fun BooleanArray.lastIndexOf(element:
Boolean): Int {\n    for (index in indices.reversed()) {\n        if (element == this[index]) {\n            return index\n
        }\n    }\n    return -1\n}\n\n/**\n * Returns last index of [element], or -1 if the array does
not contain element.\n *\npublic fun CharArray.lastIndexOf(element: Char): Int {\n    for (index in
indices.reversed()) {\n        if (element == this[index]) {\n            return index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic fun <T> Array<out T>.lastOrNull(): T? {\n    return if
(isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic fun ByteArray.lastOrNull(): Byte? {\n    return
if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is empty.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic fun ShortArray.lastOrNull(): Short? {\n    return
if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array
is empty.\n *\n * @sample samples.collections.Collections.Elements.last\n *\npublic fun IntArray.lastOrNull():
Int? {\n    return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array is
empty.\n *\n * @sample samples.collections.Collections.Elements.last\n *\npublic fun LongArray.lastOrNull():
Long? {\n    return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array
is empty.\n *\n * @sample samples.collections.Collections.Elements.last\n *\npublic fun FloatArray.lastOrNull():
Float? {\n    return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element, or `null` if the array
is empty.\n *\n * @sample samples.collections.Collections.Elements.last\n *\npublic fun
DoubleArray.lastOrNull(): Double? {\n    return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last
element, or `null` if the array is empty.\n *\n * @sample samples.collections.Collections.Elements.last\n
*\npublic fun BooleanArray.lastOrNull(): Boolean? {\n    return if (isEmpty()) null else this[size - 1]\n}\n\n/**\n *
Returns the last element, or `null` if the array is empty.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic fun CharArray.lastOrNull(): Char? {\n    return if
(isEmpty()) null else this[size - 1]\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if
no such element was found.\n *\n * @sample samples.collections.Collections.Elements.last\n *\npublic inline fun
<T> Array<out T>.lastOrNull(predicate: (T) -> Boolean): T? {\n    for (index in this.indices.reversed()) {\n        val
element = this[index]\n        if (predicate(element)) return element\n    }\n    return null\n}\n\n/**\n * Returns the last
element matching the given [predicate], or `null` if no such element was found.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic inline fun ByteArray.lastOrNull(predicate:
(Byte) -> Boolean): Byte? {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if
(predicate(element)) return element\n    }\n    return null\n}\n\n/**\n * Returns the last element matching the given
[predicate], or `null` if no such element was found.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic inline fun ShortArray.lastOrNull(predicate: (Short) ->
Boolean): Short? {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if
(predicate(element)) return element\n    }\n    return null\n}\n\n/**\n * Returns the last element matching the given
[predicate], or `null` if no such element was found.\n *\n * @sample
samples.collections.Collections.Elements.last\n *\npublic inline fun IntArray.lastOrNull(predicate: (Int) ->
Boolean): Int? {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if
(predicate(element)) return element\n    }\n    return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element
was found.\n *\n * @sample samples.collections.Collections.Elements.last\n *\npublic inline fun

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LongArray.lastOrNull(predicate: (Long) -> Boolean): Long? {\n  for (index in this.indices.reversed()) {\n    val
element = this[index]\n    if (predicate(element)) return element\n  }\n  return null\n}\n\n/**\n * Returns the last
element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\n\npublic inline fun FloatArray.lastOrNull(predicate: (Float) ->
Boolean): Float? {\n  for (index in this.indices.reversed()) {\n    val element = this[index]\n    if
(predicate(element)) return element\n  }\n  return null\n}\n\n/**\n * Returns the last element matching the given
[predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\n\npublic inline fun DoubleArray.lastOrNull(predicate: (Double) -> Boolean): Double? {\n  for (index in
this.indices.reversed()) {\n    val element = this[index]\n    if (predicate(element)) return element\n  }\n
return null\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no such element was
found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\n\npublic inline fun BooleanArray.lastOrNull(predicate: (Boolean) -> Boolean): Boolean? {\n  for (index in this.indices.reversed()) {\n
val element = this[index]\n    if (predicate(element)) return element\n  }\n  return null\n}\n\n/**\n * Returns
the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\n\npublic inline fun CharArray.lastOrNull(predicate: (Char) ->
Boolean): Char? {\n  for (index in this.indices.reversed()) {\n    val element
= this[index]\n    if (predicate(element)) return element\n  }\n  return null\n}\n\n/**\n * Returns a random
element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.random(): T {\n
return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws
NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline fun ByteArray.random(): Byte {\n  return random(Random)\n}\n\n/**\n * Returns a random element from
this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.random(): Short {\n  return
random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws
NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline fun IntArray.random(): Int {\n  return random(Random)\n}\n\n/**\n * Returns a random element from this
array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.random(): Long {\n  return
random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws
NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline fun FloatArray.random(): Float {\n  return random(Random)\n}\n\n/**\n * Returns a random element from
this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.random(): Double {\n
return random(Random)\n}\n\n/**\n * Returns a random element from this array.\n * \n * @throws
NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline fun BooleanArray.random(): Boolean {\n  return random(Random)\n}\n\n/**\n * Returns a random element
from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.random(): Char {\n  return
random(Random)\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n\n@SinceKotlin("1.3")\npublic
fun <T> Array<out T>.random(random: Random): T {\n  if (isEmpty())\n    throw
NoSuchElementException("Array is empty.")\n  return get(random.nextInt(size))\n}\n\n/**\n * Returns a random
element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if
this array is empty.\n */\n\n@SinceKotlin("1.3")\npublic fun ByteArray.random(random: Random): Byte {\n  if
(isEmpty())\n    throw NoSuchElementException("Array

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is empty.}\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the
specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n
*/\n@SinceKotlin("1.3")\npublic fun ShortArray.random(random: Random): Short {\n    if (isEmpty())\n    throw NoSuchElementException("Array is empty.}\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns a
random element from this array using the specified source of randomness.\n * \n * @throws
NoSuchElementException if this array is empty.\n */\n@SinceKotlin("1.3")\npublic fun IntArray.random(random:
Random): Int {\n    if (isEmpty())\n        throw NoSuchElementException("Array is empty.}\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin("1.3")\npublic
fun LongArray.random(random:
Random): Long {\n    if (isEmpty())\n        throw NoSuchElementException("Array is empty.}\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin("1.3")\npublic
fun FloatArray.random(random: Random): Float {\n    if (isEmpty())\n        throw
NoSuchElementException("Array is empty.}\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns a random
element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if
this array is empty.\n */\n@SinceKotlin("1.3")\npublic fun DoubleArray.random(random: Random): Double {\n
    if (isEmpty())\n        throw NoSuchElementException("Array is empty.}\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness.\n * \n * @throws NoSuchElementException
if this array is empty.\n */\n@SinceKotlin("1.3")\npublic fun BooleanArray.random(random: Random): Boolean
{\n    if (isEmpty())\n        throw NoSuchElementException("Array is empty.}\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n */\n@SinceKotlin("1.3")\npublic
fun CharArray.random(random: Random): Char {\n    if (isEmpty())\n        throw NoSuchElementException("Array
is empty.}\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array, or `null` if
this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun <T> Array<out T>.randomOrNull(): T? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a
random element from this array, or `null` if this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c
inline fun ByteArray.randomOrNull(): Byte? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random
element from this array, or `null` if this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun ShortArray.randomOrNull(): Short? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a
random element from this array, or `null` if this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun IntArray.randomOrNull(): Int? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random
element from this array, or `null` if this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun LongArray.randomOrNull(): Long? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random
element from this array, or `null` if this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun FloatArray.randomOrNull(): Float? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a
random element from this array, or `null` if this array is empty.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun DoubleArray.randomOrNull(): Double? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a

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random element from this array, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun BooleanArray.randomOrNull(): Boolean? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a
random element from this array, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c
inline fun CharArray.randomOrNull(): Char? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random
element from this array using the specified source of randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T> Array<out
T>.randomOrNull(random: Random): T? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
ByteArray.randomOrNull(random: Random): Byte? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic
fun ShortArray.randomOrNull(random: Random): Short? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
IntArray.randomOrNull(random: Random): Int? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
LongArray.randomOrNull(random: Random): Long? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array
is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
FloatArray.randomOrNull(random: Random): Float? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
DoubleArray.randomOrNull(random: Random): Double? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
BooleanArray.randomOrNull(random: Random): Boolean? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified
source of randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
CharArray.randomOrNull(random: Random): Char? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or
has more than one element.\n
*/\npublic fun <T> Array<out T>.single(): T {\n    return when (size) {\n        0 ->
throw NoSuchElementException("Array is empty.")\n        1 -> this[0]\n        else -> throw
IllegalArgumentException("Array has more than one element.")\n    }\n}\n\n/**\n * Returns the single element, or
throws an exception if the array is empty or has more than one element.\n
*/\npublic fun ByteArray.single(): Byte
{\n    return when (size) {\n        0 -> throw NoSuchElementException("Array is empty.")\n        1 -> this[0]\n

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else -> throw IllegalArgumentException("Array has more than one element.")\n
}\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one
element.\n */\npublic fun ShortArray.single(): Short {\n    return when (size) {\n        0 -> throw
NoSuchElementException("Array is empty.")\n        1 -> this[0]\n        else -> throw
IllegalArgumentException("Array has more than one element.")\n    }\n}\n\n/**\n * Returns the single element, or
throws an exception if the array is empty or has more than one element.\n */\npublic fun IntArray.single(): Int {\n
return when (size) {\n        0 -> throw NoSuchElementException("Array is empty.")\n        1 -> this[0]\n        else -
> throw IllegalArgumentException("Array has more than one element.")\n    }\n}\n\n/**\n * Returns the single
element, or throws an exception if the array is empty or has more than one element.\n */\npublic fun
LongArray.single(): Long {\n    return when (size) {\n        0 -> throw NoSuchElementException("Array is
empty.")\n        1 -> this[0]\n        else -> throw IllegalArgumentException("Array has more than one element.")\n
}\n}\n\n/**\n * Returns the single element, or throws an exception if the array is empty or has more than one
element.\n */\npublic fun FloatArray.single(): Float {\n    return when (size) {\n        0 -> throw
NoSuchElementException("Array is empty.")\n        1 -> this[0]\n        else -> throw
IllegalArgumentException("Array has more than one element.")\n    }\n}\n\n/**\n * Returns the single element, or
throws an exception if the array is empty or has more than one element.\n */\npublic fun DoubleArray.single():
Double {\n    return when (size) {\n        0 -> throw NoSuchElementException("Array is empty.")\n        1 ->
this[0]\n        else -> throw IllegalArgumentException("Array has more than one element.")\n    }\n}\n\n/**\n *
Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic
fun BooleanArray.single():
Boolean {\n    return when (size) {\n        0 -> throw NoSuchElementException("Array is empty.")\n        1 ->
this[0]\n        else -> throw IllegalArgumentException("Array has more than one element.")\n    }\n}\n\n/**\n *
Returns the single element, or throws an exception if the array is empty or has more than one element.\n */\npublic
fun CharArray.single(): Char {\n    return when (size) {\n        0 -> throw NoSuchElementException("Array is
empty.")\n        1 -> this[0]\n        else -> throw IllegalArgumentException("Array has more than one element.")\n
}\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or
more than one matching element.\n */\npublic inline fun <T> Array<out T>.single(predicate: (T) -> Boolean): T {\n
var single: T? = null\n    var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if
(found) throw IllegalArgumentException("Array contains more
than one matching element.")\n            single = element\n            found = true\n        }\n    }\n    if (!found) throw
NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n@Suppress("UNCHECKED_CAST")\n    return single as T\n}\n\n/**\n * Returns the single element matching the
given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun
ByteArray.single(predicate: (Byte) -> Boolean): Byte {\n    var single: Byte? = null\n    var found = false\n    for
(element in this) {\n        if (predicate(element)) {\n            if (found) throw IllegalArgumentException("Array
contains more than one matching element.")\n            single = element\n            found = true\n        }\n    }\n    if
(!found) throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n@Suppress("UNCHECKED_CAST")\n    return single as Byte\n}\n\n/**\n * Returns the single element matching
the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun
ShortArray.single(predicate: (Short) -> Boolean): Short {\n    var single: Short? = null\n    var found = false\n    for
(element in this) {\n        if (predicate(element)) {\n            if (found) throw IllegalArgumentException("Array
contains more than one matching element.")\n            single = element\n            found = true\n        }\n    }\n    if
(!found) throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n@Suppress("UNCHECKED_CAST")\n    return single as Short\n}\n\n/**\n * Returns the single element matching
the given [predicate], or throws exception if there is no or more than one matching element.\n */\npublic inline fun
IntArray.single(predicate: (Int) -> Boolean): Int {\n    var single: Int? = null\n    var found = false\n    for (element in
this) {\n        if (predicate(element)) {\n            if (found) throw

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IllegalArgumentException("Array contains more than one matching element.")\n    single = element\n
found = true\n    }\n    }\n    if (!found) throw NoSuchElementException("Array contains no element matching\n
the predicate.")\n    @Suppress("UNCHECKED_CAST")\n    return single as Int\n}\n\n/**\n * Returns the single\n
element matching the given [predicate], or throws exception if there is no or more than one matching element.\n
*/\n\npublic inline fun LongArray.single(predicate: (Long) -> Boolean): Long {\n    var single: Long? = null\n    var\n
found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) throw\n
IllegalArgumentException("Array contains more than one matching element.")\n                single = element\n
found = true\n            }\n        }\n        if (!found) throw NoSuchElementException("Array contains no element matching\n
the predicate.")\n    }\n    @Suppress("UNCHECKED_CAST")\n    return single as Long\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one\n
matching element.\n */\n\npublic inline fun FloatArray.single(predicate: (Float) -> Boolean): Float {\n    var single:\n
Float? = null\n    var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found)\n
throw IllegalArgumentException("Array contains more than one matching element.")\n                single = element\n
found = true\n            }\n        }\n        if (!found) throw NoSuchElementException("Array contains no element\n
matching the predicate.")\n    }\n    @Suppress("UNCHECKED_CAST")\n    return single as Float\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one\n
matching element.\n */\n\npublic inline fun DoubleArray.single(predicate: (Double) -> Boolean): Double {\n    var\n
single: Double? = null\n    var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) throw\n
IllegalArgumentException("Array contains more than one\n
matching element.")\n                single = element\n                found = true\n            }\n        }\n        if (!found) throw\n
NoSuchElementException("Array contains no element matching the predicate.")\n    }\n    @Suppress("UNCHECKED_CAST")\n    return single as Double\n}\n\n/**\n * Returns the single element\n
matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\n\npublic\n
inline fun BooleanArray.single(predicate: (Boolean) -> Boolean): Boolean {\n    var single: Boolean? = null\n    var\n
found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) throw\n
IllegalArgumentException("Array contains more than one matching element.")\n                single = element\n
found = true\n            }\n        }\n        if (!found) throw\n
NoSuchElementException("Array contains no element matching the predicate.")\n    }\n    @Suppress("UNCHECKED_CAST")\n    return single as Boolean\n}\n\n/**\n * Returns the single element\n
matching the given [predicate], or throws exception if there is no or more than one matching element.\n */\n\npublic\n
inline fun CharArray.single(predicate: (Char) -> Boolean): Char {\n    var single: Char? = null\n    var found =\n
false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) throw\n
IllegalArgumentException("Array contains more than one matching element.")\n                single = element\n
found = true\n            }\n        }\n        if (!found) throw NoSuchElementException("Array contains no element\n
matching the predicate.")\n    }\n    @Suppress("UNCHECKED_CAST")\n    return single as Char\n}\n\n/**\n * Returns single\n
element, or `null` if the array is empty or has more than one element.\n */\n\npublic fun <T> Array<out\n
T>.singleOrNull(): T? {\n    return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element,\n
or `null` if the array is empty or has more than one element.\n */\n\npublic fun ByteArray.singleOrNull(): Byte? {\n\n
return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more\n
than one element.\n */\n\npublic fun ShortArray.singleOrNull(): Short? {\n    return if (size == 1) this[0] else\n
null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\n\npublic\n
fun IntArray.singleOrNull(): Int? {\n    return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or\n
`null` if the array is empty or has more than one element.\n */\n\npublic fun LongArray.singleOrNull(): Long? {\n\n
return if (size == 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more\n
than one element.\n */\n\npublic fun FloatArray.singleOrNull(): Float? {\n    return if (size == 1) this[0] else\n
null\n}\n\n/**\n * Returns single element, or `null` if the array\n
is empty or has more than one element.\n */\n\npublic fun DoubleArray.singleOrNull(): Double? {\n    return if (size\n
== 1) this[0] else null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one

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element.\n */\npublic fun BooleanArray.singleOrNull(): Boolean? {\n    return if (size == 1) this[0] else
null\n}\n\n/**\n * Returns single element, or `null` if the array is empty or has more than one element.\n */\npublic
fun CharArray.singleOrNull(): Char? {\n    return if (size == 1) this[0] else null\n}\n\n/**\n * Returns the single
element matching the given [predicate], or `null` if element was not found or more than one element was found.\n
*/\npublic inline fun <T> Array<out T>.singleOrNull(predicate: (T) -> Boolean): T? {\n    var single: T? = null\n
var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n
single = element\n                found = true\n            }\n        }\n        if (!found) return null\n    }
return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun
ByteArray.singleOrNull(predicate: (Byte) -> Boolean): Byte? {\n    var single: Byte? = null\n    var found = false\n
for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n                single = element\n
found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns the single element
matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic
inline fun ShortArray.singleOrNull(predicate: (Short) -> Boolean): Short? {\n    var single: Short? = null\n    var
found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n                single
= element\n                found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns the single element
matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic
inline fun IntArray.singleOrNull(predicate: (Int) -> Boolean): Int? {\n    var single: Int? = null\n    var found = false\n
for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n                single = element\n
found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns the single element
matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic
inline fun LongArray.singleOrNull(predicate: (Long) -> Boolean): Long? {\n    var single: Long? = null\n    var
found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n                single
= element\n                found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns the single element
matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic inline fun
FloatArray.singleOrNull(predicate: (Float) -> Boolean): Float? {\n    var single: Float? = null\n    var found = false\n
for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n                single = element\n
found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns the single element
matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic
inline fun DoubleArray.singleOrNull(predicate: (Double) -> Boolean): Double? {\n    var single: Double? = null\n
var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n
single = element\n                found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns the single element
matching the given [predicate], or `null` if element was not found or more than one element was found.\n */\npublic
inline fun BooleanArray.singleOrNull(predicate: (Boolean) -> Boolean): Boolean? {\n    var single: Boolean? =
null\n    var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n
single = element\n                found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n *
Returns the single element matching the given [predicate], or `null` if element was not found or more than one
element was found.\n */\npublic inline fun CharArray.singleOrNull(predicate: (Char) -> Boolean): Char? {\n    var
single: Char? = null\n    var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if
(found) return null\n                single = element\n                found = true\n            }\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n *
Returns a list containing all elements except first [n] elements.\n */\n * @throws IllegalArgumentException if [n] is
negative.\n */\n * @sample samples.collections.Collections.Transformations.drop\n */\npublic fun <T> Array<out
T>.drop(n: Int): List<T> {\n    require(n >= 0) {\n        "Requested element count $n is less than zero.\n    }\n    return
takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n

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* \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun ByteArray.drop(n: Int): List<Byte> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException
if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n *^\npublic fun
ShortArray.drop(n: Int): List<Short> {\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n
return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n]
elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun IntArray.drop(n: Int): List<Int> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun LongArray.drop(n: Int): List<Long> {\n
require(n >= 0) { \"Requested element count $n is less
than zero.\" }\n  return takeLast((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements
except first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun FloatArray.drop(n: Int): List<Float> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun DoubleArray.drop(n: Int): List<Double> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n
* \n * @sample samples.collections.Collections.Transformations.drop\n *^\npublic fun BooleanArray.drop(n: Int):
List<Boolean> {\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun CharArray.drop(n: Int): List<Char> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun <T> Array<out T>.dropLast(n: Int): List<T>
{\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return
take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n
* @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun ByteArray.dropLast(n: Int): List<Byte> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *^\npublic fun ShortArray.dropLast(n: Int): List<Short> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*^\npublic fun IntArray.dropLast(n: Int): List<Int> {\n  require(n >= 0) { \"Requested element count $n is less than
zero.\" }\n  return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last

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[n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic fun LongArray.dropLast(n: Int): List<Long> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic fun FloatArray.dropLast(n: Int): List<Float> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n
* Returns a list containing all elements except last [n] elements.\n * \n * @throws IllegalArgumentException if [n]
is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic fun
DoubleArray.dropLast(n: Int): List<Double> {\n require(n >= 0) { \"Requested element count $n is less than
zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last
[n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic fun BooleanArray.dropLast(n: Int):
List<Boolean> {\n require(n >= 0) { \"Requested element count $n is less than zero.\" }\n return take((size -
n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic
fun CharArray.dropLast(n: Int): List<Char> {\n require(n >= 0) { \"Requested element count $n is less than
zero.\" }\n return take((size - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a list containing all elements except last
elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun <T> Array<out
T>.dropLastWhile(predicate: (T) -> Boolean): List<T> {\n for (index in lastIndex downTo 0) {\n if
(!predicate(this[index])) {\n return take(index + 1)\n }\n }\n return emptyList()\n}\n\n/**\n * Returns
a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun ByteArray.dropLastWhile(predicate:
(Byte) -> Boolean): List<Byte> {\n for (index in lastIndex downTo 0) {\n if (!predicate(this[index])) {\n
return take(index + 1)\n }\n }\n }\n return emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy
the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic inline
fun ShortArray.dropLastWhile(predicate: (Short) -> Boolean): List<Short> {\n for (index in lastIndex downTo 0)
{\n if (!predicate(this[index])) {\n return take(index + 1)\n }\n }\n }\n return emptyList()\n}\n\n/**\n
* Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun IntArray.dropLastWhile(predicate:
(Int) -> Boolean): List<Int> {\n for (index in lastIndex downTo 0) {\n if (!predicate(this[index])) {\n
return take(index + 1)\n }\n }\n }\n return emptyList()\n}\n\n/**\n * Returns a list containing all elements
except last elements that satisfy the given [predicate].\n
* \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic inline fun
LongArray.dropLastWhile(predicate: (Long) -> Boolean): List<Long> {\n for (index in lastIndex downTo 0) {\n
if (!predicate(this[index])) {\n return take(index + 1)\n }\n }\n }\n return emptyList()\n}\n\n/**\n *
Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun FloatArray.dropLastWhile(predicate:
(Float) -> Boolean): List<Float> {\n for (index in lastIndex downTo 0) {\n if (!predicate(this[index])) {\n
return take(index + 1)\n }\n }\n }\n return emptyList()\n}\n\n/**\n * Returns a list containing all elements
except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun DoubleArray.dropLastWhile(predicate:
(Double) -> Boolean): List<Double> {\n for (index in lastIndex downTo 0) {\n if (!predicate(this[index])) {\n
return take(index + 1)\n }\n }\n }\n return emptyList()\n}\n\n/**\n * Returns a list containing all elements

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except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun
BooleanArray.dropLastWhile(predicate: (Boolean) -> Boolean): List<Boolean> {\n  for (index in lastIndex
downTo 0) {\n    if (!predicate(this[index])) {\n      return take(index + 1)\n    } \n } \n return
emptyList()\n}\n\n/**\n * Returns a list containing all elements except last elements that satisfy the given
[predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic inline fun
CharArray.dropLastWhile(predicate: (Char) -> Boolean): List<Char> {\n  for (index in lastIndex downTo 0) {\n
if (!predicate(this[index])) {\n
    return take(index + 1)\n  } \n } \n return emptyList()\n}\n\n/**\n * Returns a list containing all elements
except first elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun <T> Array<out
T>.dropWhile(predicate: (T) -> Boolean): List<T> {\n  var yielding = false\n  val list = ArrayList<T>()\n  for
(item in this)\n    if (yielding)\n      list.add(item)\n    else if (!predicate(item)) {\n      list.add(item)\n
yielding = true\n    } \n  return list\n}\n\n/**\n * Returns a list containing all elements except first elements that
satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic
inline fun ByteArray.dropWhile(predicate: (Byte) -> Boolean): List<Byte> {\n  var yielding = false\n  val list =
ArrayList<Byte>()\n  for (item in this)\n    if (yielding)\n      list.add(item)\n
    else if (!predicate(item)) {\n      list.add(item)\n      yielding = true\n    } \n  return list\n}\n\n/**\n *
Returns a list containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun ShortArray.dropWhile(predicate:
(Short) -> Boolean): List<Short> {\n  var yielding = false\n  val list = ArrayList<Short>()\n  for (item in this)\n
if (yielding)\n    list.add(item)\n  else if (!predicate(item)) {\n    list.add(item)\n    yielding =
true\n  } \n  return list\n}\n\n/**\n * Returns a list containing all elements except first elements that satisfy the
given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic inline fun
IntArray.dropWhile(predicate: (Int) -> Boolean): List<Int> {\n  var yielding = false\n  val list =
ArrayList<Int>()\n  for (item in this)\n    if (yielding)\n      list.add(item)\n    else if (!predicate(item)) {\n
list.add(item)\n    yielding = true\n  } \n  return list\n}\n\n/**\n * Returns a list containing all elements except first
elements that satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic
inline fun LongArray.dropWhile(predicate: (Long) -> Boolean): List<Long> {\n  var yielding = false\n  val list =
ArrayList<Long>()\n  for (item in this)\n    if (yielding)\n      list.add(item)\n    else if (!predicate(item))
{\n      list.add(item)\n      yielding = true\n    } \n  return list\n}\n\n/**\n * Returns a list containing all
elements except first elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun FloatArray.dropWhile(predicate:
(Float) -> Boolean): List<Float> {\n  var yielding = false\n
val list = ArrayList<Float>()\n  for (item in this)\n    if (yielding)\n      list.add(item)\n    else if
(!predicate(item)) {\n      list.add(item)\n      yielding = true\n    } \n  return list\n}\n\n/**\n * Returns a list
containing all elements except first elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n *\npublic inline fun DoubleArray.dropWhile(predicate:
(Double) -> Boolean): List<Double> {\n  var yielding = false\n  val list = ArrayList<Double>()\n  for (item in
this)\n    if (yielding)\n      list.add(item)\n    else if (!predicate(item)) {\n      list.add(item)\n
yielding = true\n    } \n  return list\n}\n\n/**\n * Returns a list containing all elements except first elements that
satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic
inline fun BooleanArray.dropWhile(predicate:
(Boolean) -> Boolean): List<Boolean> {\n  var yielding = false\n  val list = ArrayList<Boolean>()\n  for (item
in this)\n    if (yielding)\n      list.add(item)\n    else if (!predicate(item)) {\n      list.add(item)\n
yielding = true\n    } \n  return list\n}\n\n/**\n * Returns a list containing all elements except first elements that
satisfy the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n *\npublic

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inline fun CharArray.dropWhile(predicate: (Char) -> Boolean): List<Char> {\n  var yielding = false\n  val list =
ArrayList<Char>()\n  for (item in this)\n    if (yielding)\n      list.add(item)\n    else if (!predicate(item)) {\n
      list.add(item)\n      yielding = true\n    }\n  return list\n}\n\n/**\n * Returns a list containing only
elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n
*/\npublic inline
fun <T> Array<out T>.filter(predicate: (T) -> Boolean): List<T> {\n  return filterTo(ArrayList<T>(),
predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n */\npublic inline fun ByteArray.filter(predicate: (Byte) -> Boolean):
List<Byte> {\n  return filterTo(ArrayList<Byte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements
matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline
fun ShortArray.filter(predicate: (Short) -> Boolean): List<Short> {\n  return filterTo(ArrayList<Short>(),
predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n */\npublic inline fun IntArray.filter(predicate: (Int) -> Boolean):
List<Int> {\n  return filterTo(ArrayList<Int>(), predicate)\n}\n\n/**\n * Returns
a list containing only elements matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n */\npublic inline fun LongArray.filter(predicate: (Long) ->
Boolean): List<Long> {\n  return filterTo(ArrayList<Long>(), predicate)\n}\n\n/**\n * Returns a list containing
only elements matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n
*/\npublic inline fun FloatArray.filter(predicate: (Float) -> Boolean): List<Float> {\n  return
filterTo(ArrayList<Float>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given
[predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun
DoubleArray.filter(predicate: (Double) -> Boolean): List<Double> {\n  return filterTo(ArrayList<Double>(),
predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n
*/\npublic inline fun BooleanArray.filter(predicate: (Boolean) -> Boolean): List<Boolean> {\n  return
filterTo(ArrayList<Boolean>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given
[predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n */\npublic inline fun
CharArray.filter(predicate: (Char) -> Boolean): List<Char> {\n  return filterTo(ArrayList<Char>(),
predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given [predicate].\n * @param
[predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate
evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic
inline fun <T> Array<out T>.filterIndexed(predicate: (index: Int, T) -> Boolean): List<T> {\n  return
filterIndexedTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the given
[predicate].\n
* \n * @param [predicate] function that takes the index of an element and the element itself\n * and returns the result of
predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n
*/\npublic inline fun ByteArray.filterIndexed(predicate: (index: Int, Byte) -> Boolean): List<Byte> {\n  return
filterIndexedTo(ArrayList<Byte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the
given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and
returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun ShortArray.filterIndexed(predicate:
(index: Int, Short) -> Boolean): List<Short> {\n  return filterIndexedTo(ArrayList<Short>(), predicate)\n}\n\n/**\n
* Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function
that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the
element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun
IntArray.filterIndexed(predicate: (index: Int, Int) -> Boolean): List<Int> {\n  return
filterIndexedTo(ArrayList<Int>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the
given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and

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returns the result of predicate evaluation on the element.\n \* \n \* @sample

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samples.collections.Collections.Filtering.filterIndexed\n *^npublic inline fun LongArray.filterIndexed(predicate:
(index: Int, Long) -> Boolean): List<Long> {\n  return filterIndexedTo(ArrayList<Long>(), predicate)\n}\n\n/**\n
* Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function
that takes the index of an element and the element
itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n *^npublic inline fun FloatArray.filterIndexed(predicate:
(index: Int, Float) -> Boolean): List<Float> {\n  return filterIndexedTo(ArrayList<Float>(), predicate)\n}\n\n/**\n
* Returns a list containing only elements matching the given [predicate].\n * @param [predicate] function that takes
the index of an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n
* @sample samples.collections.Collections.Filtering.filterIndexed\n *^npublic inline fun
DoubleArray.filterIndexed(predicate: (index: Int, Double) -> Boolean): List<Double> {\n  return
filterIndexedTo(ArrayList<Double>(), predicate)\n}\n\n/**\n
* Returns a list containing only elements matching the
given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and
returns the result
of predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n
*^npublic inline fun BooleanArray.filterIndexed(predicate: (index: Int, Boolean) -> Boolean): List<Boolean> {\n
return filterIndexedTo(ArrayList<Boolean>(), predicate)\n}\n\n/**\n
* Returns a list containing only elements
matching the given [predicate].\n * @param [predicate] function that takes the index of an element and the element
itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n *^npublic inline fun CharArray.filterIndexed(predicate:
(index: Int, Char) -> Boolean): List<Char> {\n  return filterIndexedTo(ArrayList<Char>(), predicate)\n}\n\n/**\n
* Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function that
takes the index of an element and the element itself\n * and returns the result of predicate evaluation
on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n *^npublic inline fun
<T, C : MutableCollection<in T>> Array<out T>.filterIndexedTo(destination: C, predicate: (index: Int, T) ->
Boolean): C {\n  forEachIndexed { index, element ->\n    if (predicate(index, element))
destination.add(element)\n  }\n  return destination\n}\n\n/**\n
* Appends all elements matching the given
[predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the
element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n *^npublic inline fun <C : MutableCollection<in Byte>>
ByteArray.filterIndexedTo(destination: C, predicate: (index: Int, Byte) -> Boolean): C {\n  forEachIndexed {
index, element ->\n    if (predicate(index, element)) destination.add(element)\n  }\n  return
destination\n}\n\n/**\n
* Appends all elements matching the given [predicate] to the given [destination].\n * @param [predicate] function
that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the
element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n *^npublic inline fun <C :
MutableCollection<in Short>> ShortArray.filterIndexedTo(destination: C, predicate: (index: Int, Short) ->
Boolean): C {\n  forEachIndexed { index, element ->\n    if (predicate(index, element))
destination.add(element)\n  }\n  return destination\n}\n\n/**\n
* Appends all elements matching the given
[predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the
element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n *^npublic inline fun <C : MutableCollection<in Int>>
IntArray.filterIndexedTo(destination:
C, predicate: (index: Int, Int) -> Boolean): C {\n  forEachIndexed { index, element ->\n    if (predicate(index,
element)) destination.add(element)\n  }\n  return destination\n}\n\n/**\n
* Appends all elements matching the
given [predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and
the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample

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samples.collections.Collections.Filtering.filterIndexedTo\n * \npublic inline fun <C : MutableCollection<in Long>>
LongArray.filterIndexedTo(destination: C, predicate: (index: Int, Long) -> Boolean): C {\n  forEachIndexed {
index, element ->\n    if (predicate(index, element)) destination.add(element)\n  }\n  return
destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n *
@param [predicate] function that takes the index of an element and the element itself\n * and
returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n * \npublic inline fun <C : MutableCollection<in Float>>
FloatArray.filterIndexedTo(destination: C, predicate: (index: Int, Float) -> Boolean): C {\n  forEachIndexed {
index, element ->\n    if (predicate(index, element)) destination.add(element)\n  }\n  return
destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n *
@param [predicate] function that takes the index of an element and the element itself\n * and returns the result of
predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n
*\npublic inline fun <C : MutableCollection<in Double>> DoubleArray.filterIndexedTo(destination: C, predicate:
(index: Int, Double) -> Boolean): C {\n  forEachIndexed { index, element ->\n    if (predicate(index, element))
destination.add(element)\n
}\n  return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given
[destination].\n * @param [predicate] function that takes the index of an element and the element itself\n * and
returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n * \npublic inline fun <C : MutableCollection<in
Boolean>> BooleanArray.filterIndexedTo(destination: C, predicate: (index: Int, Boolean) -> Boolean): C {\n
forEachIndexed { index, element ->\n    if (predicate(index, element)) destination.add(element)\n  }\n  return
destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n *
@param [predicate] function that takes the index of an element and the element itself\n * and returns the result of
predicate evaluation on the element.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n
*\npublic inline fun
<C : MutableCollection<in Char>> CharArray.filterIndexedTo(destination: C, predicate: (index: Int, Char) ->
Boolean): C {\n  forEachIndexed { index, element ->\n    if (predicate(index, element))
destination.add(element)\n  }\n  return destination\n}\n\n/**\n * Returns a list containing all elements that are
instances of specified type parameter R.\n * \n * @sample
samples.collections.Collections.Filtering.filterIsInstance\n * \npublic inline fun <reified R>
Array<*>.filterIsInstance(): List<@kotlin.internal.NoInfer R> {\n  return
filterIsInstanceTo(ArrayList<R>())\n}\n\n/**\n * Appends all elements that are instances of specified type
parameter R to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterIsInstanceTo\n * \npublic inline fun <reified R, C :
MutableCollection<in R>> Array<*>.filterIsInstanceTo(destination: C): C {\n  for (element in this) if (element is
R) destination.add(element)\n  return destination\n}\n\n/**\n * Returns
a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n * \npublic inline fun <T> Array<out T>.filterNot(predicate: (T) ->
Boolean): List<T> {\n  return filterNotTo(ArrayList<T>(), predicate)\n}\n\n/**\n * Returns a list containing all
elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n
*\npublic inline fun ByteArray.filterNot(predicate: (Byte) -> Boolean): List<Byte> {\n  return
filterNotTo(ArrayList<Byte>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the
given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n * \npublic inline fun
ShortArray.filterNot(predicate: (Short) -> Boolean): List<Short> {\n  return filterNotTo(ArrayList<Short>(),
predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n
*\npublic inline fun IntArray.filterNot(predicate: (Int) -> Boolean): List<Int> {\n  return
filterNotTo(ArrayList<Int>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given

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[predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n *^\npublic inline fun
LongArray.filterNot(predicate: (Long) -> Boolean): List<Long> {\n  return filterNotTo(ArrayList<Long>(),
predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n *^\npublic inline fun FloatArray.filterNot(predicate: (Float) ->
Boolean): List<Float> {\n  return filterNotTo(ArrayList<Float>(), predicate)\n}\n\n/**\n * Returns a list
containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n *^\npublic inline fun DoubleArray.filterNot(predicate: (Double) ->
Boolean):
List<Double> {\n  return filterNotTo(ArrayList<Double>(), predicate)\n}\n\n/**\n * Returns a list containing all
elements not matching the given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n
*^\npublic inline fun BooleanArray.filterNot(predicate: (Boolean) -> Boolean): List<Boolean> {\n  return
filterNotTo(ArrayList<Boolean>(), predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the
given [predicate].\n * \n * @sample samples.collections.Collections.Filtering.filter\n *^\npublic inline fun
CharArray.filterNot(predicate: (Char) -> Boolean): List<Char> {\n  return filterNotTo(ArrayList<Char>(),
predicate)\n}\n\n/**\n * Returns a list containing all elements that are not `null`.\n * \n * @sample
samples.collections.Collections.Filtering.filterNotNull\n *^\npublic fun <T : Any> Array<out T?>.filterNotNull():
List<T> {\n  return filterNotNullTo(ArrayList<T>())\n}\n\n/**\n * Appends all elements that are not `null` to the
given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterNotNullTo\n *^\npublic fun <C
: MutableCollection<in T>, T : Any> Array<out T?>.filterNotNullTo(destination: C): C {\n  for (element in this) if
(element != null) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not matching
the given [predicate] to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n
*^\npublic inline fun <T, C : MutableCollection<in T>> Array<out T>.filterNotTo(destination: C, predicate: (T) ->
Boolean): C {\n  for (element in this) if (!predicate(element)) destination.add(element)\n  return
destination\n}\n\n/**\n * Appends all elements not matching the given [predicate] to the given [destination].\n * \n *
\n * @sample samples.collections.Collections.Filtering.filterTo\n *^\npublic inline fun <C : MutableCollection<in
Byte>> ByteArray.filterNotTo(destination: C, predicate: (Byte) -> Boolean): C {\n  for
(element in this) if (!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all
elements not matching the given [predicate] to the given [destination].\n * \n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *^\npublic inline fun <C : MutableCollection<in Short>>
ShortArray.filterNotTo(destination: C, predicate: (Short) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not
matching the given [predicate] to the given [destination].\n * \n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *^\npublic inline fun <C : MutableCollection<in Int>>
IntArray.filterNotTo(destination: C, predicate: (Int) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not
matching the given [predicate] to the given [destination].\n * \n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *^\npublic inline fun <C : MutableCollection<in Long>>
LongArray.filterNotTo(destination: C, predicate: (Long) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not
matching the given [predicate] to the given [destination].\n * \n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *^\npublic inline fun <C : MutableCollection<in Float>>
FloatArray.filterNotTo(destination: C, predicate: (Float) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not
matching the given [predicate] to the given [destination].\n * \n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *^\npublic inline fun <C : MutableCollection<in Double>>
DoubleArray.filterNotTo(destination: C, predicate: (Double) -> Boolean): C {\n  for (element
in this) if (!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements
not matching the given [predicate] to the given [destination].\n * \n * \n * @sample

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samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in Boolean>>
BooleanArray.filterNotTo(destination: C, predicate: (Boolean) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not
matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in Char>>
CharArray.filterNotTo(destination: C, predicate: (Char) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements matching
the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <T, C : MutableCollection<in T>>
Array<out T>.filterTo(destination: C, predicate: (T) -> Boolean): C {\n  for (element in this) if
(predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements matching
the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in Byte>>
ByteArray.filterTo(destination: C, predicate: (Byte) ->
Boolean): C {\n  for (element in this) if (predicate(element)) destination.add(element)\n  return
destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n *
@sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in
Short>> ShortArray.filterTo(destination: C, predicate: (Short) -> Boolean): C {\n  for (element in this) if
(predicate(element))
destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements matching the given [predicate]
to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun
<C : MutableCollection<in Int>> IntArray.filterTo(destination: C, predicate: (Int) -> Boolean): C {\n  for (element
in this) if (predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements
matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in Long>>
LongArray.filterTo(destination: C, predicate: (Long) -> Boolean): C {\n  for (element in this) if
(predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements matching
the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in Float>>
FloatArray.filterTo(destination: C, predicate: (Float) ->
Boolean): C {\n  for (element in this) if (predicate(element)) destination.add(element)\n  return
destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * \n *
@sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in
Double>> DoubleArray.filterTo(destination: C, predicate: (Double) -> Boolean): C {\n  for (element in this) if
(predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements matching
the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in Boolean>>
BooleanArray.filterTo(destination: C, predicate:
(Boolean) -> Boolean): C {\n  for (element in this) if (predicate(element)) destination.add(element)\n
return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n *
\n * @sample
samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <C : MutableCollection<in
Char>> CharArray.filterTo(destination: C, predicate: (Char) -> Boolean): C {\n  for (element in this) if
(predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Returns a list containing elements
at indices in the specified [indices] range.\n *\npublic fun <T> Array<out T>.slice(indices: IntRange): List<T> {\n
if (indices.isEmpty()) return listOf()\n  return copyOfRange(indices.start, indices.endInclusive +
1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n *\npublic
fun ByteArray.slice(indices: IntRange): List<Byte> {\n  if (indices.isEmpty()) return listOf()\n  return
copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list
containing elements at indices in the specified [indices] range.\n *\npublic fun ShortArray.slice(indices: IntRange):
List<Short> {\n  if (indices.isEmpty()) return listOf()\n  return copyOfRange(indices.start, indices.endInclusive +
1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n *\npublic

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fun IntArray.slice(indices: IntRange): List<Int> {
    if (indices.isEmpty()) return listOf()
    return copyOfRange(indices.start, indices.endInclusive + 1).asList()
}

/**
 * Returns a list containing elements at indices in the specified [indices] range.
 */
public fun LongArray.slice(indices: IntRange): List<Long> {
    if (indices.isEmpty()) return listOf()
    return copyOfRange(indices.start, indices.endInclusive + 1).asList()
}

/**
 * Returns a list containing elements at indices in the specified [indices] range.
 */
public fun FloatArray.slice(indices: IntRange): List<Float> {
    if (indices.isEmpty()) return listOf()
    return copyOfRange(indices.start, indices.endInclusive + 1).asList()
}

/**
 * Returns a list containing elements at indices in the specified [indices] range.
 */
public fun DoubleArray.slice(indices: IntRange): List<Double> {
    if (indices.isEmpty()) return listOf()
    return copyOfRange(indices.start, indices.endInclusive + 1).asList()
}

/**
 * Returns a list containing elements at indices in the specified [indices] range.
 */
public fun BooleanArray.slice(indices: IntRange): List<Boolean> {
    if (indices.isEmpty()) return listOf()
    return copyOfRange(indices.start, indices.endInclusive + 1).asList()
}

/**
 * Returns a list containing elements at indices in the specified [indices] range.
 */
public fun CharArray.slice(indices: IntRange): List<Char> {
    if (indices.isEmpty()) return listOf()
    return copyOfRange(indices.start, indices.endInclusive + 1).asList()
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun <T> Array<out T>.slice(indices: Iterable<Int>): List<T> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<T>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun ByteArray.slice(indices: Iterable<Int>): List<Byte> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Byte>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun ShortArray.slice(indices: Iterable<Int>): List<Short> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Short>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun IntArray.slice(indices: Iterable<Int>): List<Int> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Int>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun LongArray.slice(indices: Iterable<Int>): List<Long> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Long>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun FloatArray.slice(indices: Iterable<Int>): List<Float> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Float>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun DoubleArray.slice(indices: Iterable<Int>): List<Double> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Double>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun BooleanArray.slice(indices: Iterable<Int>): List<Boolean> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Boolean>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns a list containing elements at specified [indices].
 */
public fun CharArray.slice(indices: Iterable<Int>): List<Char> {
    val size = indices.collectionSizeOrDefault(10)
    if (size == 0) return emptyList()
    val list = ArrayList<Char>(size)
    for (index in indices) {
        list.add(get(index))
    }
    return list
}

/**
 * Returns an array containing elements of this array at specified [indices].
 */
public fun <T> Array<T>.sliceArray(indices: Collection<Int>): Array<T> {
    val result = arrayOfNulls<T>(this.size)
    var targetIndex = 0
    for (sourceIndex in indices) {
        result[targetIndex++] = this[sourceIndex]
    }
    return result
}

/**
 * Returns an array containing elements of this array at specified [indices].
 */
public fun ByteArray.sliceArray(indices: Collection<Int>): ByteArray {
    val result = ByteArray(this.size)
    var targetIndex = 0
    for (sourceIndex in indices) {
        result[targetIndex++] = this[sourceIndex]
    }
    return result
}

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val result = ByteArray(indices.size)\n  var targetIndex = 0\n  for (sourceIndex in indices) {\n
result[targetIndex++] = this[sourceIndex]\n  }\n  return result\n}\n\n/**\n * Returns an array containing elements
of this array at specified [indices].\n */\npublic fun ShortArray.sliceArray(indices:
Collection<Int>): ShortArray {\n  val result = ShortArray(indices.size)\n  var targetIndex = 0\n  for
(sourceIndex in indices) {\n    result[targetIndex++] = this[sourceIndex]\n  }\n  return result\n}\n\n/**\n *
Returns an array containing elements of this array at specified [indices].\n */\npublic fun
IntArray.sliceArray(indices: Collection<Int>): IntArray {\n  val result = IntArray(indices.size)\n  var targetIndex
= 0\n  for (sourceIndex in indices) {\n    result[targetIndex++] = this[sourceIndex]\n  }\n  return
result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun
LongArray.sliceArray(indices: Collection<Int>): LongArray {\n  val result = LongArray(indices.size)\n  var
targetIndex = 0\n  for (sourceIndex in indices) {\n    result[targetIndex++] = this[sourceIndex]\n  }\n  return
result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic
fun FloatArray.sliceArray(indices: Collection<Int>): FloatArray {\n  val result = FloatArray(indices.size)\n  var
targetIndex = 0\n  for (sourceIndex in indices) {\n    result[targetIndex++] = this[sourceIndex]\n  }\n  return
result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun
DoubleArray.sliceArray(indices: Collection<Int>): DoubleArray {\n  val result = DoubleArray(indices.size)\n
var targetIndex = 0\n  for (sourceIndex in indices) {\n    result[targetIndex++] = this[sourceIndex]\n  }\n
return result\n}\n\n/**\n * Returns an array containing elements of this array at specified [indices].\n */\npublic fun
BooleanArray.sliceArray(indices: Collection<Int>): BooleanArray {\n  val result = BooleanArray(indices.size)\n
var targetIndex = 0\n  for (sourceIndex in indices) {\n    result[targetIndex++] = this[sourceIndex]\n  }\n
return result\n}\n\n/**\n * Returns an array containing
elements of this array at specified [indices].\n */\npublic fun CharArray.sliceArray(indices: Collection<Int>):
CharArray {\n  val result = CharArray(indices.size)\n  var targetIndex = 0\n  for (sourceIndex in indices) {\n
result[targetIndex++] = this[sourceIndex]\n  }\n  return result\n}\n\n/**\n * Returns an array containing elements
at indices in the specified [indices] range.\n */\npublic fun <T> Array<T>.sliceArray(indices: IntRange): Array<T>
{\n  if (indices.isEmpty()) return copyOfRange(0, 0)\n  return copyOfRange(indices.start, indices.endInclusive +
1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun
ByteArray.sliceArray(indices: IntRange): ByteArray {\n  if (indices.isEmpty()) return ByteArray(0)\n  return
copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices
in the specified [indices] range.\n */\npublic fun ShortArray.sliceArray(indices:
IntRange): ShortArray {\n  if (indices.isEmpty()) return ShortArray(0)\n  return copyOfRange(indices.start,
indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices]
range.\n */\npublic fun IntArray.sliceArray(indices: IntRange): IntArray {\n  if (indices.isEmpty()) return
IntArray(0)\n  return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array
containing elements at indices in the specified [indices] range.\n */\npublic fun LongArray.sliceArray(indices:
IntRange): LongArray {\n  if (indices.isEmpty()) return LongArray(0)\n  return copyOfRange(indices.start,
indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices]
range.\n */\npublic fun FloatArray.sliceArray(indices: IntRange): FloatArray {\n  if (indices.isEmpty()) return
FloatArray(0)\n  return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun
DoubleArray.sliceArray(indices: IntRange): DoubleArray {\n  if (indices.isEmpty()) return DoubleArray(0)\n
return copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns an array containing elements at
indices in the specified [indices] range.\n */\npublic fun BooleanArray.sliceArray(indices: IntRange): BooleanArray
{\n  if (indices.isEmpty()) return BooleanArray(0)\n  return copyOfRange(indices.start, indices.endInclusive +
1)\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n */\npublic fun
CharArray.sliceArray(indices: IntRange): CharArray {\n  if (indices.isEmpty()) return CharArray(0)\n  return
copyOfRange(indices.start, indices.endInclusive + 1)\n}\n\n/**\n * Returns a list containing first [n] elements.\n */
 * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample

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samples.collections.Collections.Transformations.take\n
*/\npublic fun <T> Array<out T>.take(n: Int): List<T> {\n    require(n >= 0) { \"Requested element count $n is less
than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >= size) return toList()\n    if (n == 1) return
listOf(this[0])\n    var count = 0\n    val list = ArrayList<T>(n)\n    for (item in this) {\n        list.add(item)\n        if
(++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n *
@throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun ByteArray.take(n: Int): List<Byte> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >=
size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<Byte>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count
== n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun ShortArray.take(n: Int): List<Short> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >=
size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<Short>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count
== n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun IntArray.take(n: Int): List<Int> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0)
return emptyList()\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list
= ArrayList<Int>(n)\n    for (item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun LongArray.take(n: Int): List<Long> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<Long>(n)\n    for (item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun FloatArray.take(n: Int):
List<Float> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return
emptyList()\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list =
ArrayList<Float>(n)\n    for (item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun DoubleArray.take(n: Int): List<Double> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[0])\n    var
count = 0\n    val list = ArrayList<Double>(n)\n    for (item in this)
{\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list
containing first [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun BooleanArray.take(n: Int): List<Boolean> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >=
size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<Boolean>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count
== n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*/\npublic fun CharArray.take(n: Int): List<Char>
{\n    require(n >= 0) { \"Requested element
count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >= size) return toList()\n    if (n == 1)
return listOf(this[0])\n    var count = 0\n    val list = ArrayList<Char>(n)\n    for (item in this) {\n

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list.add(item)\n    if (++count == n)\n        break\n    }\n    return list\n}\n\n/**\n * Returns a list containing last
[n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun <T> Array<out T>.takeLast(n: Int): List<T>
{\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    val
size = size\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[size - 1])\n    val list =
ArrayList<T>(n)\n    for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns
a list containing last [n] elements.\n * \n * @throws IllegalArgumentException
if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic fun
ByteArray.takeLast(n: Int): List<Byte> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n
if (n == 0) return emptyList()\n    val size = size\n    if (n >= size) return toList()\n    if (n == 1) return
listOf(this[size - 1])\n    val list = ArrayList<Byte>(n)\n    for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun ShortArray.takeLast(n: Int): List<Short> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    val size =
size\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[size - 1])\n    val list = ArrayList<Short>(n)\n
    for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing
last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun IntArray.takeLast(n: Int): List<Int> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    val size =
size\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[size - 1])\n    val list = ArrayList<Int>(n)\n
for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing last
[n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun LongArray.takeLast(n: Int): List<Long> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n
if (n == 0) return emptyList()\n    val size = size\n    if (n >= size) return toList()\n    if (n == 1) return
listOf(this[size - 1])\n    val list = ArrayList<Long>(n)\n    for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun FloatArray.takeLast(n: Int): List<Float> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    val size =
size\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[size - 1])\n    val list = ArrayList<Float>(n)\n
for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing last
[n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\npublic fun DoubleArray.takeLast(n: Int): List<Double> {\n    require(n >= 0) { \"Requested element count $n is
less than zero.\" }\n    if (n == 0) return emptyList()\n    val size = size\n    if (n >= size) return toList()\n    if (n ==
1) return listOf(this[size - 1])\n    val list = ArrayList<Double>(n)\n    for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun BooleanArray.takeLast(n: Int):
List<Boolean> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n    if (n == 0) return
emptyList()\n    val size = size\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[size - 1])\n    val list
= ArrayList<Boolean>(n)\n    for (index in size - n until size)\n        list.add(this[index])\n
    return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if
[n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic fun
CharArray.takeLast(n: Int): List<Char> {\n    require(n >= 0) { \"Requested element count $n is less than zero.\" }\n
if (n == 0) return emptyList()\n    val size = size\n    if (n >= size) return toList()\n    if (n == 1) return

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listOf(this[size - 1])\n  val list = ArrayList<Char>(n)\n  for (index in size - n until size)\nlist.add(this[index])\n  return list\n}\n\n/**\n * Returns a list containing last elements satisfying the given  
[predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic inline fun <T>  
Array<out T>.takeLastWhile(predicate: (T) -> Boolean): List<T> {\n  for (index in lastIndex downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic inline fun  
ByteArray.takeLastWhile(predicate: (Byte) -> Boolean): List<Byte> {\n  for (index in lastIndex downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample  
samples.collections.Collections.Transformations.take\n *\npublic inline fun ShortArray.takeLastWhile(predicate:  
(Short) -> Boolean): List<Short> {\n  for (index in lastIndex downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements  
satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic inline fun IntArray.takeLastWhile(predicate: (Int) -> Boolean): List<Int> {\n  for (index in lastIndex  
downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return  
toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample  
samples.collections.Collections.Transformations.take\n *\npublic inline fun LongArray.takeLastWhile(predicate:  
(Long) -> Boolean): List<Long> {\n  for (index in lastIndex downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements  
satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic  
inline fun FloatArray.takeLastWhile(predicate: (Float) -> Boolean): List<Float> {\n  for (index in lastIndex  
downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements  
satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic  
inline fun DoubleArray.takeLastWhile(predicate: (Double) -> Boolean): List<Double> {\n  for (index in lastIndex  
downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return  
toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample  
samples.collections.Collections.Transformations.take\n *\npublic inline fun  
BooleanArray.takeLastWhile(predicate: (Boolean) -> Boolean): List<Boolean> {\n  for (index in lastIndex  
downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return  
toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample  
samples.collections.Collections.Transformations.take\n *\npublic inline fun  
CharArray.takeLastWhile(predicate: (Char) -> Boolean): List<Char> {\n  for (index in  
lastIndex downTo 0) {\n    if  
(!predicate(this[index])) {\n      return drop(index + 1)\n    }\n  }\n  return  
toList()\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample  
samples.collections.Collections.Transformations.take\n *\npublic inline fun <T> Array<out  
T>.takeWhile(predicate: (T) -> Boolean): List<T> {\n  val list = ArrayList<T>()\n  for (item in this) {\n    if  
(!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\n/**\n * Returns a list containing first  
elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n *\npublic inline fun ByteArray.takeWhile(predicate: (Byte) -> Boolean): List<Byte> {\n  val list =  
ArrayList<Byte>()\n  for (item in this)  
{\n    if  
(!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\n/**\n * Returns a list  
containing first elements satisfying the given [predicate].\n * \n * @sample  
samples.collections.Collections.Transformations.take\n *\npublic inline fun ShortArray.takeWhile(predicate:  
(Short) -> Boolean): List<Short> {\n  val list = ArrayList<Short>()\n  for (item in this) {\n    if  
(!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\n/**\n * Returns a list containing first  
elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n
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*^public inline fun IntArray.takeWhile(predicate: (Int) -> Boolean): List<Int> {\n  val list = ArrayList<Int>()\n  for (item in this) {\n    if (!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\nReturns a list containing first elements satisfying the given [predicate].\n\n * \n * @sample samples.collections.Collections.Transformations.take\n *^public inline fun
LongArray.takeWhile(predicate: (Long) -> Boolean): List<Long> {\n  val list = ArrayList<Long>()\n  for (item
in this) {\n    if (!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\nReturns a
list containing first elements satisfying the given [predicate].\n\n * \n * @sample
samples.collections.Collections.Transformations.take\n *^public inline fun FloatArray.takeWhile(predicate:
(Float) -> Boolean): List<Float> {\n  val list = ArrayList<Float>()\n  for (item in this) {\n    if
(!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\nReturns a list containing first
elements satisfying the given [predicate].\n\n * \n * @sample samples.collections.Collections.Transformations.take\n
*^public inline fun DoubleArray.takeWhile(predicate: (Double) -> Boolean): List<Double> {\n  val list =
ArrayList<Double>()\n  for (item in this) {\n    if (!predicate(item))\n      break\n    list.add(item)\n  }\n
return list\n}\n\nReturns a list containing first elements satisfying the given [predicate].\n\n * \n * @sample
samples.collections.Collections.Transformations.take\n *^public inline fun BooleanArray.takeWhile(predicate:
(Boolean) -> Boolean): List<Boolean> {\n  val list = ArrayList<Boolean>()\n  for (item in this) {\n    if
(!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\nReturns a list containing first
elements satisfying the given [predicate].\n\n * \n * @sample samples.collections.Collections.Transformations.take\n
*^public inline fun CharArray.takeWhile(predicate: (Char) -> Boolean): List<Char> {\n  val list =
ArrayList<Char>()\n  for (item in this) {\n    if (!predicate(item))\n      break\n    list.add(item)\n  }\n
return list\n}\n\nReverses elements in the
array in-place.\n\n *^public fun <T> Array<T>.reverse(): Unit {\n  val midPoint = (size / 2) - 1\n  if (midPoint <
0) return\n  var reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp = this[index]\n    this[index] =
this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses
elements in the array in-place.\n\n *^public fun ByteArray.reverse(): Unit {\n  val midPoint = (size / 2) - 1\n  if
(midPoint < 0) return\n  var reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp = this[index]\n
    this[index] = this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses
elements in the array in-place.\n\n *^public fun ShortArray.reverse(): Unit {\n  val midPoint = (size / 2) -
1\n  if (midPoint < 0) return\n  var reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp =
this[index]\n    this[index] = this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\n
Reverses elements in the array in-place.\n\n *^public fun IntArray.reverse(): Unit {\n  val midPoint = (size / 2) -
1\n  if (midPoint < 0) return\n  var reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp =
this[index]\n    this[index] =
this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses elements in the
array in-place.\n\n *^public fun LongArray.reverse(): Unit {\n  val midPoint = (size / 2) - 1\n  if (midPoint < 0)
return\n  var reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp = this[index]\n    this[index]
= this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses elements in
the array in-place.\n\n *^public fun FloatArray.reverse(): Unit {\n  val midPoint = (size / 2) - 1\n  if (midPoint < 0)
return\n  var reverseIndex
= lastIndex\n  for (index in 0..midPoint) {\n    val tmp = this[index]\n    this[index] = this[reverseIndex]\n
    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses elements in the array in-place.\n\n *^public
fun DoubleArray.reverse(): Unit {\n  val midPoint = (size / 2) - 1\n  if (midPoint < 0) return\n  var
reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp = this[index]\n    this[index] =
this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses elements in the
array in-place.\n\n *^public fun BooleanArray.reverse(): Unit {\n  val midPoint = (size / 2) - 1\n  if (midPoint < 0)
return\n  var reverseIndex = lastIndex\n  for (index in 0..midPoint) {\n    val tmp = this[index]\n    this[index]
= this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\nReverses elements in

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the array in-place.\n */\npublic
fun CharArray.reverse(): Unit {\n    val midPoint = (size / 2) - 1\n    if (midPoint < 0) return\n    var reverseIndex =
lastIndex\n    for (index in 0..midPoint) {\n        val tmp = this[index]\n        this[index] = this[reverseIndex]\n
this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n/**\n * Reverses elements of the array in the specified
range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end
of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero
or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater
than [toIndex].\n */\n@SinceKotlin("1.4")\npublic fun <T> Array<T>.reverse(fromIndex: Int, toIndex: Int): Unit
{\n    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    val midPoint = (fromIndex + toIndex) / 2\n    if
(fromIndex == midPoint) return\n    var reverseIndex
= toIndex - 1\n    for (index in fromIndex until midPoint) {\n        val tmp = this[index]\n        this[index] =
this[reverseIndex]\n        this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n/**\n * Reverses elements of the
array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n *
@param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin("1.4")\npublic fun
ByteArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex,
size)\n    val midPoint = (fromIndex + toIndex) / 2\n    if (fromIndex == midPoint) return\n    var reverseIndex =
toIndex - 1\n    for (index in fromIndex until midPoint) {\n        val tmp = this[index]\n        this[index]
= this[reverseIndex]\n        this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n/**\n * Reverses elements of
the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n *
@param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin("1.4")\npublic fun
ShortArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex,
size)\n    val midPoint = (fromIndex + toIndex) / 2\n    if (fromIndex == midPoint) return\n    var reverseIndex =
toIndex - 1\n    for (index in fromIndex until midPoint) {\n        val tmp = this[index]\n        this[index] =
this[reverseIndex]\n        this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n/**\n * Reverses
elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to
reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin("1.4")\npublic
fun IntArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex,
size)\n    val midPoint = (fromIndex + toIndex) / 2\n    if (fromIndex == midPoint) return\n    var reverseIndex =
toIndex - 1\n    for (index in fromIndex until midPoint) {\n        val tmp = this[index]\n        this[index] =
this[reverseIndex]\n        this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n/**\n * Reverses elements of the
array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive)
to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is greater than [toIndex].\n */\n@SinceKotlin("1.4")\npublic
fun LongArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    AbstractList.checkRangeIndexes(fromIndex,
toIndex, size)\n    val midPoint = (fromIndex + toIndex) / 2\n    if (fromIndex == midPoint) return\n    var
reverseIndex = toIndex - 1\n    for (index in fromIndex until midPoint) {\n        val tmp = this[index]\n
this[index] = this[reverseIndex]\n        this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n/**\n * Reverses
elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to
reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException

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if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n *^\n@SinceKotlin("1.4")\npublic fun
FloatArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n  AbstractList.checkRangeIndexes(fromIndex, toIndex,
size)\n  val midPoint = (fromIndex + toIndex) / 2\n  if (fromIndex == midPoint) return\n  var reverseIndex =
toIndex - 1\n  for (index in fromIndex until midPoint) {\n    val tmp = this[index]\n    this[index] =
this[reverseIndex]\n    this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\n/**\n * Reverses elements of the
array in the specified range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n *
@param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException
if [fromIndex] is greater than [toIndex].\n *^\n@SinceKotlin("1.4")\npublic fun DoubleArray.reverse(fromIndex:
Int, toIndex: Int): Unit {\n  AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  val midPoint =
(fromIndex + toIndex) / 2\n  if (fromIndex == midPoint) return\n  var reverseIndex = toIndex - 1\n  for (index in
fromIndex until midPoint) {\n    val tmp = this[index]\n    this[index] = this[reverseIndex]\n
this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\n/**\n * Reverses elements of the array in the specified
range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end
of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero
or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater
than [toIndex].\n *^\n@SinceKotlin("1.4")\npublic fun BooleanArray.reverse(fromIndex:
Int, toIndex: Int): Unit {\n  AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  val midPoint =
(fromIndex + toIndex) / 2\n  if (fromIndex == midPoint) return\n  var reverseIndex = toIndex - 1\n  for (index in
fromIndex until midPoint) {\n    val tmp = this[index]\n    this[index] = this[reverseIndex]\n
this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\n/**\n * Reverses elements of the array in the specified
range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end
of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero
or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater
than [toIndex].\n *^\n@SinceKotlin("1.4")\npublic fun CharArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n
val midPoint = (fromIndex + toIndex) / 2\n  if (fromIndex == midPoint) return\n  var reverseIndex = toIndex -
1\n  for (index in fromIndex until midPoint) {\n    val tmp = this[index]\n    this[index] = this[reverseIndex]\n
this[reverseIndex] = tmp\n    reverseIndex--\n  }\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n *^\npublic fun <T> Array<out T>.reversed(): List<T> {\n  if (isEmpty()) return emptyList()\n  val list =
toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n *^\npublic fun ByteArray.reversed(): List<Byte> {\n  if (isEmpty()) return emptyList()\n  val list =
toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n *^\npublic fun ShortArray.reversed(): List<Short> {\n  if (isEmpty()) return emptyList()\n  val list =
toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a
list with elements in reversed order.\n *^\npublic fun IntArray.reversed(): List<Int> {\n  if (isEmpty()) return
emptyList()\n  val list = toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with elements
in reversed order.\n *^\npublic fun LongArray.reversed(): List<Long> {\n  if (isEmpty()) return emptyList()\n  val
list = toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n *^\npublic fun FloatArray.reversed(): List<Float> {\n  if (isEmpty()) return emptyList()\n  val list =
toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n *^\npublic fun DoubleArray.reversed(): List<Double> {\n  if (isEmpty()) return emptyList()\n  val list =
toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n *^\npublic fun BooleanArray.reversed(): List<Boolean> {\n  if (isEmpty())
return emptyList()\n  val list = toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns a list with
elements in reversed order.\n *^\npublic fun CharArray.reversed(): List<Char> {\n  if (isEmpty()) return

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emptyList()\n  val list = toMutableList()\n  list.reverse()\n  return list\n}\n\n/**\n * Returns an array with
elements of this array in reversed order.\n */\npublic fun <T> Array<T>.reversedArray(): Array<T> {\n  if
(isEmpty()) return this\n  val result = arrayOfNulls(this, size)\n  val lastIndex = lastIndex\n  for (i in
0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return result\n}\n\n/**\n * Returns an array with elements of this
array in reversed order.\n */\npublic fun ByteArray.reversedArray(): ByteArray {\n  if (isEmpty()) return this\n
val result = ByteArray(size)\n  val lastIndex = lastIndex\n  for (i in 0..lastIndex)\n    result[lastIndex - i] =
this[i]\n  return result\n}\n\n/**\n * Returns an array
with elements of this array in reversed order.\n */\npublic fun ShortArray.reversedArray(): ShortArray {\n  if
(isEmpty()) return this\n  val result = ShortArray(size)\n  val lastIndex = lastIndex\n  for (i in 0..lastIndex)\n
result[lastIndex - i] = this[i]\n  return result\n}\n\n/**\n * Returns an array with elements of this array in reversed
order.\n */\npublic fun IntArray.reversedArray(): IntArray {\n  if (isEmpty()) return this\n  val result =
IntArray(size)\n  val lastIndex = lastIndex\n  for (i in 0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return
result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun
LongArray.reversedArray(): LongArray {\n  if (isEmpty()) return this\n  val result = LongArray(size)\n  val
lastIndex = lastIndex\n  for (i in 0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return result\n}\n\n/**\n *
Returns an array with elements of this array in reversed
order.\n */\npublic fun FloatArray.reversedArray(): FloatArray {\n  if (isEmpty()) return this\n  val result =
FloatArray(size)\n  val lastIndex = lastIndex\n  for (i in 0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return
result\n}\n\n/**\n * Returns an array with elements of this array in reversed order.\n */\npublic fun
DoubleArray.reversedArray(): DoubleArray {\n  if (isEmpty()) return this\n  val result = DoubleArray(size)\n
val lastIndex = lastIndex\n  for (i in 0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return result\n}\n\n/**\n *
Returns an array with elements of this array in reversed order.\n */\npublic fun BooleanArray.reversedArray():
BooleanArray {\n  if (isEmpty()) return this\n  val result = BooleanArray(size)\n  val lastIndex = lastIndex\n
for (i in 0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return result\n}\n\n/**\n * Returns an array with
elements of this array in reversed order.\n */\npublic fun
CharArray.reversedArray(): CharArray {\n  if (isEmpty()) return this\n  val result = CharArray(size)\n  val
lastIndex = lastIndex\n  for (i in 0..lastIndex)\n    result[lastIndex - i] = this[i]\n  return result\n}\n\n/**\n *
Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun <T>
Array<T>.shuffle(): Unit {\n  shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun ByteArray.shuffle(): Unit {\n  shuffle(Random)\n}\n\n/**\n * Randomly
shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun ShortArray.shuffle(): Unit {\n
shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun IntArray.shuffle(): Unit {\n  shuffle(Random)\n}\n\n/**\n * Randomly
shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun LongArray.shuffle(): Unit {\n
shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun FloatArray.shuffle():
Unit {\n  shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun DoubleArray.shuffle(): Unit {\n  shuffle(Random)\n}\n\n/**\n * Randomly
shuffles elements in this array in-place.\n */\n@SinceKotlin("1.4")\npublic fun BooleanArray.shuffle(): Unit {\n
shuffle(Random)\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n */\n *
See: https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\_shuffle#The\_modern\_algorithm\n */\n@SinceKotlin("1.4")\npublic fun <T> Array<T>.shuffle(random: Random): Unit {\n  for (i in lastIndex
downTo 1) {\n    val j = random.nextInt(i
+ 1)\n    val copy = this[i]\n    this[i] = this[j]\n    this[j] = copy\n  }\n}\n\n/**\n * Randomly shuffles
elements in this array in-place using the specified [random] instance as the source of randomness.\n */\n * See:
https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\_shuffle#The\_modern\_algorithm\n

```

```
*\n@SinceKotlin("1.4")\npublic fun ByteArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun ShortArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun IntArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun LongArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun FloatArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun DoubleArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun BooleanArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
```

[https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)

```
*\n@SinceKotlin("1.4")\npublic fun CharArray.shuffle(random: Random): Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n * Sorts elements in the array in-place according to natural sort order of the value returned by specified [selector] function.\n * \n *
```

The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.

```
*\npublic inline fun <T, R : Comparable<R>> Array<out T>.sortBy(crossinline selector: (T) -> R?): Unit {\n    if (size > 1) sortByDescending(selector)\n}\n\n/**\n * Sorts elements in the array in-place descending according to natural sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * public inline fun <T, R :
```

```
Comparable<R>> Array<out T>.sortByDescending(crossinline selector: (T) -> R?): Unit {\n    if (size > 1) sortByDescending(selector)\n}\n\n/**\n * Sorts elements in the array in-place descending according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * public fun <T : Comparable<T>> Array<out T>.sortDescending():
```

```

Unit {
    sortWith(reverseOrder())
}

/**
 * Sorts elements in the array in-place descending according to their
 * natural sort order.
 */
public fun ByteArray.sortDescending(): Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Sorts elements in the array in-place descending according to their natural sort order.
 */
public fun ShortArray.sortDescending(): Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Sorts elements in the array in-place descending according to their natural sort order.
 */
public fun IntArray.sortDescending(): Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Sorts elements
 * in the array in-place descending according to their natural sort order.
 */
public fun LongArray.sortDescending():
Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Sorts elements in the array in-place
 * descending according to their natural sort order.
 */
public fun FloatArray.sortDescending(): Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Sorts elements in the array in-place descending according to their natural sort order.
 */
public fun DoubleArray.sortDescending(): Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Sorts
 * elements in the array in-place descending according to their natural sort order.
 */
public fun CharArray.sortDescending(): Unit {
    if (size > 1) {
        sort()
        reverse()
    }
}

/**
 * Returns a list
 * of all elements sorted according to their natural sort order.
 *
 * The sort is _stable_. It means that equal elements
 * preserve their order relative to each other after sorting.
 */
public fun <T : Comparable<T>> Array<out
T>.sorted(): List<T> {
    return sortedArray().asList()
}

/**
 * Returns a list of all elements sorted according
 * to their natural sort order.
 */
public fun ByteArray.sorted(): List<Byte>
{
    return toTypedArray().apply { sort() }.asList()
}

/**
 * Returns a list of all elements sorted according to their natural sort order.
 */
public fun ShortArray.sorted(): List<Short> {
    return toTypedArray().apply { sort() }.asList()
}

/**
 * Returns a list of all elements sorted according to their natural sort order.
 */
public fun IntArray.sorted(): List<Int> {
    return toTypedArray().apply { sort() }.asList()
}

/**
 * Returns a list of all
 * elements sorted according to their natural sort order.
 */
public fun LongArray.sorted(): List<Long> {
    return
toTypedArray().apply { sort() }.asList()
}

/**
 * Returns a list of all elements sorted according to their natural
 * sort order.
 */
public fun FloatArray.sorted(): List<Float> {
    return toTypedArray().apply { sort()
}.asList()
}

/**
 * Returns a list of all elements sorted according to their natural sort order.
 */
public fun DoubleArray.sorted(): List<Double> {
    return toTypedArray().apply
{
    sort() }.asList()
}

/**
 * Returns a list of all elements sorted according to their natural sort order.
 */
public fun CharArray.sorted(): List<Char> {
    return toTypedArray().apply { sort() }.asList()
}

/**
 * Returns an array with all elements of this array sorted according to their natural sort order.
 *
 * The sort is
 * _stable_. It means that equal elements preserve their order relative to each other after sorting.
 */
public fun <T :
Comparable<T>> Array<T>.sortedArray(): Array<T> {
    if (isEmpty()) return this
    return this.copyOf().apply
{
    sort() }
}

/**
 * Returns an array with all elements of this array sorted according to their natural sort order.
 */
public fun ByteArray.sortedArray(): ByteArray {
    if (isEmpty()) return this
    return this.copyOf().apply
{
    sort() }
}

/**
 * Returns an array with all elements of this array sorted according to their natural sort order.
 */
public fun ShortArray.sortedArray(): ShortArray
{
    if (isEmpty()) return this
    return this.copyOf().apply { sort() }
}

/**
 * Returns an array with all
 * elements of this array sorted according to their natural sort order.
 */
public fun IntArray.sortedArray(): IntArray
{
    if (isEmpty()) return this
    return this.copyOf().apply { sort() }
}

/**
 * Returns an array with all
 * elements of this array sorted according to their natural sort order.
 */
public fun LongArray.sortedArray():
LongArray {
    if (isEmpty()) return this
    return this.copyOf().apply { sort() }
}

/**
 * Returns an array
 * with all elements of this array sorted according to their natural sort order.
 */
public fun FloatArray.sortedArray():
FloatArray {
    if (isEmpty()) return this
    return this.copyOf().apply { sort() }
}

/**
 * Returns an array
 * with all elements of this array sorted according to their natural sort order.
 */
public fun DoubleArray.sortedArray(): DoubleArray {
    if (isEmpty()) return this
    return this.copyOf().apply { sort() }
}

/**
 * Returns an array with all elements of this array sorted
 * according to their natural sort order.
 */
public fun CharArray.sortedArray(): CharArray {
    if (isEmpty())
return this
    return this.copyOf().apply { sort() }
}

/**
 * Returns an array with all elements of this array
 */

```

sorted descending according to their natural sort order.\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\n \*/\npublic fun <T : Comparable<T>>  
Array<T>.sortedArrayDescending(): Array<T> {\n if (isEmpty()) return this\n return this.copyOf().apply {  
sortWith(reverseOrder()) }\n}\n\n/\*\*\n \* Returns an array with all elements of this array sorted descending  
according to their natural sort order.\n \*/\npublic fun ByteArray.sortedArrayDescending(): ByteArray {\n if  
(isEmpty()) return this\n return this.copyOf().apply { sortDescending() }\n}\n\n/\*\*\n \* Returns an array with all  
elements of this array sorted descending according to their natural sort order.\n \*/\npublic fun  
ShortArray.sortedArrayDescending(): ShortArray {\n if (isEmpty()) return this\n return this.copyOf().apply {  
sortDescending() }\n}\n\n/\*\*\n \* Returns an array with all elements of this array sorted descending according to  
their natural sort order.\n \*/\npublic fun IntArray.sortedArrayDescending(): IntArray {\n if (isEmpty()) return  
this\n return this.copyOf().apply { sortDescending() }\n}\n\n/\*\*\n \* Returns an array with all elements of this  
array sorted descending according to their natural sort order.\n \*/\npublic fun LongArray.sortedArrayDescending():  
LongArray {\n if (isEmpty()) return this\n return this.copyOf().apply { sortDescending() }\n}\n\n/\*\*\n \* Returns  
an array with all elements of this array sorted descending according to their natural sort order.\n \*/\npublic fun  
FloatArray.sortedArrayDescending(): FloatArray {\n if (isEmpty()) return this\n return this.copyOf().apply  
{ sortDescending() }\n}\n\n/\*\*\n \* Returns an array with all elements of this array sorted descending according to  
their natural sort order.\n \*/\npublic fun DoubleArray.sortedArrayDescending(): DoubleArray {\n if (isEmpty())  
return this\n return this.copyOf().apply { sortDescending() }\n}\n\n/\*\*\n \* Returns an array with all elements of  
this array sorted descending according to their natural sort order.\n \*/\npublic fun  
CharArray.sortedArrayDescending(): CharArray {\n if (isEmpty()) return this\n return this.copyOf().apply {  
sortDescending() }\n}\n\n/\*\*\n \* Returns an array with all elements of this array sorted according the specified  
[comparator].\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other  
after sorting.\n \*/\npublic fun <T> Array<out T>.sortedArrayWith(comparator: Comparator<in T>): Array<out T>  
{\n if (isEmpty()) return this\n return this.copyOf().apply { sortWith(comparator) }\n}\n\n/\*\*\n \*  
Returns a list of all elements sorted according to natural sort order of the value returned by specified [selector]  
function.\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after  
sorting.\n \* \n \* @sample samples.collections.Collections.Sorting.sortedBy\n \*/\npublic inline fun <T, R :  
Comparable<R>> Array<out T>.sortedBy(crossinline selector: (T) -> R?): List<T> {\n return  
sortedWith(compareBy(selector))\n}\n\n/\*\*\n \* Returns a list of all elements sorted according to natural sort order  
of the value returned by specified [selector] function.\n \* \n \* @sample  
samples.collections.Collections.Sorting.sortedBy\n \*/\npublic inline fun <R : Comparable<R>>  
ByteArray.sortedBy(crossinline selector: (Byte) -> R?): List<Byte> {\n return  
sortedWith(compareBy(selector))\n}\n\n/\*\*\n \* Returns a list of all elements sorted according to natural sort order  
of the value returned by specified [selector] function.\n \* \n \* @sample  
samples.collections.Collections.Sorting.sortedBy\n \*/\npublic inline fun <R : Comparable<R>> ShortArray.sortedBy(crossinline selector: (Short) -> R?): List<Short>  
{\n return sortedWith(compareBy(selector))\n}\n\n/\*\*\n \* Returns a list of all elements sorted according to natural  
sort order of the value returned by specified [selector] function.\n \* \n \* @sample  
samples.collections.Collections.Sorting.sortedBy\n \*/\npublic inline fun <R : Comparable<R>>  
IntArray.sortedBy(crossinline selector: (Int) -> R?): List<Int> {\n return  
sortedWith(compareBy(selector))\n}\n\n/\*\*\n \* Returns a list of all elements sorted according to natural sort order  
of the value returned by specified [selector] function.\n \* \n \* @sample  
samples.collections.Collections.Sorting.sortedBy\n \*/\npublic inline fun <R : Comparable<R>>  
LongArray.sortedBy(crossinline selector: (Long) -> R?): List<Long> {\n return  
sortedWith(compareBy(selector))\n}\n\n/\*\*\n \* Returns a list of all elements sorted according to natural  
sort order of the value returned by specified [selector] function.\n \* \n \* @sample  
samples.collections.Collections.Sorting.sortedBy\n \*/\npublic inline fun <R : Comparable<R>>  
FloatArray.sortedBy(crossinline selector: (Float) -> R?): List<Float> {\n return

```

sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order
of the value returned by specified [selector] function.\n * \n * @sample
samples.collections.Collections.Sorting.sortedBy\n * \n\npublic inline fun <R : Comparable<R>>
DoubleArray.sortedBy(crossinline selector: (Double) -> R?): List<Double> {\n return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order
of the value returned by specified [selector] function.\n * \n * @sample
samples.collections.Collections.Sorting.sortedBy\n * \n\npublic inline fun <R : Comparable<R>>
BooleanArray.sortedBy(crossinline selector: (Boolean) -> R?): List<Boolean> {\n return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted according to natural sort order
of the value returned by specified [selector] function.\n * \n * @sample
samples.collections.Collections.Sorting.sortedBy\n * \n\npublic inline fun <R : Comparable<R>>
CharArray.sortedBy(crossinline selector: (Char) -> R?): List<Char> {\n return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending according to natural
sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal
elements preserve their order relative to each other after sorting.\n * \n\npublic inline fun <T, R : Comparable<R>>
Array<out T>.sortedByDescending(crossinline selector: (T) -> R?): List<T> {\n return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic
inline fun <R : Comparable<R>> ByteArray.sortedByDescending(crossinline selector: (Byte) -> R?): List<Byte>
{\n return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted
descending according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline
fun <R : Comparable<R>> ShortArray.sortedByDescending(crossinline selector: (Short) -> R?): List<Short> {\n
return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline fun <R :
Comparable<R>> IntArray.sortedByDescending(crossinline selector: (Int) -> R?): List<Int> {\n return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline
fun <R : Comparable<R>> LongArray.sortedByDescending(crossinline selector: (Long) -> R?): List<Long> {\n
return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline fun <R :
Comparable<R>> FloatArray.sortedByDescending(crossinline selector: (Float) -> R?): List<Float> {\n return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline fun <R :
Comparable<R>> DoubleArray.sortedByDescending(crossinline selector: (Double) -> R?): List<Double> {\n
return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline fun <R
: Comparable<R>> BooleanArray.sortedByDescending(crossinline selector: (Boolean) -> R?): List<Boolean> {\n
return sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to natural sort order of the value returned by specified [selector] function.\n * \n\npublic inline fun <R :
Comparable<R>> CharArray.sortedByDescending(crossinline selector: (Char) -> R?): List<Char> {\n return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order
relative to each other after sorting.\n * \n\npublic fun <T : Comparable<T>> Array<out T>.sortedDescending():
List<T> {\n return sortedWith(reverseOrder())\n}\n\n/**\n * Returns a list of all elements sorted descending
according to their natural sort order.\n * \n\npublic fun ByteArray.sortedDescending(): List<Byte> {\n return
copyOf().apply { sort() }.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their
natural sort order.\n * \n\npublic fun ShortArray.sortedDescending(): List<Short> {\n return copyOf().apply { sort()
}.reversed()\n}\n\n/**\n * Returns a list of all elements sorted descending according to their natural sort order.\n

```

```

*^/npublic fun IntArray.sortedDescending(): List<Int> {\n  return copyOf().apply { sort() }.reversed()\n}\n/n/**\n
* Returns a list of all elements sorted descending according to their natural sort order.\n ^/npublic fun
LongArray.sortedDescending(): List<Long> {\n  return copyOf().apply { sort() }.reversed()\n}\n/n/**\n * Returns
a list of all elements sorted descending according to their natural sort order.\n ^/npublic fun
FloatArray.sortedDescending(): List<Float> {\n  return copyOf().apply { sort() }.reversed()\n}\n/n/**\n * Returns
a list of all elements sorted descending according to their natural sort order.\n ^/npublic fun
DoubleArray.sortedDescending(): List<Double> {\n  return copyOf().apply { sort() }.reversed()\n}\n/n/**\n *
Returns a list of all elements sorted descending according to their natural sort order.\n ^/npublic fun
CharArray.sortedDescending(): List<Char> {\n  return copyOf().apply { sort() }.reversed()\n}\n/n/**\n * Returns a
list of all elements sorted according to the specified [comparator].\n * \n * The sort is _stable_. It means that equal
elements preserve their order relative to each other after sorting.\n ^/npublic fun <T> Array<out
T>.sortedWith(comparator: Comparator<in T>): List<T> {\n  return
sortedArrayWith(comparator).asList()\n}\n/n/**\n * Returns a list of all elements sorted according to the specified
[comparator].\n ^/npublic fun ByteArray.sortedWith(comparator: Comparator<in Byte>): List<Byte> {\n  return
toTypedArray().apply { sortWith(comparator) }.asList()\n}\n/n/**\n * Returns a list of all elements sorted according
to the specified [comparator].\n ^/npublic
fun ShortArray.sortedWith(comparator: Comparator<in Short>): List<Short> {\n  return toTypedArray().apply {
sortWith(comparator) }.asList()\n}\n/n/**\n * Returns a list of all elements sorted according to the specified
[comparator].\n ^/npublic fun IntArray.sortedWith(comparator: Comparator<in Int>): List<Int> {\n  return
toTypedArray().apply { sortWith(comparator) }.asList()\n}\n/n/**\n * Returns a list of all elements sorted according
to the specified [comparator].\n ^/npublic fun LongArray.sortedWith(comparator: Comparator<in Long>):
List<Long> {\n  return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n/n/**\n * Returns a list of all
elements sorted according to the specified [comparator].\n ^/npublic fun FloatArray.sortedWith(comparator:
Comparator<in Float>): List<Float> {\n  return toTypedArray().apply { sortWith(comparator)
}.asList()\n}\n/n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n ^/npublic fun
DoubleArray.sortedWith(comparator:
Comparator<in Double>): List<Double> {\n  return toTypedArray().apply { sortWith(comparator)
}.asList()\n}\n/n/**\n * Returns a list of all elements sorted according to the specified [comparator].\n ^/npublic fun
BooleanArray.sortedWith(comparator: Comparator<in Boolean>): List<Boolean> {\n  return
toTypedArray().apply { sortWith(comparator) }.asList()\n}\n/n/**\n * Returns a list of all elements sorted according
to the specified [comparator].\n ^/npublic fun CharArray.sortedWith(comparator: Comparator<in Char>):
List<Char> {\n  return toTypedArray().apply { sortWith(comparator) }.asList()\n}\n/n/**\n * Returns a [List] that
wraps the original array.\n ^/npublic expect fun <T> Array<out T>.asList(): List<T>\n/n/**\n * Returns a [List]
that wraps the original array.\n ^/npublic expect fun ByteArray.asList(): List<Byte>\n/n/**\n * Returns a [List] that
wraps the original array.\n ^/npublic expect fun ShortArray.asList(): List<Short>\n/n/**\n * Returns
a [List] that wraps the original array.\n ^/npublic expect fun IntArray.asList(): List<Int>\n/n/**\n * Returns a [List]
that wraps the original array.\n ^/npublic expect fun LongArray.asList(): List<Long>\n/n/**\n * Returns a [List]
that wraps the original array.\n ^/npublic expect fun FloatArray.asList(): List<Float>\n/n/**\n * Returns a [List]
that wraps the original array.\n ^/npublic expect fun DoubleArray.asList(): List<Double>\n/n/**\n * Returns a
[List] that wraps the original array.\n ^/npublic expect fun BooleanArray.asList(): List<Boolean>\n/n/**\n *
Returns a [List] that wraps the original array.\n ^/npublic expect fun CharArray.asList(): List<Char>\n/n/**\n *
Returns `true` if the two specified arrays are *deeply* equal to one another,\n * i.e. contain the same number of the
same elements in the same order.\n * \n * If two corresponding elements are nested arrays, they are also compared
deeply.\n * If any of arrays contains itself on any nesting level the behavior
is undefined.\n * \n * The elements of other types are compared for equality with the [equals][Any.equals]
function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n
^/n@SinceKotlin("1.1")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic expect infix fun <T>
Array<out T>.contentDeepEquals(other: Array<out T>): Boolean\n/n/**\n * Returns `true` if the two specified

```



arrays are *\*deeply\** equal to one another, \n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The specified arrays are also considered deeply equal if both are `null`. \n \* \n \* If two corresponding elements are nested arrays, they are also compared deeply. \n \* If any of arrays contains itself on any nesting level the behavior is undefined. \n \* \n \* The elements of other types are compared for equality with the [equals][Any.equals] function. \n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`. \n \* \n @SinceKotlin("1.4")\npublic expect infix fun <T> Array<out T>?.contentDeepEquals(other: Array<out T>?): Boolean\n\n/\*\* \n \* Returns a hash code based on the contents of this array as if it is [List]. \n \* Nested arrays are treated as lists too. \n \* \n \* If any of arrays contains itself on any nesting level the behavior is undefined. \n \* \n @SinceKotlin("1.1")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic expect fun <T> Array<out T>.contentDeepHashCode(): Int\n\n/\*\* \n \* Returns a hash code based on the contents of this array as if it is [List]. \n \* Nested arrays are treated as lists too. \n \* \n \* If any of arrays contains itself on any nesting level the behavior is undefined. \n \* \n @SinceKotlin("1.4")\npublic expect fun <T> Array<out T>?.contentDeepHashCode(): Int\n\n/\*\* \n \* Returns a string representation of the contents of this array as if it is a [List]. \n \* Nested arrays are treated as lists too. \n \* \n \* If any of arrays contains itself on any nesting level that reference \n \* is rendered as `[...]` to prevent recursion. \n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentDeepToString\n \* \n @SinceKotlin("1.1")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic expect fun <T> Array<out T>.contentDeepToString(): String\n\n/\*\* \n \* Returns a string representation of the contents of this array as if it is a [List]. \n \* Nested arrays are treated as lists too. \n \* \n \* If any of arrays contains itself on any nesting level that reference \n \* is rendered as `[...]` to prevent recursion. \n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentDeepToString\n \* \n @SinceKotlin("1.4")\npublic expect fun <T> Array<out T>?.contentDeepToString(): String\n\n/\*\* \n \* Returns `true` if the two specified arrays are *\*structurally\** equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n \* The elements are compared for equality with the [equals][Any.equals] function. \n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`. \n \* \n @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun <T> Array<out T>.contentEquals(other: Array<out T>): Boolean\n\n/\*\* \n \* Returns `true` if the two specified arrays are *\*structurally\** equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n \* The elements are compared for equality with the [equals][Any.equals] function. \n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`. \n \* \n @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun ByteArray.contentEquals(other: ByteArray): Boolean\n\n/\*\* \n \* Returns `true` if the two specified arrays are *\*structurally\** equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n \* The elements are compared for equality with the [equals][Any.equals] function. \n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`. \n \* \n @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun ShortArray.contentEquals(other: ShortArray): Boolean\n\n/\*\* \n \* Returns `true` if the two specified arrays are *\*structurally\** equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n \* The elements are compared for equality with the [equals][Any.equals] function. \n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`. \n \* \n @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun IntArray.contentEquals(other: IntArray): Boolean\n\n/\*\* \n \* Returns `true` if the two specified arrays are *\*structurally\** equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n \* The elements are compared for equality with the [equals][Any.equals] function. \n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`. \n \* \n @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun LongArray.contentEquals(other: LongArray): Boolean

warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun LongArray.contentEquals(other: LongArray): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun FloatArray.contentEquals(other: FloatArray): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun DoubleArray.contentEquals(other: DoubleArray): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun BooleanArray.contentEquals(other: BooleanArray): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect infix fun CharArray.contentEquals(other: CharArray): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@SinceKotlin("1.4")\npublic expect infix fun <T> Array<out T>?.contentEquals(other: Array<out T>?): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@SinceKotlin("1.4")\npublic expect infix fun ByteArray?.contentEquals(other: ByteArray?): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@SinceKotlin("1.4")\npublic expect infix fun ShortArray?.contentEquals(other: ShortArray?): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@SinceKotlin("1.4")\npublic expect infix fun IntArray?.contentEquals(other: IntArray?): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n \*/\n@SinceKotlin("1.4")\npublic expect infix fun LongArray?.contentEquals(other: LongArray?): Boolean\n\n/\*\*\n \* Returns `true` if the two specified arrays are \*structurally\* equal to one another,\n \* i.e. contain the same number of the same elements in the same order.\n \* \n \* The elements are compared for equality with the [equals][Any.equals] function.\n \* For floating point numbers it means that `NaN` is equal to itself

and `-0.0` is not equal to `0.0`.  
`FloatArray?.contentEquals(other: FloatArray?): Boolean`  
 \* Returns `true` if the two specified arrays are \*structurally\* equal to one another, i.e. contain the same number of the same elements in the same order.  
 \* The elements are compared for equality with the `[equals][Any.equals]` function.  
 \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`DoubleArray?.contentEquals(other: DoubleArray?): Boolean`  
 \* Returns `true` if the two specified arrays are \*structurally\* equal to one another, i.e. contain the same number of the same elements in the same order.  
 \* The elements are compared for equality with the `[equals][Any.equals]` function.  
 \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`BooleanArray?.contentEquals(other: BooleanArray?): Boolean`  
 \* Returns `true` if the two specified arrays are \*structurally\* equal to one another, i.e. contain the same number of the same elements in the same order.  
 \* The elements are compared for equality with the `[equals][Any.equals]` function.  
 \* For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`CharArray?.contentEquals(other: CharArray?): Boolean`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun <T> Array<out T>.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun ByteArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun ShortArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun LongArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun FloatArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun DoubleArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun BooleanArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")`  
`@SinceKotlin("1.1")`  
`@DeprecatedSinceKotlin(hiddenSince = "1.4")`  
`public expect fun CharArray.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@SinceKotlin("1.4")`  
`public expect fun <T> Array<out T>?.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@SinceKotlin("1.4")`  
`public expect fun ByteArray?.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@SinceKotlin("1.4")`  
`public expect fun ShortArray?.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.  
`@SinceKotlin("1.4")`  
`public expect fun IntArray?.contentHashCode(): Int`  
 \* Returns a hash code based on the contents of this array as if it is `[List]`.

[List].n \* ^\n@SinceKotlin("1.4")\npublic expect fun LongArray?.contentHashCode(): Int\n\n/\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].n \* ^\n@SinceKotlin("1.4")\npublic expect fun FloatArray?.contentHashCode(): Int\n\n/\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].n \* ^\n@SinceKotlin("1.4")\npublic expect fun DoubleArray?.contentHashCode(): Int\n\n/\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].n \* ^\n@SinceKotlin("1.4")\npublic expect fun BooleanArray?.contentHashCode(): Int\n\n/\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].n \* ^\n@SinceKotlin("1.4")\npublic expect fun CharArray?.contentHashCode(): Int\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun <T> Array<out T>.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun ByteArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun ShortArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun IntArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun LongArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun FloatArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun DoubleArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun BooleanArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.\")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic expect fun CharArray.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* ^\n@SinceKotlin("1.4")\npublic expect fun <T> Array<out T>?.contentToString(): String\n\n/\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].n \* \n \* @sample

`samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun ByteArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun ShortArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun IntArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun LongArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun FloatArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun DoubleArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun BooleanArray?.contentToString(): String` `*/n/n/**/n` \* Returns a string representation of the contents of the specified array as if it is [List]. `*/n/n * @sample samples.collections.Arrays.ContentOperations.contentToString` `*^/n@SinceKotlin("1.4")` `public expect fun CharArray?.contentToString(): String` `*/n/n/**/n` \* Copies this array or its subrange into the [destination] array and returns that array. `*/n/n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.` `*/n/n * @param destination the array to copy to.` `*/n/n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.` `*/n/n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.` `*/n/n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.` `*/n/n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.` `*/n/n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],` `*/n/n * or when that index is out of the [destination] array indices range.` `*/n/n * @return the [destination] array.` `*/n/n@SinceKotlin("1.3")` `public expect fun <T> Array<out T>.copyInto(destination: Array<T>, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): Array<T>` `*/n/n/**/n` \* Copies this array or its subrange into the [destination] array and returns that array. `*/n/n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.` `*/n/n * @param destination the array to copy to.` `*/n/n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.` `*/n/n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.` `*/n/n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.` `*/n/n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.` `*/n/n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],` `*/n/n * or when that index is out of the [destination] array indices range.` `*/n/n * @return the [destination] array.` `*/n/n@SinceKotlin("1.3")` `public expect fun ByteArray.copyInto(destination: ByteArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ByteArray` `*/n/n/**/n` \* Copies this array or its subrange into the [destination] array and returns that array. `*/n/n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.` `*/n/n * @param destination the array to copy to.` `*/n/n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.` `*/n/n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.` `*/n/n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.` `*/n/n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.` `*/n/n * @throws`

IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n \*\n \* @SinceKotlin("1.3")\n \* public expect fun ShortArray.copyInto(destination: ShortArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): ShortArray\n \*\n \* Copies this array or its subrange into the [destination] array and returns that array.\n \* \n \* It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n \*\n \* @SinceKotlin("1.3")\n \* public expect fun IntArray.copyInto(destination: IntArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): IntArray\n \*\n \* Copies this array or its subrange into the [destination] array and returns that array.\n \* \n \* It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n \*\n \* @SinceKotlin("1.3")\n \* public expect fun LongArray.copyInto(destination: LongArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): LongArray\n \*\n \* Copies this array or its subrange into the [destination] array and returns that array.\n \* \n \* It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n \*\n \* @SinceKotlin("1.3")\n \* public expect fun FloatArray.copyInto(destination: FloatArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): FloatArray\n \*\n \* Copies this array or its subrange into the [destination] array and returns that array.\n \* \n \* It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n \*\n \* @SinceKotlin("1.3")\n \* public expect fun DoubleArray.copyInto(destination: DoubleArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): DoubleArray\n \*\n \* Copies this array or its subrange into the [destination] array and returns that array.\n \* \n \* It's allowed to pass the same

array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n

\*\n @SinceKotlin("1.3")\n public expect fun BooleanArray.copyInto(destination: BooleanArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): BooleanArray\n\n/\*\*\n \* Copies this array or its subrange into the [destination] array and returns that array.\n \* \n \* It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n \*\n @SinceKotlin("1.3")\n public expect fun CharArray.copyInto(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): CharArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n @Suppress("NO\_ACTUAL\_FOR\_EXPECT")\n public expect fun <T> Array<T>.copyOf(): Array<T>\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun ByteArray.copyOfOf(): ByteArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun ShortArray.copyOfOf(): ShortArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun IntArray.copyOfOf(): IntArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun LongArray.copyOfOf(): LongArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun FloatArray.copyOfOf(): FloatArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun DoubleArray.copyOfOf(): DoubleArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun BooleanArray.copyOfOf(): BooleanArray\n\n/\*\*\n \* Returns new array which is a copy of the original array.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n \*\n public expect fun CharArray.copyOfOf(): CharArray\n\n/\*\*\n \* Returns new array which is a copy of the original array, resized to the given [newSize].\n \* \n \* The copy is either truncated or padded at the end with zero values if necessary.\n \* \n \* - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n \* \n \* - If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n \* \n \* @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n \*\n public expect fun ByteArray.copyOfOf(newSize: Int): ByteArray\n\n/\*\*\n \* Returns new array which is a copy of the original array, resized to the given [newSize].\n \* \n \* The copy is either truncated or padded at the end with zero values if necessary.\n \* \n \* - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n \* \n \* - If

[newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`ShortArray.copyOf(newSize: Int): ShortArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with zero values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`IntArray.copyOf(newSize: Int): IntArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with zero values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`LongArray.copyOf(newSize: Int): LongArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with zero values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`FloatArray.copyOf(newSize: Int): FloatArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with zero values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with zero values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`DoubleArray.copyOf(newSize: Int): DoubleArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with `false` values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with `false` values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`BooleanArray.copyOf(newSize: Int): BooleanArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with null char (`\u0000`) values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with null char (`\u0000`) values.

`@sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf`  
`CharArray.copyOf(newSize: Int): CharArray`  
Returns new array which is a copy of the original array, resized to the given [newSize].  
The copy is either truncated or padded at the end with `null` values if necessary.  
- If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].  
- If [newSize] is greater than the size of the original array, the extra elements in the copy array are filled with `null` values.

`@sample samples.collections.Arrays.CopyOfOperations.resizingCopyOf`  
`Array<T?>.copyOf(newSize: Int): Array<T?>`  
Returns a new array which is a copy of the specified range of the original array.  
@param fromIndex the start of the range (inclusive) to copy.  
@param toIndex the end of the range (exclusive) to copy.  
@throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.  
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].

`@sample samples.collections.Arrays.CopyOfOperations.resizingCopyOf`  
`Array<T?>.copyOfRange(fromIndex: Int, toIndex: Int): Array<T?>`  
Returns a new array which is a copy of the specified range of the original array.  
@param fromIndex the start of the range (inclusive) to copy.  
@param toIndex the end of the range (exclusive) to copy.  
@throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.  
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].



Int, toIndex: Int): Array<T>\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun ByteArray.copyOfRange(fromIndex: Int, toIndex: Int): ByteArray\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun ShortArray.copyOfRange(fromIndex: Int, toIndex: Int): ShortArray\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun IntArray.copyOfRange(fromIndex: Int, toIndex: Int): IntArray\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun LongArray.copyOfRange(fromIndex: Int, toIndex: Int): LongArray\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun FloatArray.copyOfRange(fromIndex: Int, toIndex: Int): FloatArray\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun DoubleArray.copyOfRange(fromIndex: Int, toIndex: Int): DoubleArray\n\n/\*\*\n \* Returns a new array which is a copy of the specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \* @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun BooleanArray.copyOfRange(fromIndex: Int, toIndex: Int): BooleanArray\n\n/\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\n@SinceKotlin("1.3")\npublic expect fun <T> Array<T>.fill(element: T, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun <T> Array<T>.fill(element: T, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*/\npublic expect fun <T> Array<T>.fill(element: T, fromIndex: Int = 0, toIndex: Int = size): Unit

@throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun ByteArray.fill(element: Byte, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun ShortArray.fill(element: Short, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun IntArray.fill(element: Int, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun LongArray.fill(element: Long, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun FloatArray.fill(element: Float, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun DoubleArray.fill(element: Double, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun BooleanArray.fill(element: Boolean, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Fills this array or its subrange with the specified [element] value.\n \* \n \* @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n \* @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

\*\n@SinceKotlin("1.3")\npublic expect fun CharArray.fill(element: Char, fromIndex: Int = 0, toIndex: Int = size): Unit\n\n\*\*\n \* Returns the range of valid indices for the array.\n \*\n\npublic val <T> Array<out T>.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*\*\n \* Returns the range of valid indices for the array.\n \*\n\npublic val ByteArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*\*\n \* Returns the range of valid indices for the array.\n \*\n\npublic val ShortArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*\*\n \* Returns the range of valid indices for the array.\n \*\n\npublic val IntArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*\*\n \* Returns the range of valid indices for the array.\n \*\n\npublic val LongArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*\*\n \* Returns the range of valid indices for the array.\n \*\n\npublic val FloatArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*\*\n \* Returns the range

of valid indices for the array.\n \*/\npublic val DoubleArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*/\n\n \* Returns the range of valid indices for the array.\n \*/\n\npublic val BooleanArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*/\n\n \* Returns the range of valid indices for the array.\n \*/\n\npublic val CharArray.indices: IntRange\n get() = IntRange(0, lastIndex)\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.isEmpty(): Boolean {\n return size == 0\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns `true` if the array is not empty.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.isNotEmpty(): Boolean {\n return !isEmpty()\n}\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val <T> Array<out T>.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val ByteArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val ShortArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val IntArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val LongArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val FloatArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val DoubleArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val BooleanArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n \* Returns the last valid index for the array.\n \*/\n\npublic val CharArray.lastIndex: Int\n get() = size - 1\n\n\*/\n\n Returns an array containing all elements of the original array and then the given [element].\n \*/\n\n@Suppress("NO\_ACTUAL\_FOR\_EXPECT")\npublic expect operator fun <T> Array<T>.plus(element: T): Array<T>\n\n\*/\n\n \* Returns an array containing all elements of the original array and then the given [element].\n \*/\n\npublic expect operator fun ByteArray.plus(element: Byte): ByteArray\n\n\*/\n\n \* Returns an array containing all elements of the original array and then the given [element].\n \*/\n\npublic expect operator fun ShortArray.plus(element: Short): ShortArray\n\n\*/\n\n \* Returns an array containing all elements of the original

array and then the given [element].\n \*^/npublic expect operator fun IntArray.plus(element: Int): IntArray\n/n/\*\*\n \* Returns

an array containing all elements of the original array and then the given [element].\n \*^/npublic expect operator fun LongArray.plus(element: Long): LongArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then the given [element].\n \*^/npublic expect operator fun FloatArray.plus(element: Float): FloatArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then the given [element].\n \*^/npublic expect operator fun DoubleArray.plus(element: Double): DoubleArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then the given [element].\n \*^/npublic expect operator fun BooleanArray.plus(element: Boolean): BooleanArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then the given [element].\n \*^/npublic expect operator fun CharArray.plus(element: Char): CharArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/n@Suppress("NO\_ACTUAL\_FOR\_EXPECT")\npublic expect operator fun <T> Array<T>.plus(elements: Collection<T>): Array<T>\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun ByteArray.plus(elements: Collection<Byte>): ByteArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun ShortArray.plus(elements: Collection<Short>): ShortArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun IntArray.plus(elements: Collection<Int>): IntArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun LongArray.plus(elements: Collection<Long>): LongArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun FloatArray.plus(elements: Collection<Float>): FloatArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun DoubleArray.plus(elements: Collection<Double>): DoubleArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun BooleanArray.plus(elements: Collection<Boolean>): BooleanArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] collection.\n \*^/npublic expect operator fun CharArray.plus(elements: Collection<Char>): CharArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/n@Suppress("NO\_ACTUAL\_FOR\_EXPECT")\npublic expect operator fun <T> Array<T>.plus(elements: Array<out T>): Array<T>\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun ByteArray.plus(elements: ByteArray): ByteArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun ShortArray.plus(elements: ShortArray): ShortArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun IntArray.plus(elements: IntArray): IntArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun LongArray.plus(elements: LongArray): LongArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun FloatArray.plus(elements: FloatArray): FloatArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun DoubleArray.plus(elements: DoubleArray): DoubleArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun BooleanArray.plus(elements: BooleanArray): BooleanArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n \*^/npublic expect operator fun CharArray.plus(elements: CharArray): CharArray\n/n/\*\*\n \* Returns an array containing all elements of the original array and then the given [element].\n \*^/n@Suppress("NO\_ACTUAL\_FOR\_EXPECT")\npublic expect

```

fun <T> Array<T>.plusElement(element: T): Array<T>\n\n/**\n * Sorts the array in-place.\n * \n * @sample
samples.collections.Arrays.Sorting.sortArray\n *\npublic expect fun IntArray.sort(): Unit\n\n/**\n * Sorts the array
in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n *\npublic expect fun LongArray.sort():
Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n *\npublic
expect fun ByteArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample
samples.collections.Arrays.Sorting.sortArray\n *\npublic expect fun ShortArray.sort(): Unit\n\n/**\n * Sorts the
array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n *\npublic expect fun
DoubleArray.sort(): Unit\n\n/**\n * Sorts the array in-place.\n * \n * @sample
samples.collections.Arrays.Sorting.sortArray\n *\npublic expect fun FloatArray.sort(): Unit\n\n/**\n * Sorts the
array in-place.\n * \n * @sample samples.collections.Arrays.Sorting.sortArray\n
*\npublic expect fun CharArray.sort(): Unit\n\n/**\n * Sorts the array in-place according to the natural order of its
elements.\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after
sorting.\n * \n * @sample samples.collections.Arrays.Sorting.sortArrayOfComparable\n *\npublic expect fun <T :
Comparable<T>> Array<out T>.sort(): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * The sort is
_stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param
fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range
(exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is
less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
[fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArrayOfComparable\n
*\n@SinceKotlin("1.4")\npublic expect fun <T : Comparable<T>> Array<out T>.sort(fromIndex: Int = 0,
toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the
range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array
by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater
than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n *
@sample samples.collections.Arrays.Sorting.sortRangeOfArray\n *\n@SinceKotlin("1.4")\npublic expect fun
ByteArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n *
@param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range
(exclusive) to sort, size of
this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is
greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n *\n@SinceKotlin("1.4")\npublic expect
fun ShortArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n *
@param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the
range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex]
is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
[fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\npublic expect fun IntArray.sort(fromIndex: Int = 0, toIndex:
Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range
(inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than
the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n *
@sample samples.collections.Arrays.Sorting.sortRangeOfArray\n *\n@SinceKotlin("1.4")\npublic expect fun
LongArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n *
@param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range
(exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is
less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException

```

```

if [fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@\n@SinceKotlin("1.4")\npublic expect fun FloatArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n
* Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by
default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n *@\n@SinceKotlin("1.4")\npublic expect fun
DoubleArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts a range in the array in-place.\n * \n
* @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex
the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException
if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n *@\n@SinceKotlin("1.4")\npublic expect fun
CharArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit\n\n/**\n * Sorts elements of the array in the specified
range in-place.\n * The elements are sorted descending according to their natural sort order.\n * \n * The sort is
_stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n * @param
fromIndex the start of the range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n *
\n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of
this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n *@\n@SinceKotlin("1.4")\npublic fun <T :
Comparable<T>> Array<out T>.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n    sortWith(reverseOrder(),
fromIndex, toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are
sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive)
to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException
if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n *@\n@SinceKotlin("1.4")\npublic fun
ByteArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n    sort(fromIndex, toIndex)\n    reverse(fromIndex,
toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are
sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive)
to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException
if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n *@\n@SinceKotlin("1.4")\npublic fun
ShortArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n    sort(fromIndex, toIndex)\n    reverse(fromIndex,
toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The
elements are sorted descending according to their natural sort order.\n * \n * @param fromIndex the start of the
range (inclusive) to sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException
if [fromIndex] is greater than [toIndex].\n *@\n@SinceKotlin("1.4")\npublic fun
IntArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n    sort(fromIndex, toIndex)\n    reverse(fromIndex,
toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The elements are sorted
descending according to their natural sort order.\n * \n * @param fromIndex the start of the range (inclusive) to
sort.\n * @param toIndex the end of the range (exclusive) to sort.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n *@\n@SinceKotlin("1.4")\npublic fun
LongArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {\n    sort(fromIndex, toIndex)\n    reverse(fromIndex,
toIndex)\n}\n\n/**\n * Sorts elements of the array in the specified range in-place.\n * The
elements are sorted descending according

```

to their natural sort order.

```

    @param fromIndex the start of the range (inclusive) to sort.
    @param toIndex the end of the range (exclusive) to sort.
    @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
    @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].

```

```

    @SinceKotlin("1.4")
    public fun FloatArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
        sort(fromIndex, toIndex)
        reverse(fromIndex, toIndex)
    }

```

\* Sorts elements of the array in the specified range in-place. The elements are sorted descending according to their natural sort order.

```

    @param fromIndex the start of the range (inclusive) to sort.
    @param toIndex the end of the range (exclusive) to sort.
    @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
    @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].

```

```

    @SinceKotlin("1.4")
    public fun DoubleArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
        sort(fromIndex, toIndex)
        reverse(fromIndex, toIndex)
    }

```

\* Sorts elements of the array in the specified range in-place. The elements are sorted descending according to their natural sort order.

```

    @param fromIndex the start of the range (inclusive) to sort.
    @param toIndex the end of the range (exclusive) to sort.
    @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
    @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].

```

```

    @SinceKotlin("1.4")
    public fun CharArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
        sort(fromIndex, toIndex)
        reverse(fromIndex, toIndex)
    }

```

\* Sorts the array in-place according to the order specified by the given [comparator]. The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.

```

    public expect fun <T> Array<out T>.sortWith(comparator: Comparator<in T>): Unit

```

\* Sorts a range in the array in-place with the given [comparator]. The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.

```

    @param fromIndex the start of the range (inclusive) to sort, 0 by default.
    @param toIndex the end of the range (exclusive) to sort, size of this array by default.
    @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
    @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].

```

```

    public expect fun <T> Array<out T>.sortWith(comparator: Comparator<in T>, fromIndex: Int = 0, toIndex: Int = size): Unit

```

\* Returns an array of Boolean containing all of the elements of this generic array.

```

    public fun Array<out Boolean>.toBooleanArray(): BooleanArray

```

```

    BooleanArray {
        return BooleanArray(size) { index -> this[index] }
    }

```

\* Returns an array of Byte containing all of the elements of this generic array.

```

    public fun Array<out Byte>.toByteArray(): ByteArray

```

```

    ByteArray {
        return ByteArray(size) { index -> this[index] }
    }

```

\* Returns an array of Char containing all of the elements of this generic array.

```

    public fun Array<out Char>.toCharArray(): CharArray

```

```

    CharArray {
        return CharArray(size) { index -> this[index] }
    }

```

\* Returns an array of Double containing all of the elements of this generic array.

```

    public fun Array<out Double>.toDoubleArray(): DoubleArray

```

```

    DoubleArray {
        return DoubleArray(size) { index -> this[index] }
    }

```

\* Returns an array of Float containing all of the elements of this generic array.

```

    public fun Array<out Float>.toFloatArray(): FloatArray

```

```

    FloatArray {
        return FloatArray(size) { index -> this[index] }
    }

```

\* Returns an array of Int containing all of the elements of this generic array.

```

    public fun Array<out Int>.toIntArray(): IntArray

```

```

    IntArray {
        return IntArray(size) { index -> this[index] }
    }

```

\* Returns an array of Long containing all of the elements of this generic array.

```

    public fun Array<out Long>.toLongArray(): LongArray

```

```

    LongArray {
        return LongArray(size) { index -> this[index] }
    }

```

\* Returns an array of Short containing all of the elements of this generic array.

```

    public fun Array<out Short>.toShortArray(): ShortArray

```

```

    ShortArray {
        return ShortArray(size) { index -> this[index] }
    }

```

\* Returns a `*typed*` object array containing all of the elements of this primitive array.

```

    public expect fun ByteArray.toTypedArray(): Array<Byte>

```

\* Returns a `*typed*` object array containing all of the elements of this primitive array.

```

    public expect fun ShortArray.toTypedArray(): Array<Short>

```

\* Returns a `*typed*` object array containing all of the elements of this primitive array.

```

    public expect fun IntArray.toTypedArray():

```

```

Array<Int>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n
*/\npublic expect fun LongArray.toTypedArray(): Array<Long>\n\n/**\n * Returns a *typed* object array
containing all of the elements of this primitive array.\n
*/\npublic expect fun FloatArray.toTypedArray():
Array<Float>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n
*/\npublic expect fun DoubleArray.toTypedArray(): Array<Double>\n\n/**\n * Returns a *typed* object array
containing all of the elements of this primitive array.\n
*/\npublic expect fun BooleanArray.toTypedArray():
Array<Boolean>\n\n/**\n * Returns a *typed* object array containing all of the elements of this primitive array.\n
*/\npublic expect fun CharArray.toTypedArray(): Array<Char>\n\n/**\n * Returns a [Map] containing key-value
pairs provided by [transform] function\n
* applied to elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added to the map.\n
* \n
* The returned map preserves the entry iteration order
of the original array.\n
* \n
* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <T, K, V> Array<out T>.associate(transform: (T) -> Pair<K, V>): Map<K, V> {\n    val
capacity = mapCapacity(size).coerceAtLeast(16)\n    return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n
* applied to
elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added to the
map.\n
* \n
* The returned map preserves the entry iteration order of the original array.\n
* \n
* @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>
ByteArray.associate(transform: (Byte) -> Pair<K, V>): Map<K, V> {\n    val capacity =
mapCapacity(size).coerceAtLeast(16)\n
return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-
value pairs provided by [transform] function\n
* applied to elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added to the
map.\n
* \n
* The returned map preserves the entry iteration
order of the original array.\n
* \n
* @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>
ShortArray.associate(transform: (Short) -> Pair<K, V>): Map<K, V> {\n    val capacity =
mapCapacity(size).coerceAtLeast(16)\n    return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n
* applied to
elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added to the
map.\n
* \n
* The returned map preserves the entry iteration order of the original array.\n
* \n
* @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>
IntArray.associate(transform: (Int) -> Pair<K, V>): Map<K, V> {\n    val capacity =
mapCapacity(size).coerceAtLeast(16)\n    return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n
* applied to
elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added to the
map.\n
* \n
* The returned map preserves the entry iteration order of the original array.\n
* \n
* @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>
LongArray.associate(transform: (Long) -> Pair<K, V>): Map<K, V> {\n    val capacity =
mapCapacity(size).coerceAtLeast(16)\n    return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n
* applied to
elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added
to the map.\n
* \n
* The returned map preserves the entry iteration order of the original array.\n
* \n
* @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>
FloatArray.associate(transform: (Float) -> Pair<K, V>): Map<K, V> {\n    val capacity =
mapCapacity(size).coerceAtLeast(16)\n    return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n
* applied to
elements of the given array.\n
* \n
* If any of two pairs would
have the same key the last one gets added to the
map.\n
* \n
* The returned map preserves the entry iteration order of the original array.\n
* \n
* @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>

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DoubleArray.associate(transform: (Double) -> Pair<K,
V>): Map<K, V> {\n  val capacity = mapCapacity(size).coerceAtLeast(16)\n  return
associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing key-value
pairs provided by [transform] function\n * applied to elements of the given array.\n * \n * If any of two pairs would
have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order
of the original array.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V> BooleanArray.associate(transform: (Boolean) -> Pair<K, V>): Map<K, V> {\n  val
capacity = mapCapacity(size).coerceAtLeast(16)\n  return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to
elements of the given array.\n * \n * If any of two pairs would have the same key the last one gets added to the
map.\n * \n * The returned
map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitives\n
*/\npublic inline fun <K, V>
CharArray.associate(transform: (Char) -> Pair<K, V>): Map<K, V> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateTo(LinkedHashMap<K, V>(capacity),
transform)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n *
returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key
returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration
order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n
*/\npublic inline fun <T, K>
Array<out T>.associateBy(keySelector: (T) -> K): Map<K, T> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K,
T>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by
the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have
the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the
entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n
*/\npublic inline fun <K>
ByteArray.associateBy(keySelector: (Byte) -> K): Map<K, Byte> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Byte>(capacity),
keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n *
returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key
returned by [keySelector] the last one gets added to the map.\n * \n * The returned
map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n
*/\npublic inline fun <K>
ShortArray.associateBy(keySelector: (Short) -> K): Map<K, Short> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Short>(capacity),
keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n *
returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key
returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration
order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n
*/\npublic inline fun <K>
IntArray.associateBy(keySelector: (Int) -> K): Map<K, Int> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K,
Int>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by
the key\n * returned from [keySelector] function applied to each element.\n * \n * If any two elements would have
the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the
entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n
*/\npublic inline fun <K>

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LongArray.associateBy(keySelector: (Long) -> K): Map<K, Long> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Long>(capacity),
keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n *
returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key
returned by [keySelector] the last one gets added to the map.\n *
\n * The returned map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K>
FloatArray.associateBy(keySelector: (Float) -> K): Map<K, Float> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Float>(capacity),
keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n *
returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key
returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration
order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K>
DoubleArray.associateBy(keySelector: (Double) -> K): Map<K, Double> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n
  return associateByTo(LinkedHashMap<K, Double>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map]
containing the elements from the given array indexed by the key\n * returned from [keySelector] function applied to
each element.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets
added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
\n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K>
BooleanArray.associateBy(keySelector: (Boolean) -> K): Map<K, Boolean> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Boolean>(capacity),
keySelector)\n}\n\n/**\n * Returns a [Map] containing the elements from the given array indexed by the key\n *
returned from [keySelector] function applied to each element.\n * \n * If any two elements would have the same key
returned by [keySelector] the last
one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
\n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesBy\n */\npublic inline fun <K>
CharArray.associateBy(keySelector: (Char) -> K): Map<K, Char> {\n  val capacity =
mapCapacity(size).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Char>(capacity),
keySelector)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by
[keySelector] functions applied to elements of the given array.\n * \n * If any two elements would have the same key
returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration
order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline
fun <T, K, V> Array<out T>.associateBy(keySelector: (T) -> K, valueTransform: (T) -> V):
Map<K, V> {\n  val capacity = mapCapacity(size).coerceAtLeast(16)\n  return
associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map]
containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of
the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets
added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
\n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n */\npublic inline fun <K, V> ByteArray.associateBy(keySelector: (Byte) -> K, valueTransform: (Byte) -> V):
Map<K, V> {\n  val capacity = mapCapacity(size).coerceAtLeast(16)\n  return
associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map]
containing the values provided by [valueTransform] and indexed by [keySelector] functions
applied to elements of the given array.\n * \n * If any two elements would have the same key returned by
[keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the

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original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n *^\npublic inline
fun <K, V> ShortArray.associateBy(keySelector: (Short) -> K, valueTransform: (Short) -> V): Map<K, V> {\n
val capacity = mapCapacity(size).coerceAtLeast(16)\n return associateByTo(LinkedHashMap<K, V>(capacity),
keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform]
and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two elements would
have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves
the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n
*^\npublic inline fun <K, V> IntArray.associateBy(keySelector: (Int) -> K, valueTransform: (Int) -> V): Map<K,
V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return associateByTo(LinkedHashMap<K,
V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by
[valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two
elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The
returned map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n *^\npublic inline
fun <K, V> LongArray.associateBy(keySelector: (Long) -> K, valueTransform: (Long) -> V): Map<K, V> {\n val
capacity = mapCapacity(size).coerceAtLeast(16)\n return
associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map]
containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of
the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets
added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n
*^\npublic inline fun <K, V> FloatArray.associateBy(keySelector: (Float) -> K, valueTransform: (Float) -> V):
Map<K, V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return
associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map]
containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of
the given array.\n * \n * If any two elements would
have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves
the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n *^\npublic inline
fun <K, V> DoubleArray.associateBy(keySelector: (Double) -> K, valueTransform: (Double) -> V): Map<K, V>
{\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return associateByTo(LinkedHashMap<K,
V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map] containing the values provided by
[valueTransform] and indexed by [keySelector] functions applied to elements of the given array.\n * \n * If any two
elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The
returned map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n
*^\npublic inline fun <K, V> BooleanArray.associateBy(keySelector: (Boolean) -> K, valueTransform: (Boolean) -
> V): Map<K, V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return
associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Returns a [Map]
containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of
the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last one gets
added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByWithValueTransform\n
*^\npublic inline fun <K, V> CharArray.associateBy(keySelector: (Char) -> K, valueTransform: (Char) -> V):
Map<K, V> {\n val capacity = mapCapacity(size).coerceAtLeast(16)\n return
associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n

```

\* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <T, K, M : MutableMap<in K, in T>> Array<out T>.associateByTo(destination: M, keySelector: (T) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <K, M : MutableMap<in K, in Byte>> ByteArray.associateByTo(destination: M, keySelector: (Byte) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <K, M : MutableMap<in K, in Short>> ShortArray.associateByTo(destination: M, keySelector: (Short) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <K, M : MutableMap<in K, in Int>> IntArray.associateByTo(destination: M, keySelector: (Int) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <K, M : MutableMap<in K, in Long>> LongArray.associateByTo(destination: M, keySelector: (Long) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <K, M : MutableMap<in K, in Float>> FloatArray.associateByTo(destination: M, keySelector: (Float) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n \* \n public inline fun <K, M : MutableMap<in K, in Double>> DoubleArray.associateByTo(destination: M, keySelector: (Double) -> K): M {\n for (element in this) {\n destination.put(keySelector(element), element)\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs,\n \* where key is provided by the [keySelector] function applied to each element of the given array\n \* and value is the element itself.\n \* \n \* If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n \* \n \* @sample

two elements

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would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n * \npublic inline fun <K, M :
MutableMap<in K, in Boolean>> BooleanArray.associateByTo(destination: M, keySelector: (Boolean) -> K): M {\n
for (element in this) {\n    destination.put(keySelector(element), element)\n } \n return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the
[keySelector] function applied to each element of the given array\n * and value is the element itself.\n * \n * If any
two elements would have the same key returned by [keySelector] the last one gets added to the map.\n * \n *
@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByTo\n * \npublic inline fun <K,
M : MutableMap<in K, in Char>> CharArray.associateByTo(destination: M, keySelector: (Char) -> K): M {\n
for (element in this) {\n    destination.put(keySelector(element), element)\n } \n return
destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is
provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to
elements of the given array.\n * \n * If any two elements would have the same key returned by [keySelector] the last
one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n * \npublic
inline fun <T, K, V, M : MutableMap<in K, in V>> Array<out T>.associateByTo(destination: M, keySelector: (T) -
> K, valueTransform: (T) -> V): M {\n for (element in this) {\n    destination.put(keySelector(element),
valueTransform(element))\n } \n return destination\n}\n\n/**\n * Populates and returns the [destination] mutable
map with key-value pairs,\n * where key is provided by the [keySelector]
function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n *
\n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n *
\n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n * \npublic
inline fun <K, V, M : MutableMap<in K, in V>> ByteArray.associateByTo(destination: M, keySelector:
(Byte) -> K, valueTransform: (Byte) -> V): M {\n for (element in this) {\n
destination.put(keySelector(element), valueTransform(element))\n } \n return destination\n}\n\n/**\n * Populates
and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector]
function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n *
\n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n *
\n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n * \npublic
inline fun <K, V, M : MutableMap<in K, in V>> ShortArray.associateByTo(destination: M, keySelector: (Short) ->
K, valueTransform: (Short) -> V): M {\n for (element in this) {\n    destination.put(keySelector(element),
valueTransform(element))\n } \n return destination\n}\n\n/**\n * Populates and returns the [destination] mutable
map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by
the [valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the
same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n * \npublic
inline fun <K, V, M : MutableMap<in K, in V>> IntArray.associateByTo(destination: M, keySelector: (Int) -> K,
valueTransform:
(Int) -> V): M {\n for (element in this) {\n    destination.put(keySelector(element), valueTransform(element))\n
} \n return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n *
where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function
applied to elements of the given array.\n * \n * If any two elements would have the same key returned by
[keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n * \npublic
inline fun <K, V, M : MutableMap<in K, in V>> LongArray.associateByTo(destination: M, keySelector: (Long) ->
K, valueTransform: (Long) -> V): M {\n for (element in this) {\n    destination.put(keySelector(element),
```

```

valueTransform(element))\n } return destination\n}\n\n/**\n * Populates and returns the [destination] mutable
map with key-value
pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the
[valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the same
key returned by [keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic
inline fun <K, V, M : MutableMap<in K, in V>> FloatArray.associateByTo(destination: M, keySelector: (Float) ->
K, valueTransform: (Float) -> V): M {\n for (element in this) {\n destination.put(keySelector(element),
valueTransform(element))\n } return destination\n}\n\n/**\n * Populates and returns the [destination] mutable
map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the
[valueTransform] function applied to elements of the given array.\n * \n * If any two elements would have the
same key returned by
[keySelector] the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n */\npublic
inline fun <K, V, M : MutableMap<in K, in V>> DoubleArray.associateByTo(destination: M, keySelector:
(Double) -> K, valueTransform: (Double) -> V): M {\n for (element in this) {\n
destination.put(keySelector(element), valueTransform(element))\n } return destination\n}\n\n/**\n * Populates
and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector]
function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n *
\n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n *
\n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n
*/\npublic inline fun <K, V, M : MutableMap<in K, in V>> BooleanArray.associateByTo(destination:
M, keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): M {\n for (element in this) {\n
destination.put(keySelector(element), valueTransform(element))\n } return destination\n}\n\n/**\n * Populates
and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector]
function and\n * and value is provided by the [valueTransform] function applied to elements of the given array.\n *
\n * If any two elements would have the same key returned by [keySelector] the last one gets added to the map.\n *
\n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesByToWithValueTransform\n
*/\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharArray.associateByTo(destination: M, keySelector:
(Char) -> K, valueTransform: (Char) -> V): M {\n for (element in this) {\n
destination.put(keySelector(element), valueTransform(element))\n } return destination\n}\n\n/**\n * Populates
and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function
applied to each element of the given array.\n * \n * If any of two pairs would have the same key the last one gets
added to the map.\n * \n * @sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n
*/\npublic inline fun <T, K, V, M : MutableMap<in K, in V>> Array<out T>.associateTo(destination: M, transform:
(T) -> Pair<K, V>): M {\n for (element in this) {\n destination += transform(element)\n } return
destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by
[transform] function applied to each element of the given array.\n * \n * If any of two pairs would have the same key
the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M :
MutableMap<in K, in V>> ByteArray.associateTo(destination:
M, transform: (Byte) -> Pair<K, V>): M {\n for (element in this) {\n destination += transform(element)\n
} return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n *
provided by [transform] function applied to each element of the given array.\n * \n * If any of two pairs would have
the same key the last one gets added to the map.\n * \n * @sample
samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo\n */\npublic inline fun <K, V, M :
MutableMap<in K, in V>> ShortArray.associateTo(destination: M, transform: (Short) -> Pair<K, V>): M {\n for
(element in this) {\n destination += transform(element)\n } return destination\n}\n\n/**\n * Populates and

```

returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given array. If any of two pairs would have the same key the last one gets added to the map.

```

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo
public inline fun <K, V, M : MutableMap<in K, in V>> IntArray.associateTo(destination: M, transform: (Int) -> Pair<K, V>): M {
    for (element in this) {
        destination += transform(element)
    }
    return destination
}

```

Populates and returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given array. If any of two pairs would have the same key the last one gets added to the map.

```

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo
public inline fun <K, V, M : MutableMap<in K, in V>> LongArray.associateTo(destination: M, transform: (Long) -> Pair<K, V>): M {
    for (element in this) {
        destination += transform(element)
    }
    return destination
}

```

Populates and returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given array. If any of two pairs would have the same key the last one gets added to the map.

```

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo
public inline fun <K, V, M : MutableMap<in K, in V>> FloatArray.associateTo(destination: M, transform: (Float) -> Pair<K, V>): M {
    for (element in this) {
        destination += transform(element)
    }
    return destination
}

```

Populates and returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given array. If any of two pairs would have the same key the last one gets added to the map.

```

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo
public inline fun <K, V, M : MutableMap<in K, in V>> DoubleArray.associateTo(destination: M, transform: (Double) -> Pair<K, V>): M {
    for (element
in this) {
        destination += transform(element)
    }
    return destination
}

```

Populates and returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given array. If any of two pairs would have the same key the last one gets added to the map.

```

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo
public inline fun <K, V, M : MutableMap<in K, in V>> BooleanArray.associateTo(destination: M, transform: (Boolean) -> Pair<K, V>): M {
    for (element in this) {
        destination += transform(element)
    }
    return destination
}

```

Populates and returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given array. If any of two pairs would have the same key the last one gets added to the map.

```

@sample samples.collections.Arrays.Transformations.associateArrayOfPrimitivesTo
public inline fun <K, V, M : MutableMap<in K, in V>> CharArray.associateTo(destination: M, transform: (Char) -> Pair<K, V>): M {
    for (element in this) {
        destination += transform(element)
    }
    return destination
}

```

Returns a [Map] where keys are elements from the given array and values are produced by the [valueSelector] function applied to each element. If any two elements are equal, the last one gets added to the map. The returned map preserves the entry iteration order of the original array.

```

@sample samples.collections.Collections.Transformations.associateWith
@SinceKotlin("1.4")
public inline fun <K, V> Array<out K>.associateWith(valueSelector: (K) -> V): Map<K, V> {
    val result =
    LinkedHashMap<K, V>(mapCapacity(size).coerceAtLeast(16))
    return associateWithTo(result,
valueSelector)
}

```

Returns a [Map] where keys are elements from the given array and values are produced by the [valueSelector] function applied to each element. If any two elements are equal, the last one gets added to the map. The returned map preserves the entry iteration order of the original array.

```

@sample samples.collections.Collections.Transformations.associateWith
@SinceKotlin("1.4")
@kotlin.internal.InlineOnly
public inline fun <V>
ByteArray.associateWith(valueSelector: (Byte) -> V): Map<Byte, V> {
    val result = LinkedHashMap<Byte,
V>(mapCapacity(size).coerceAtLeast(16))
    return associateWithTo(result, valueSelector)
}

```

Returns a [Map] where keys are elements from the given array and values are produced by the [valueSelector] function applied to each element. If any two elements are equal, the last one gets added to the map. The returned map preserves the entry iteration order of the original array.

```

@sample

```

```

samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic
inline fun <V> ShortArray.associateWith(valueSelector: (Short) -> V): Map<Short, V> {\n    val result =
LinkedHashMap<Short, V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result,
valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n *
produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one
gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
@sample samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
IntArray.associateWith(valueSelector: (Int) -> V): Map<Int, V> {\n    val result = LinkedHashMap<Int,
V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a
[Map] where keys are elements from the
given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two
elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order
of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
LongArray.associateWith(valueSelector: (Long) -> V): Map<Long, V> {\n    val result = LinkedHashMap<Long,
V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a
[Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function
applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The
returned map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
FloatArray.associateWith(valueSelector: (Float) -> V): Map<Float, V> {\n    val result = LinkedHashMap<Float,
V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a
[Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function
applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The
returned map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
DoubleArray.associateWith(valueSelector: (Double) -> V): Map<Double, V> {\n    val result =
LinkedHashMap<Double, V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result,
valueSelector)\n}\n\n/**\n * Returns
a [Map] where keys are elements from the given array and values are\n * produced by the [valueSelector] function
applied to each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The
returned map preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
BooleanArray.associateWith(valueSelector: (Boolean) -> V): Map<Boolean, V> {\n    val result =
LinkedHashMap<Boolean, V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result,
valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the given array and values are\n *
produced by the [valueSelector] function applied to each element.\n * \n * If any two elements are equal, the last one
gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original array.\n * \n *
@sample samples.collections.Collections.Transformations.associateWith\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V>
CharArray.associateWith(valueSelector: (Char) -> V): Map<Char, V> {\n    val result = LinkedHashMap<Char,
V>(mapCapacity(size).coerceAtMost(128)).coerceAtLeast(16))\n    return associateWithTo(result,
valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs for each

```





the [destination] mutable map with key-value pairs for each element of the given array, \n \* where key is the element itself and value is provided by the [valueSelector] function applied to that key. \n \* \n \* If any two elements are equal, the last one overwrites the former value in the map. \n \* \n \* @sample samples.collections.Collections.Transformations.associateWithTo

```

*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Boolean, in V>> BooleanArray.associateWithTo(destination: M, valueSelector: (Boolean) -> V): M {\n    for (element in this) {\n        destination.put(element, valueSelector(element))\n    }\n    return destination\n}\n\n*\n * Populates and returns the [destination] mutable map with key-value pairs for each element of the given array, \n * where key is the element itself and value is provided by the [valueSelector] function applied to that key. \n * \n * If any two elements are equal, the last one overwrites the former value in the map. \n * \n * @sample samples.collections.Collections.Transformations.associateWithTo

*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in Char, in V>> CharArray.associateWithTo(destination: M, valueSelector: (Char) -> V): M {\n    for (element in this) {\n        destination.put(element, valueSelector(element))\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <T, C : MutableCollection<in T>> Array<out T>.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Byte>> ByteArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Short>> ShortArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Int>> IntArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Long>> LongArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Float>> FloatArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Double>> DoubleArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Boolean>> BooleanArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Appends all elements to the given [destination] collection. \n *\npublic fun <C : MutableCollection<in Char>> CharArray.toCollection(destination: C): C {\n    for (item in this) {\n        destination.add(item)\n    }\n    return destination\n}\n\n*\n * Returns a new [HashSet] of all elements. \n *\npublic fun <T> Array<out T>.toHashSet(): HashSet<T> {\n    return toCollection(HashSet<T>(mapCapacity(size)))\n}\n\n*\n * Returns a new [HashSet] of all elements. \n *\npublic fun ByteArray.toHashSet(): HashSet<Byte> {\n    return toCollection(HashSet<Byte>(mapCapacity(size)))\n}\n\n*\n * Returns a new [HashSet] of all elements. \n *\npublic fun ShortArray.toHashSet(): HashSet<Short> {\n    return toCollection(HashSet<Short>(mapCapacity(size)))\n}\n\n*\n * Returns a new [HashSet] of all elements. \n *\npublic fun IntArray.toHashSet(): HashSet<Int> {\n    return toCollection(HashSet<Int>(mapCapacity(size)))\n}\n\n*\n * Returns a new [HashSet] of all elements. \n *\npublic fun LongArray.toHashSet(): HashSet<Long> {\n    return toCollection(HashSet<Long>(mapCapacity(size)))\n}\n\n*\n * Returns a new [HashSet] of all elements. \n *\npublic

```

```

fun FloatArray.toHashSet(): HashSet<Float> {\n  return
toCollection(HashSet<Float>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n
*/\npublic fun DoubleArray.toHashSet(): HashSet<Double> {\n  return
toCollection(HashSet<Double>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n
*/\npublic fun BooleanArray.toHashSet(): HashSet<Boolean> {\n  return
toCollection(HashSet<Boolean>(mapCapacity(size)))\n}\n\n/**\n * Returns a new [HashSet] of all elements.\n
*/\npublic fun CharArray.toHashSet(): HashSet<Char> {\n  return
toCollection(HashSet<Char>(mapCapacity(size.coerceAtMost(128))))\n}\n\n/**\n * Returns a [List] containing all
elements.\n
*/\npublic fun <T> Array<out T>.toList(): List<T> {\n  return when (size) {\n    0 -> emptyList()\n
1 -> listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n * Returns a [List] containing all
elements.\n
*/\npublic fun ByteArray.toList(): List<Byte> {\n
return when (size) {\n    0 -> emptyList()\n    1 -> listOf(this[0])\n    else -> this.toMutableList()\n
}\n}\n\n/**\n * Returns a [List] containing all elements.\n
*/\npublic fun ShortArray.toList(): List<Short> {\n
return when (size) {\n    0 -> emptyList()\n    1 -> listOf(this[0])\n    else -> this.toMutableList()\n
}\n}\n\n/**\n * Returns a [List] containing all elements.\n
*/\npublic fun IntArray.toList(): List<Int> {\n  return
when (size) {\n    0 -> emptyList()\n    1 -> listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n *
Returns a [List] containing all elements.\n
*/\npublic fun LongArray.toList(): List<Long> {\n  return when (size)
{\n    0 -> emptyList()\n    1 -> listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n * Returns a
[List] containing all elements.\n
*/\npublic fun FloatArray.toList(): List<Float> {\n  return when (size) {\n    0 ->
emptyList()\n    1 ->
listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n * Returns a [List] containing all elements.\n
*/\npublic fun DoubleArray.toList(): List<Double> {\n  return when (size) {\n    0 -> emptyList()\n    1 ->
listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n * Returns a [List] containing all elements.\n
*/\npublic fun BooleanArray.toList(): List<Boolean> {\n  return when (size) {\n    0 -> emptyList()\n    1 ->
listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n * Returns a [List] containing all elements.\n
*/\npublic fun CharArray.toList(): List<Char> {\n  return when (size) {\n    0 -> emptyList()\n    1 ->
listOf(this[0])\n    else -> this.toMutableList()\n  }\n}\n\n/**\n * Returns a new [MutableList] filled with all
elements of this array.\n
*/\npublic fun <T> Array<out T>.toMutableList(): MutableList<T> {\n  return
ArrayList(this.asCollection())\n}\n\n/**\n * Returns a new [MutableList]
filled with all elements of this array.\n
*/\npublic fun ByteArray.toMutableList(): MutableList<Byte> {\n  val list
= ArrayList<Byte>(size)\n  for (item in this) list.add(item)\n  return list\n}\n\n/**\n * Returns a new
[MutableList] filled with all elements of this array.\n
*/\npublic fun ShortArray.toMutableList():
MutableList<Short> {\n  val list = ArrayList<Short>(size)\n  for (item in this) list.add(item)\n  return
list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n
*/\npublic fun
IntArray.toMutableList(): MutableList<Int> {\n  val list = ArrayList<Int>(size)\n  for (item in this)
list.add(item)\n  return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n
*/\npublic fun LongArray.toMutableList(): MutableList<Long> {\n  val list = ArrayList<Long>(size)\n  for (item
in this) list.add(item)\n  return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this
array.\n
*/\npublic fun FloatArray.toMutableList(): MutableList<Float> {\n  val list = ArrayList<Float>(size)\n  for (item
in this) list.add(item)\n  return list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this
array.\n
*/\npublic fun DoubleArray.toMutableList(): MutableList<Double> {\n  val list =
ArrayList<Double>(size)\n  for (item in this) list.add(item)\n  return list\n}\n\n/**\n * Returns a new
[MutableList] filled with all elements of this array.\n
*/\npublic fun BooleanArray.toMutableList():
MutableList<Boolean> {\n  val list = ArrayList<Boolean>(size)\n  for (item in this) list.add(item)\n  return
list\n}\n\n/**\n * Returns a new [MutableList] filled with all elements of this array.\n
*/\npublic fun
CharArray.toMutableList(): MutableList<Char> {\n  val list = ArrayList<Char>(size)\n  for (item in this)
list.add(item)\n  return list\n}\n\n/**\n * Returns a [Set] of all elements.\n
*/\n * \n * The returned set preserves the

```

element iteration

```
order of the original array.\n *\npublic fun <T> Array<out T>.toSet(): Set<T> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<T>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun ByteArray.toSet(): Set<Byte> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Byte>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun ShortArray.toSet(): Set<Short> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Short>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun IntArray.toSet(): Set<Int> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Int>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun LongArray.toSet(): Set<Long> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Long>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun FloatArray.toSet(): Set<Float> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Float>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun DoubleArray.toSet(): Set<Double> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Double>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun BooleanArray.toSet(): Set<Boolean> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Boolean>(mapCapacity(size)))\n    }\n}\n\n/**\n * Returns a [Set] of all elements.\n * \n * The returned set preserves the element iteration order of the original array.\n *\npublic fun CharArray.toSet(): Set<Char> {\n    return when (size) {\n        0 -> emptySet()\n        1 -> setOf(this[0])\n        else -> toCollection(LinkedHashSet<Char>(mapCapacity(size.coerceAtMost(128))))\n    }\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n *\npublic inline fun <T, R> Array<out T>.flatMap(transform: (T) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample\n *\npublic inline fun <R> ByteArray.flatMap(transform: (Byte) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample\n *\npublic inline fun <R> ShortArray.flatMap(transform: (Short) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample\n *\npublic inline fun <R> IntArray.flatMap(transform: (Int) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample\n *\npublic inline fun <R> LongArray.flatMap(transform: (Long) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n * \n * @sample
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samples.collections.Collections.Transformations.flatMap\n
*\n\npublic inline fun <R> FloatArray.flatMap(transform: (Float) -> Iterable<R>): List<R> {\n    return
flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of
[transform] function being invoked on each element of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n\n*\n\npublic inline fun <R>
DoubleArray.flatMap(transform: (Double) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n\n*\n\npublic inline fun <R>
BooleanArray.flatMap(transform: (Boolean) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element
of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n\n*\n\npublic inline fun
<R> CharArray.flatMap(transform: (Char) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n\n
*\n\n@SinceKotlin("1.4")\n\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\n@OverloadResolution
ByLambdaReturnType\n\n@kotlin.jvm.JvmName("flatMapSequence")\n\npublic inline fun <T, R> Array<out
T>.flatMap(transform: (T) -> Sequence<R>): List<R> {\n    return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element\n * and its index in the original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMapIndexed\n\n
*\n\n@SinceKotlin("1.4")\n\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\n@OverloadResolution
ByLambdaReturnType\n\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <T, R> Array<out T>.flatMapIndexed(transform: (index: Int, T) -> Iterable<R>): List<R> {\n    return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample
samples.collections.Collections.Transformations.flatMapIndexed\n\n
*\n\n@SinceKotlin("1.4")\n\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\n@OverloadResolution
ByLambdaReturnType\n\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <R> ByteArray.flatMapIndexed(transform: (index: Int, Byte) -> Iterable<R>): List<R> {\n    return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample
samples.collections.Collections.Transformations.flatMapIndexed\n\n
*\n\n@SinceKotlin("1.4")\n\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\n@OverloadResolution
ByLambdaReturnType\n\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <R> ShortArray.flatMapIndexed(transform: (index: Int, Short) -> Iterable<R>): List<R> {\n    return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample
samples.collections.Collections.Transformations.flatMapIndexed\n\n
*\n\n@SinceKotlin("1.4")\n\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n\n@OverloadResolution
ByLambdaReturnType\n\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <R> IntArray.flatMapIndexed(transform: (index: Int, Int) -> Iterable<R>): List<R> {\n    return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample
samples.collections.Collections.Transformations.flatMapIndexed\n

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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> LongArray.flatMapIndexed(transform: (index: Int, Long) -> Iterable<R>): List<R> {\n return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original
array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> FloatArray.flatMapIndexed(transform: (index: Int, Float) -> Iterable<R>): List<R> {\n return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> DoubleArray.flatMapIndexed(transform: (index: Int, Double)
-> Iterable<R>): List<R> {\n return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a
single list of all elements yielded from results of [transform] function being invoked on each element\n * and its
index in the original array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> BooleanArray.flatMapIndexed(transform: (index: Int, Boolean) -> Iterable<R>): List<R> {\n
return flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded
from results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> CharArray.flatMapIndexed(transform: (index: Int, Char) -> Iterable<R>): List<R> {\n return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedSequence")\n@kotlin.internal.InlineOnly\npubli
c inline fun <T, R> Array<out T>.flatMapIndexed(transform: (index: Int, T) -> Sequence<R>): List<R> {\n return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapIndexedTo(destination: C, transform:
(index: Int, T) -> Iterable<R>): C {\n var index = 0\n for (element in this) {\n val list = transform(index++,
element)\n destination.addAll(list)\n }\n return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c
inline fun <R, C : MutableCollection<in R>> ByteArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Byte) -> Iterable<R>): C {\n var index = 0\n for (element in this) {\n val list = transform(index++,

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element)\n    destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> ShortArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Short) -> Iterable<R>): C {\n    var index = 0\n    for (element in this) {\n        val list = transform(index++,
element)\n        destination.addAll(list)\n
    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being
invoked on each element\n * and its index in the original array, to the given [destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> IntArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Int) -> Iterable<R>): C {\n    var index = 0\n    for (element in this) {\n        val list = transform(index++, element)\n
    destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c
inline fun <R, C : MutableCollection<in R>> LongArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Long) -> Iterable<R>): C {\n    var index = 0\n    for (element in this) {\n        val list = transform(index++,
element)\n        destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> FloatArray.flatMapIndexedTo(destination: C, transform: (index: Int,
Float) -> Iterable<R>): C {\n    var index = 0\n    for (element in this)
{\n        val list = transform(index++, element)\n        destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index
in the original array, to the given [destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> DoubleArray.flatMapIndexedTo(destination: C, transform: (index:
Int, Double) -> Iterable<R>): C {\n    var index = 0\n    for (element in this) {\n        val list = transform(index++,
element)\n        destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c
inline fun <R, C : MutableCollection<in R>> BooleanArray.flatMapIndexedTo(destination: C, transform: (index:
Int, Boolean) -> Iterable<R>): C {\n    var index = 0\n    for (element in this) {\n        val list = transform(index++,
element)\n        destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

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ByLambdaReturnType\n@kotlin.jvm.JvmName("\flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npubli
c inline fun <R, C : MutableCollection<in R>> CharArray.flatMapIndexedTo(destination: C, transform:
(index: Int, Char) -> Iterable<R>): C {\n  var index = 0\n  for (element in this) {\n    val list =
transform(index++, element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all
elements yielded from results of [transform] function being invoked on each element\n * and its index in the original
array, to the given [destination].\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\flatMapIndexedSequenceTo")\n@kotlin.internal.InlineOnly\npu
blic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapIndexedTo(destination: C, transform:
(index: Int, T) -> Sequence<R>): C {\n  var index = 0\n  for (element in this) {\n    val list =
transform(index++, element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all
elements yielded from results of [transform] function being invoked
on each element of original array, to the given [destination].\n */\npublic inline fun <T, R, C :
MutableCollection<in R>> Array<out T>.flatMapTo(destination: C, transform: (T) -> Iterable<R>): C {\n  for
(element in this) {\n    val list = transform(element)\n    destination.addAll(list)\n  }\n  return
destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each
element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>>
ByteArray.flatMapTo(destination: C, transform: (Byte) -> Iterable<R>): C {\n  for (element in this) {\n    val list
= transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements
yielded from results of [transform] function being invoked on each element of original array, to the given
[destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> ShortArray.flatMapTo(destination:
C, transform: (Short) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n
destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element of original array, to the given [destination].\n */\npublic inline
fun <R, C : MutableCollection<in R>> IntArray.flatMapTo(destination: C, transform: (Int) -> Iterable<R>): C {\n
for (element in this) {\n    val list = transform(element)\n    destination.addAll(list)\n  }\n  return
destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each
element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>>
LongArray.flatMapTo(destination: C, transform: (Long) -> Iterable<R>): C {\n  for (element in this) {\n    val
list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked
on each element of original array, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in
R>> FloatArray.flatMapTo(destination: C, transform: (Float) -> Iterable<R>): C {\n  for (element in this) {\n
val list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all
elements yielded from results of [transform] function being invoked on each element of original array, to the given
[destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> DoubleArray.flatMapTo(destination: C,
transform: (Double) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n
destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element of original array,
to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>>
BooleanArray.flatMapTo(destination: C, transform: (Boolean) -> Iterable<R>): C {\n  for (element in this) {\n
val list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all
elements yielded from results of [transform] function being invoked on each element of original array, to the given
[destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> CharArray.flatMapTo(destination: C,
transform: (Char) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n
destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element of original array, to the given [destination].\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

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ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapSequenceTo")\npublic
inline fun <T, R, C : MutableCollection<in R>> Array<out T>.flatMapTo(destination: C, transform: (T) ->
Sequence<R>): C {\n    for (element in this) {\n        val list = transform(element)\n        destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given
[keySelector] function\n * applied to each element and returns a map where each group key is associated with a list
of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from
the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline
fun <T, K> Array<out T>.groupBy(keySelector: (T) -> K): Map<K, List<T>> {\n    return
groupByTo(LinkedHashMap<K, MutableList<T>>(), keySelector)\n}\n\n/**\n * Groups elements of the original
array by the key returned by the given [keySelector] function\n *
applied to each element and returns a map where each group key is associated with a list of corresponding
elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original
array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K>
ByteArray.groupBy(keySelector: (Byte) -> K): Map<K, List<Byte>> {\n    return groupByTo(LinkedHashMap<K,
MutableList<Byte>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the
given [keySelector] function\n * applied to each element and returns a map where each group key is associated with
a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced
from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic
inline fun <K> ShortArray.groupBy(keySelector: (Short) -> K): Map<K, List<Short>> {\n    return
groupByTo(LinkedHashMap<K,
MutableList<Short>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the
given [keySelector] function\n * applied to each element and returns a map where each group key is associated with
a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced
from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic
inline fun <K> IntArray.groupBy(keySelector: (Int) -> K): Map<K, List<Int>> {\n    return
groupByTo(LinkedHashMap<K, MutableList<Int>>(), keySelector)\n}\n\n/**\n * Groups elements of the original
array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where
each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry
iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n
*/\npublic inline fun <K> LongArray.groupBy(keySelector: (Long) -> K): Map<K, List<Long>> {\n    return
groupByTo(LinkedHashMap<K, MutableList<Long>>(), keySelector)\n}\n\n/**\n * Groups elements of the
original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map
where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the
entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n
*/\npublic inline fun <K>
FloatArray.groupBy(keySelector: (Float) -> K): Map<K, List<Float>> {\n    return groupByTo(LinkedHashMap<K,
MutableList<Float>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the
given [keySelector] function\n * applied to each element and returns a map where each group key is associated with
a list of corresponding elements.\n
\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n
*\n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K>
DoubleArray.groupBy(keySelector: (Double) -> K): Map<K, List<Double>> {\n    return
groupByTo(LinkedHashMap<K, MutableList<Double>>(), keySelector)\n}\n\n/**\n * Groups elements of the
original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map
where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the
entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n
*/\npublic inline fun <K>

```

```

BooleanArray.groupBy(keySelector: (Boolean) -> K): Map<K, List<Boolean>> {\n  return
groupByTo(LinkedHashMap<K, MutableList<Boolean>>(), keySelector)\n}\n\n/**\n * Groups elements of the
original array
by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each
group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration
order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K>
CharArray.groupBy(keySelector: (Char) -> K): Map<K, List<Char>> {\n  return groupByTo(LinkedHashMap<K,
MutableList<Char>>(), keySelector)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied
to each element of the original array\n * by the key returned by the given [keySelector] function applied to the
element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The
returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <T, K, V> Array<out T>.groupBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K,
List<V>> {\n  return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector,
valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of
the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns
a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves
the entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V>
ByteArray.groupBy(keySelector: (Byte) -> K, valueTransform: (Byte) -> V): Map<K, List<V>> {\n  return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values
returned by the [valueTransform] function applied
to each element of the original array\n * by the key returned by the given [keySelector] function applied to the
element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The
returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V>
ShortArray.groupBy(keySelector: (Short) -> K, valueTransform: (Short) -> V): Map<K, List<V>> {\n  return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values
returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by
the given [keySelector] function applied to the element\n * and returns a map where each group key is associated
with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys
produced from
the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V> IntArray.groupBy(keySelector: (Int) -> K, valueTransform: (Int) -> V): Map<K,
List<V>> {\n  return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector,
valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of
the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and returns
a map where each group key is associated with a list of corresponding values.\n * \n * The returned map preserves
the entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V>
LongArray.groupBy(keySelector: (Long) -> K, valueTransform: (Long) -> V): Map<K, List<V>> {\n  return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the
key returned by the given [keySelector] function applied to the element\n * and returns a map where each group key
is associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the
keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n */\npublic inline fun <K, V>

```

```

FloatArray.groupBy(keySelector: (Float) -> K, valueTransform: (Float) -> V): Map<K, List<V>> {\n  return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values
returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by
the given [keySelector] function applied to the element\n * and returns a map where each group key is associated
with a list of corresponding values.\n
 * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * \n *
@sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V>
DoubleArray.groupBy(keySelector: (Double) -> K, valueTransform: (Double) -> V): Map<K, List<V>> {\n
return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups
values returned by the [valueTransform] function applied to each element of the original array\n * by the key
returned by the given [keySelector] function applied to the element\n * and returns a map where each group key is
associated with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the
keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V>
BooleanArray.groupBy(keySelector: (Boolean) -> K, valueTransform:
(Boolean) -> V): Map<K, List<V>> {\n  return groupByTo(LinkedHashMap<K, MutableList<V>>(),
keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to
each element of the original array\n * by the key returned by the given [keySelector] function applied to the
element\n * and returns a map where each group key is associated with a list of corresponding values.\n * \n * The
returned map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V>
CharArray.groupBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, List<V>> {\n  return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups elements
of the original array by the key returned by the given [keySelector] function\n * applied to each element and puts to
the [destination] map each group
key associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <T, K, M : MutableMap<in K,
MutableList<T>>> Array<out T>.groupByTo(destination: M, keySelector: (T) -> K): M {\n  for (element in this)
{\n    val key = keySelector(element)\n    val list = destination.getOrPut(key) { ArrayList<T>() }\n
list.add(element)\n  }\n  return destination\n}\n\n/**\n * Groups elements of the original array by the key returned
by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key
associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K,
MutableList<Byte>>> ByteArray.groupByTo(destination: M, keySelector: (Byte) -> K): M {\n  for (element in
this) {\n    val key = keySelector(element)\n    val list = destination.getOrPut(key) { ArrayList<Byte>() }\n
list.add(element)\n  }\n  return destination\n}\n\n/**\n * Groups elements of the original array by the key returned
by the given [keySelector] function\n * applied to each element and puts to the [destination] map each group key
associated with a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K, M : MutableMap<in K,
MutableList<Short>>> ShortArray.groupByTo(destination: M, keySelector: (Short) -> K): M {\n  for (element in
this) {\n    val key = keySelector(element)\n    val list = destination.getOrPut(key) { ArrayList<Short>() }\n
list.add(element)\n  }\n  return destination\n}\n\n/**\n * Groups elements of the original array by the key returned
by the given [keySelector] function\n * applied to each element and puts
to the [destination] map each group key associated with a list of corresponding elements.\n * \n * @return The
[destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n */\npublic inline
fun <K, M : MutableMap<in K, MutableList<Int>>> IntArray.groupByTo(destination: M, keySelector: (Int) -> K):
M {\n  for (element in this) {\n    val key = keySelector(element)\n    val list = destination.getOrPut(key) {
ArrayList<Int>() }\n    list.add(element)\n  }\n  return destination\n}\n\n/**\n * Groups elements of the original

```

array by the key returned by the given [keySelector] function\n \* applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupBy\n \*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Long>>> LongArray.groupByTo(destination: M, keySelector: (Long) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<Long>() }\n list.add(element)\n }\n return destination\n}\n\n/\*\*\n \* Groups elements of the original array by the key returned by the given [keySelector] function\n \* applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupBy\n \*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Float>>> FloatArray.groupByTo(destination: M, keySelector: (Float) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<Float>() }\n list.add(element)\n }\n return destination\n}\n\n/\*\*\n \* Groups elements of the original array by the key returned by the given [keySelector] function\n \* applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupBy\n \*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Double>>> DoubleArray.groupByTo(destination: M, keySelector: (Double) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<Double>() }\n list.add(element)\n }\n return destination\n}\n\n/\*\*\n \* Groups elements of the original array by the key returned by the given [keySelector] function\n \* applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupBy\n \*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Boolean>>> BooleanArray.groupByTo(destination: M, keySelector: (Boolean) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<Boolean>() }\n list.add(element)\n }\n return destination\n}\n\n/\*\*\n \* Groups elements of the original array by the key returned by the given [keySelector] function\n \* applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupBy\n \*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Char>>> CharArray.groupByTo(destination: M, keySelector: (Char) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<Char>() }\n list.add(element)\n }\n return destination\n}\n\n/\*\*\n \* Groups values returned by the [valueTransform] function applied to each element of the original array\n \* by the key returned by the given [keySelector] function applied to the element\n \* and puts to the [destination] map each group key associated with a list of corresponding values.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n \*/\npublic inline fun <T, K, V, M : MutableMap<in K, MutableList<V>>> Array<out T>.groupByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/\*\*\n \* Groups values returned by the [valueTransform] function applied to each element of the original array\n \* by the key returned by the given [keySelector] function applied to the element\n \* and puts to the [destination] map each group key associated with a list of corresponding values.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n \*/\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> ByteArray.groupByTo(destination: M, keySelector: (Byte) -> K, valueTransform: (Byte) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/\*\*\n \* Groups values returned by the [valueTransform] function applied to each element of the

original array\n \* by the key returned by the given [keySelector] function applied to the element\n \* and puts to the [destination] map each group key associated with a list of corresponding values.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n \*/\npublic inline fun

```
<K, V, M : MutableMap<in K, MutableList<V>>> ShortArray.groupByTo(destination: M, keySelector: (Short) -> K, valueTransform: (Short) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> IntArray.groupByTo(destination: M, keySelector: (Int) -> K, valueTransform: (Int) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> LongArray.groupByTo(destination: M, keySelector: (Long) -> K, valueTransform: (Long) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> FloatArray.groupByTo(destination: M, keySelector: (Float) -> K, valueTransform: (Float) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> DoubleArray.groupByTo(destination: M, keySelector: (Double) -> K, valueTransform: (Double) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> BooleanArray.groupByTo(destination: M, keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun
```

```
fun <K, V, M : MutableMap<in K, MutableList<V>>> BooleanArray.groupByTo(destination: M, keySelector: (Boolean) -> K, valueTransform: (Boolean) -> V): M {\n    for (element in this) {\n        val key = keySelector(element)\n        val list = destination.getOrPut(key) { ArrayList<V>() }\n        list.add(valueTransform(element))\n    }\n    return destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n */\npublic inline fun
```

[keySelector] function applied to the element\n \* and puts to the [destination] map each group key associated with a list of corresponding values.\n \* \n \* @return The [destination] map.\n \* \n \* @sample

```

samples.collections.Collections.Transformations.groupByKeyAndValues\n *
public inline fun <K, V, M : MutableMap<in K, MutableList<V>>> CharArray.groupByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {
    for (element in this) {
        val key = keySelector(element)
        val list = destination.getOrPut(key) { ArrayList<V>() }
        list.add(valueTransform(element))
    }
    return destination
}

```

\n \* Creates a [Grouping] source from an array to be used later with one of group-and-fold operations\n \* using the specified [keySelector] function to extract a key from each element.\n \* \n \* @sample samples.collections.Grouping.groupingByEachCount\n

```

*\n * @SinceKotlin("1.1")
public inline fun <T, K> Array<out T>.groupingBy(crossinline keySelector: (T) -> K): Grouping<T, K> {
    return object : Grouping<T, K> {
        override fun sourceIterator(): Iterator<T> = this@groupingBy.iterator()
        override fun keyOf(element: T): K = keySelector(element)
    }
}

```

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <T, R> Array<out T>.map(transform: (T) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> ByteArray.map(transform: (Byte) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> ShortArray.map(transform: (Short) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> IntArray.map(transform: (Int) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> LongArray.map(transform: (Long) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> FloatArray.map(transform: (Float) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> DoubleArray.map(transform: (Double) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> BooleanArray.map(transform: (Boolean) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element in the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.map\n \*
public inline fun <R> CharArray.map(transform: (Char) -> R): List<R> {
 return mapTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element and its index in the original array.\n \* \n \* @param [transform] function that takes the index of an element and the element itself\n \* \n \* and returns the result of the transform applied to the element.\n \*
public inline fun <T, R> Array<out T>.mapIndexed(transform: (index: Int, T) -> R): List<R> {
 return mapIndexedTo(ArrayList<R>(size), transform)
}

\n \* Returns a list containing the results of applying the given [transform] function\n \* to each element and its index in the original array.\n \* \n \* @param [transform] function that takes the index of an element and the element itself\n \* \n \* and returns the result of the transform applied to the element.\n \*
public inline fun <R> ByteArray.mapIndexed(transform: (index: Int, Byte) -> R): List<R> {
 return

```

mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list containing the results of applying the
given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function
that takes the index of an element and the element itself\n * and returns the result of the transform applied to the
element.\n */\npublic
inline fun <R> ShortArray.mapIndexed(transform: (index: Int, Short) -> R): List<R> {\n    return
mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list containing the results of applying the
given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function
that takes the index of an element and the element itself\n * and returns the result of the transform applied to the
element.\n */\npublic inline fun <R> IntArray.mapIndexed(transform: (index: Int, Int) -> R): List<R> {\n    return
mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list containing the results of applying the
given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function
that takes the index of an element and the element itself\n * and returns the result of the transform applied to the
element.\n */\npublic inline fun <R> LongArray.mapIndexed(transform: (index: Int, Long) -> R):
List<R> {\n    return mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list containing the
results of applying the given [transform] function\n * to each element and its index in the original array.\n *
@param [transform] function that takes the index of an element and the element itself\n * and returns the result of
the transform applied to the element.\n */\npublic inline fun <R> FloatArray.mapIndexed(transform: (index: Int,
Float) -> R): List<R> {\n    return mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list
containing the results of applying the given [transform] function\n * to each element and its index in the original
array.\n * @param [transform] function that takes the index of an element and the element itself\n * and returns the
result of the transform applied to the element.\n */\npublic inline fun <R> DoubleArray.mapIndexed(transform:
(index: Int, Double) -> R): List<R> {\n    return mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n
* Returns a list containing the results of applying the given [transform] function\n * to each element and its index
in the original array.\n * @param [transform] function that takes the index of an element and the element itself\n *
and returns the result of the transform applied to the element.\n */\npublic inline fun <R>
BooleanArray.mapIndexed(transform: (index: Int, Boolean) -> R): List<R> {\n    return
mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list containing the results of applying the
given [transform] function\n * to each element and its index in the original array.\n * @param [transform] function
that takes the index of an element and the element itself\n * and returns the result of the transform applied to the
element.\n */\npublic inline fun <R> CharArray.mapIndexed(transform: (index: Int, Char) -> R): List<R> {\n
return mapIndexedTo(ArrayList<R>(size), transform)\n\n\n**\n * Returns a list containing only the non-null
results of applying
the given [transform] function\n * to each element and its index in the original array.\n * @param [transform]
function that takes the index of an element and the element itself\n * and returns the result of the transform applied
to the element.\n */\npublic inline fun <T, R : Any> Array<out T>.mapIndexedNotNull(transform: (index: Int, T) ->
R?): List<R> {\n    return mapIndexedNotNullTo(ArrayList<R>(), transform)\n\n\n**\n * Applies the given
[transform] function to each element and its index in the original array\n * and appends only the non-null results to
the given [destination].\n * @param [transform] function that takes the index of an element and the element itself\n
* and returns the result of the transform applied to the element.\n */\npublic inline fun <T, R : Any, C :
MutableCollection<in R>> Array<out T>.mapIndexedNotNullTo(destination: C, transform: (index: Int, T) -> R?):
C {\n    forEachIndexed { index, element -> transform(index, element)?.let { destination.add(it)
} }\n    return destination\n\n\n**\n * Applies the given [transform] function to each element and its index in the
original array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the
index of an element and the element itself\n * and returns the result of the transform applied to the element.\n
*/\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.mapIndexedTo(destination: C, transform:
(index: Int, T) -> R): C {\n    var index = 0\n    for (item in this)\n        destination.add(transform(index++, item))\n
return destination\n\n\n**\n * Applies the given [transform] function to each element and its index in the original
array\n * and appends the results to the given [destination].\n * @param [transform] function that takes the index of

```

an element and the element itself  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> ByteArray.mapIndexedTo(destination: C, transform: (index: Int, Byte) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> ShortArray.mapIndexedTo(destination: C, transform: (index: Int, Short) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> IntArray.mapIndexedTo(destination: C, transform: (index: Int, Int) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> LongArray.mapIndexedTo(destination: C, transform: (index: Int, Long) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> FloatArray.mapIndexedTo(destination: C, transform: (index: Int, Float) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> DoubleArray.mapIndexedTo(destination: C, transform: (index: Int, Double) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> BooleanArray.mapIndexedTo(destination: C, transform: (index: Int, Boolean) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Applies the given [transform] function to each element and its index in the original array`  
`* and appends the results to the given [destination].`  
`@param [transform] function that takes the index of an element and the element itself`  
`* and returns the result of the transform applied to the element.`  
`public inline fun <R, C : MutableCollection<in R>> CharArray.mapIndexedTo(destination: C, transform: (index: Int, Char) -> R): C {`  
`var index = 0`  
`for (item in this)`  
`destination.add(transform(index++, item))`  
`return destination`  
`}`  
`* Returns a list containing only the non-null results of applying the given [transform] function`  
`* to each element in the original array.`  
`@sample samples.collections.Collections.Transformations.mapNotNull`  
`public inline fun <T, R : Any> Array<out T>.mapNotNull(transform: (T) -> R?): List<R> {`  
`return mapNotNullTo(ArrayList<R>(), transform)`  
`}`  
`* Applies the given [transform] function to each element in the original array`  
`* and appends only the non-null results to the given [destination].`  
`public inline fun <T, R : Any, C : MutableCollection<in R>> Array<out T>.mapNotNullTo(destination: C, transform: (T) -> R?): C {`  
`forEach { element -> transform(element)?.let { destination.add(it) } }`  
`return destination`  
`}`  
`* Applies`



the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <T, R, C : MutableCollection<in R>> Array<out T>.mapTo(destination: C, transform: (T) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> ByteArray.mapTo(destination: C, transform: (Byte) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> ShortArray.mapTo(destination: C, transform: (Short) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> IntArray.mapTo(destination: C, transform: (Int) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> LongArray.mapTo(destination: C, transform: (Long) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> FloatArray.mapTo(destination: C, transform: (Float) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> DoubleArray.mapTo(destination: C, transform: (Double) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> BooleanArray.mapTo(destination: C, transform: (Boolean) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Applies the given [transform] function to each element of the original array\n \* and appends the results to the given [destination].\n \*/\npublic inline fun <R, C : MutableCollection<in R>> CharArray.mapTo(destination: C, transform: (Char) -> R): C {\n for (item in this)\n destination.add(transform(item))\n return destination}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of the original array\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*/\npublic fun <T> Array<out T>.withIndex(): Iterable<IndexedValue<T>> {\n return IndexingIterable { iterator() }}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of the original array\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*/\npublic fun ByteArray.withIndex(): Iterable<IndexedValue<Byte>> {\n return IndexingIterable { iterator() }}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of the original array\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*/\npublic fun ShortArray.withIndex(): Iterable<IndexedValue<Short>> {\n return IndexingIterable { iterator() }}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of the original array\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*/\npublic fun IntArray.withIndex(): Iterable<IndexedValue<Int>> {\n return IndexingIterable { iterator() }}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of the original array\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*/\npublic fun LongArray.withIndex(): Iterable<IndexedValue<Long>> {\n return IndexingIterable { iterator() }}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of the original array\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*/\npublic fun FloatArray.withIndex(): Iterable<IndexedValue<Float>> {\n return IndexingIterable { iterator() }}\n\n/n/\*\*\n \* Returns a lazy [Iterable] that wraps each element of

the original array into an [IndexedValue] containing the index of that element and the element itself.

```

*^public fun DoubleArray.withIndex(): Iterable<IndexedValue<Double>> {
    return IndexingIterable {
        iterator()
    }
}

```

Returns a lazy [Iterable] that wraps each element of the original array into an [IndexedValue] containing the index of that element and the element itself.

```

*^public fun BooleanArray.withIndex(): Iterable<IndexedValue<Boolean>> {
    return IndexingIterable {
        iterator()
    }
}

```

Returns a lazy [Iterable] that wraps each element of the original array into an [IndexedValue] containing the index of that element and the element itself.

```

*^public fun CharArray.withIndex():
Iterable<IndexedValue<Char>> {
    return IndexingIterable {
        iterator()
    }
}

```

Returns a list containing only distinct elements from the given array.

Among equal elements of the given array, only the first one will be present in the resulting list.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun <T> Array<out T>.distinct(): List<T> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun ByteArray.distinct(): List<Byte> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun ShortArray.distinct():
List<Short> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun IntArray.distinct():
List<Int> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun LongArray.distinct(): List<Long> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun FloatArray.distinct(): List<Float> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun DoubleArray.distinct():
List<Double> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun BooleanArray.distinct(): List<Boolean> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only distinct elements from the given array.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public fun CharArray.distinct():
List<Char> {
    return this.toMutableSet().toList()
}

```

Returns a list containing only elements from the given array having distinct keys returned by the given [selector] function.

Among elements of the given array with equal keys, only the first one will be present in the resulting list.

The elements in the resulting list are in the same order as they were in the source array.

```

@sample
samples.collections.Collections.Transformations.distinctAndDistinctBy
*^public inline fun <T, K> Array<out T>.distinctBy(selector: (T) -> K): List<T> {
    val set = HashSet<K>()
    val list = ArrayList<T>()
    for (e in

```

```

this) {\n    val key = selector(e)\n    if (set.add(key))\n        list.add(e)\n    }\n    return list\n}\n\nReturns a list containing only elements from the given
array\n * having distinct keys returned by the given [selector] function.\n * \n * The elements in the resulting list
are in the same order as they were in the source array.\n * \n * @sample
samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
ByteArray.distinctBy(selector: (Byte) -> K): List<Byte> {\n    val set = HashSet<K>()\n    val list =
ArrayList<Byte>()\n    for (e in this) {\n        val key = selector(e)\n        if (set.add(key))\n            list.add(e)\n    }\n    return list\n}\n\nReturns a list containing only elements from the given array\n * having distinct keys
returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they
were in the source array.\n * \n * @sample
samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
ShortArray.distinctBy(selector: (Short) -> K): List<Short> {\n    val set = HashSet<K>()\n    val list
= ArrayList<Short>()\n    for (e in this) {\n        val key = selector(e)\n        if (set.add(key))\n            list.add(e)\n    }\n    return list\n}\n\nReturns a list containing only elements from the given array\n * having distinct keys
returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they
were in the source array.\n * \n * @sample
samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
IntArray.distinctBy(selector: (Int) -> K): List<Int> {\n    val set = HashSet<K>()\n    val list = ArrayList<Int>()\n
for (e in this) {\n    val key = selector(e)\n    if (set.add(key))\n        list.add(e)\n    }\n    return list\n}\n\nReturns a list containing only elements from the given array\n * having distinct keys returned by the given
[selector] function.\n * \n * The elements in the resulting list are in the same order as they were in the source
array.\n
* \n * @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
LongArray.distinctBy(selector: (Long) -> K): List<Long> {\n    val set = HashSet<K>()\n    val list =
ArrayList<Long>()\n    for (e in this) {\n        val key = selector(e)\n        if (set.add(key))\n            list.add(e)\n    }\n    return list\n}\n\nReturns a list containing only elements from the given array\n * having distinct keys
returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they
were in the source array.\n * \n * @sample
samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
FloatArray.distinctBy(selector: (Float) -> K): List<Float> {\n    val set = HashSet<K>()\n    val list =
ArrayList<Float>()\n    for (e in this) {\n        val key = selector(e)\n        if (set.add(key))\n            list.add(e)\n    }\n    return list\n}\n\nReturns a
list containing only elements from the given array\n * having distinct keys returned by the given [selector]
function.\n * \n * The elements in the resulting list are in the same order as they were in the source array.\n * \n *
@sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
DoubleArray.distinctBy(selector: (Double) -> K): List<Double> {\n    val set = HashSet<K>()\n    val list =
ArrayList<Double>()\n    for (e in this) {\n        val key = selector(e)\n        if (set.add(key))\n            list.add(e)\n    }\n    return list\n}\n\nReturns a list containing only elements from the given array\n * having distinct keys
returned by the given [selector] function.\n * \n * The elements in the resulting list are in the same order as they
were in the source array.\n * \n * @sample
samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
BooleanArray.distinctBy(selector: (Boolean) -> K):
List<Boolean> {\n    val set = HashSet<K>()\n    val list = ArrayList<Boolean>()\n    for (e in this) {\n        val key
= selector(e)\n        if (set.add(key))\n            list.add(e)\n    }\n    return list\n}\n\nReturns a list containing
only elements from the given array\n * having distinct keys returned by the given [selector] function.\n * \n * The
elements in the resulting list are in the same order as they were in the source array.\n * \n * @sample
samples.collections.Collections.Transformations.distinctAndDistinctBy\n *\npublic inline fun <K>
CharArray.distinctBy(selector: (Char) -> K): List<Char> {\n    val set = HashSet<K>()\n    val list =

```

```

ArrayList<Char>()\n for (e in this) {\n     val key = selector(e)\n     if (set.add(key))\n         list.add(e)\n }\n return list\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun <T> Array<out T>.intersect(other: Iterable<T>): Set<T> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun ByteArray.intersect(other: Iterable<Byte>): Set<Byte> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun ShortArray.intersect(other: Iterable<Short>): Set<Short> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun IntArray.intersect(other: Iterable<Int>): Set<Int> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun LongArray.intersect(other: Iterable<Long>): Set<Long> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun FloatArray.intersect(other: Iterable<Float>): Set<Float> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun DoubleArray.intersect(other: Iterable<Double>): Set<Double> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun BooleanArray.intersect(other: Iterable<Boolean>): Set<Boolean> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by both this array and the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n * \n * To get a set containing all elements that are contained at least in one of these collections use [union].\n */\npublic infix fun CharArray.intersect(other: Iterable<Char>): Set<Char> {\n    val set = this.toMutableSet()\n    set.retainAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun <T> Array<out T>.subtract(other: Iterable<T>): Set<T> {\n    val set = this.toMutableSet()\n    set.removeAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the specified collection.\n * \n * The returned set preserves the element iteration order of the original array.\n */\npublic infix fun ByteArray.subtract(other: Iterable<Byte>): Set<Byte> {\n    val set = this.toMutableSet()\n    set.removeAll(other)\n    return set\n}\n\n\n/**\n * Returns a set containing all elements that are contained by this array and not contained by the

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specified collection.

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    * The returned set preserves the element iteration order of the original array.
public
infix fun ShortArray.subtract(other: Iterable<Short>): Set<Short> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a set containing all elements that are contained by this array and not contained by the specified collection.
    * The returned set preserves the element iteration order of the original array.
public
infix fun IntArray.subtract(other: Iterable<Int>): Set<Int> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a set containing all elements that are contained by this array and not contained by the specified collection.
    * The returned set preserves the element iteration order of the original array.
public
infix fun LongArray.subtract(other: Iterable<Long>): Set<Long> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a set containing all elements that are contained by this array and not contained by the specified collection.
    * The returned set preserves the element iteration order of the original array.
public
infix fun FloatArray.subtract(other: Iterable<Float>): Set<Float> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a set containing all elements that are contained by this array and not contained by the specified collection.
    * The returned set preserves the element iteration order of the original array.
public
infix fun DoubleArray.subtract(other: Iterable<Double>): Set<Double> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a set containing all elements that are contained by this array and not contained by the specified collection.
    * The returned set preserves the element iteration order of the original array.
public
infix fun BooleanArray.subtract(other: Iterable<Boolean>): Set<Boolean> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a set containing all elements that are contained by this array and not contained by the specified collection.
    * The returned set preserves the element iteration order of the original array.
public
infix fun CharArray.subtract(other: Iterable<Char>): Set<Char> {
    val set = this.toMutableSet()
    set.removeAll(other)
    return set
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun <T> Array<out T>.toMutableSet(): MutableSet<T> {
    return toCollection(LinkedHashSet<T>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun ByteArray.toMutableSet(): MutableSet<Byte> {
    return toCollection(LinkedHashSet<Byte>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun ShortArray.toMutableSet(): MutableSet<Short> {
    return toCollection(LinkedHashSet<Short>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun IntArray.toMutableSet(): MutableSet<Int> {
    return toCollection(LinkedHashSet<Int>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun LongArray.toMutableSet(): MutableSet<Long> {
    return toCollection(LinkedHashSet<Long>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun FloatArray.toMutableSet(): MutableSet<Float> {
    return toCollection(LinkedHashSet<Float>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun DoubleArray.toMutableSet(): MutableSet<Double> {
    return toCollection(LinkedHashSet<Double>(mapCapacity(size)))
}
    * Returns a new [MutableSet] containing all distinct elements from the given array.
    * The returned set preserves the element iteration order of the original array.
public
fun BooleanArray.toMutableSet(): MutableSet<Boolean> {
    return toCollection(LinkedHashSet<Boolean>(mapCapacity(size)))
}

```

\* Returns a new [MutableSet] containing all distinct elements from the given array.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \*/\npublic fun CharArray.toMutableSet(): MutableSet<Char> {\n return toCollection(LinkedHashSet<Char>(mapCapacity(size.coerceAtMost(128))))\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun <T> Array<out T>.union(other: Iterable<T>): Set<T> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun ByteArray.union(other: Iterable<Byte>): Set<Byte> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun ShortArray.union(other: Iterable<Short>): Set<Short> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun IntArray.union(other: Iterable<Int>): Set<Int> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun LongArray.union(other: Iterable<Long>): Set<Long> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun FloatArray.union(other: Iterable<Float>): Set<Float> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun DoubleArray.union(other: Iterable<Double>): Set<Double> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun BooleanArray.union(other: Iterable<Boolean>): Set<Boolean> {\n val set = this.toMutableSet()\n set.addAll(other)\n return set\n}\n\n/\*\*\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original array.\n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \*/\npublic infix fun CharArray.union(other:

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Iterable<Char>): Set<Char> {\n  val set = this.toMutableSet()\n  set.addAll(other)\n  return set\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun <T> Array<out T>.all(predicate: (T) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun ByteArray.all(predicate: (Byte) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun ShortArray.all(predicate: (Short) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun IntArray.all(predicate: (Int) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun LongArray.all(predicate: (Long) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun FloatArray.all(predicate: (Float) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun DoubleArray.all(predicate: (Double) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun BooleanArray.all(predicate: (Boolean) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element)) return false\n  return true\n}\n\n/**\n * Returns `true` if all elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.all\n */\npublic inline fun CharArray.all(predicate: (Char) -> Boolean): Boolean {\n  for (element in this) if (!predicate(element))\n    return false\n  return true\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun <T> Array<out T>.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun ByteArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun ShortArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun IntArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun LongArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun FloatArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun DoubleArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if array has at least one element.\n * \n * @sample
samples.collections.Collections.Aggregates.any\n */\npublic fun BooleanArray.any(): Boolean {\n  return !isEmpty()\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun <T> Array<out

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T>.any(predicate: (T) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun ByteArray.any(predicate: (Byte) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun ShortArray.any(predicate: (Short) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun IntArray.any(predicate: (Int) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun LongArray.any(predicate: (Long) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun FloatArray.any(predicate: (Float) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun DoubleArray.any(predicate: (Double) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun BooleanArray.any(predicate: (Boolean) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns `true` if at least one element matches the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun CharArray.any(predicate: (Char) -> Boolean): Boolean {\n  for (element in this) if (predicate(element)) return true\n  return false\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun <T> Array<out T>.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun ByteArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun ShortArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun IntArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun LongArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun FloatArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun DoubleArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun BooleanArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements in this array.\n * \n * @kotlin.internal.InlineOnly\n */\npublic inline fun CharArray.count(): Int {\n  return size\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n * \n * @public inline fun <T> Array<out T>.count(predicate: (T) -> Boolean): Int {\n  var count = 0\n  for (element in this) if (predicate(element)) ++count\n  return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n * \n * @public inline fun ByteArray.count(predicate: (Byte) -> Boolean): Int {\n  var count = 0\n  for (element in this) if (predicate(element)) ++count\n  return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n * \n * @public inline fun ShortArray.count(predicate: (Short) -> Boolean): Int {\n  var count = 0\n  for (element in this) if (predicate(element)) ++count\n  return count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n * \n * @public inline fun IntArray.count(predicate:

```



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(Int) -> Boolean): Int {\n  var count = 0\n  for (element in this) if (predicate(element)) ++count\n  return
count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun
LongArray.count(predicate: (Long) -> Boolean): Int {\n  var count = 0\n  for (element in this) if
(predicate(element)) ++count\n  return count\n}\n\n/**\n * Returns the number of elements matching the given
[predicate].\n */\npublic inline fun FloatArray.count(predicate: (Float) -> Boolean): Int {\n  var count = 0\n  for
(element in this) if (predicate(element)) ++count\n  return count\n}\n\n/**\n * Returns the number of elements
matching the given [predicate].\n */\npublic inline fun DoubleArray.count(predicate: (Double) -> Boolean): Int {\n
var count = 0\n  for (element in this) if (predicate(element)) ++count\n  return count\n}\n\n/**\n * Returns the
number of elements matching the given [predicate].\n */\npublic inline fun BooleanArray.count(predicate:
(Boolean) -> Boolean): Int {\n  var count = 0\n  for (element in this) if (predicate(element)) ++count\n  return
count\n}\n\n/**\n * Returns the number of elements matching the given [predicate].\n */\npublic inline fun
CharArray.count(predicate: (Char) -> Boolean): Int {\n  var count = 0\n  for (element in this) if
(predicate(element)) ++count\n  return count\n}\n\n/**\n * Accumulates value starting with [initial] value and
applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the
specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator
value and an element, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out
T>.fold(initial: R, operation: (acc: R, T) -> R): R {\n  var accumulator = initial\n  for (element in this)
accumulator = operation(accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value
starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each
element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that
takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun
<R> ByteArray.fold(initial: R, operation: (acc: R, Byte) -> R): R {\n  var accumulator = initial\n  for (element in
this) accumulator = operation(accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value
starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each
element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that
takes current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun
<R> ShortArray.fold(initial: R, operation: (acc: R, Short) -> R): R
{\n  var accumulator = initial\n  for (element in this) accumulator = operation(accumulator, element)\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the
next accumulator value.\n */\npublic inline fun <R> IntArray.fold(initial: R, operation: (acc: R, Int) -> R): R {\n
var accumulator = initial\n  for (element in this) accumulator = operation(accumulator, element)\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes current accumulator
value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R>
LongArray.fold(initial: R, operation: (acc: R, Long) -> R): R {\n  var accumulator = initial\n  for (element in this)
accumulator = operation(accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting
with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element.\n *
\n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes
current accumulator value and an element, and calculates the next accumulator value.\n */\npublic inline fun <R>
FloatArray.fold(initial: R, operation: (acc: R, Float) -> R): R {\n  var accumulator = initial\n  for (element in this)
accumulator = operation(accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting
with [initial] value and applying [operation] from left to right\n * to current accumulator
value and each element.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param
[operation] function that takes current accumulator value and an element, and calculates the next accumulator
value.\n */\npublic inline fun <R> DoubleArray.fold(initial: R, operation: (acc: R, Double) -> R): R {\n  var

```

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accumulator = initial\n  for (element in this) accumulator = operation(accumulator, element)\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the
next accumulator value.\n */\npublic inline fun <R> BooleanArray.fold(initial: R, operation: (acc: R, Boolean) ->
R): R {\n  var accumulator = initial\n  for (element in this) accumulator = operation(accumulator,
  element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying
[operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns the specified
[initial] value if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and
an element, and calculates the next accumulator value.\n */\npublic inline fun <R> CharArray.fold(initial: R,
operation: (acc: R, Char) -> R): R {\n  var accumulator = initial\n  for (element in this) accumulator =
  operation(accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial]
value and applying [operation] from left to right\n * to current accumulator value and each element with its index in
the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value\n * and the element
itself, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out T>.foldIndexed(initial:
R, operation: (index: Int, acc: R, T) -> R): R {\n  var index = 0\n  var accumulator = initial\n  for (element in
  this) accumulator = operation(index++, accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates
value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and
each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n
 * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the
element itself, and calculates the next accumulator value.\n */\npublic inline fun <R> ByteArray.foldIndexed(initial:
R, operation: (index: Int, acc: R, Byte) -> R): R {\n  var index = 0\n  var accumulator = initial\n  for (element in
  this) accumulator = operation(index++, accumulator, element)\n
  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from
left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns
the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\n
public inline fun <R> ShortArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Short) -> R): R {\n  var
  index = 0\n  var accumulator = initial\n  for (element in this) accumulator = operation(index++, accumulator,
  element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying
[operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n
 * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes
the index of an element, current accumulator value\n * and the element
itself, and calculates the next accumulator value.\n */\npublic inline fun <R> IntArray.foldIndexed(initial: R,
operation: (index: Int, acc: R, Int) -> R): R {\n  var index = 0\n  var accumulator = initial\n  for (element in this)
  accumulator = operation(index++, accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value
starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each
element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n
 * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element
itself, and calculates the next accumulator value.\n */\npublic inline fun <R> LongArray.foldIndexed(initial: R,
operation: (index: Int, acc: R, Long) -> R): R {\n  var index = 0\n  var
  accumulator = initial\n  for (element in this) accumulator = operation(index++, accumulator, element)\n  return
  accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the
specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n */\n
public inline fun <R> FloatArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Float) -> R): R {\n  var

```

```

index = 0\n  var accumulator = initial\n  for (element in this) accumulator = operation(index++, accumulator,
element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying
[operation] from left to right\n * to current accumulator value and each element with its index
in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the
next accumulator value.\n */\npublic inline fun <R> DoubleArray.foldIndexed(initial: R, operation: (index: Int, acc:
R, Double) -> R): R {\n  var index = 0\n  var accumulator = initial\n  for (element in this) accumulator =
operation(index++, accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with
[initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its
index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param
[operation] function that takes the index of an element, current accumulator value\n * and the element itself, and
calculates the next accumulator value.\n */\npublic inline fun <R> BooleanArray.foldIndexed(initial:
R, operation: (index: Int, acc: R, Boolean) -> R): R {\n  var index = 0\n  var accumulator = initial\n  for
(element in this) accumulator = operation(index++, accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator
value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and
the element itself, and calculates the next accumulator value.\n */\npublic inline fun <R>
CharArray.foldIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): R {\n  var index = 0\n  var
accumulator = initial\n  for (element in this) accumulator = operation(index++, accumulator, element)\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial]
value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n *
Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element
and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <T, R> Array<out
T>.foldRight(initial: R, operation: (T, acc: R) -> R): R {\n  var index = lastIndex\n  var accumulator = initial\n
while (index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the
next accumulator value.\n */\npublic inline fun <R> ByteArray.foldRight(initial: R,
operation: (Byte, acc: R) -> R): R {\n  var index = lastIndex\n  var accumulator = initial\n  while (index >= 0)
{\n    accumulator = operation(get(index--), accumulator)\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current
accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation]
function that takes an element and current accumulator value, and calculates the next accumulator value.\n */\n
public inline fun <R> ShortArray.foldRight(initial: R, operation: (Short, acc: R) -> R): R {\n  var index =
lastIndex\n  var accumulator = initial\n  while (index >= 0) {\n    accumulator = operation(get(index--),
accumulator)\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying
[operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an
element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R>
IntArray.foldRight(initial: R, operation: (Int, acc: R) -> R): R {\n  var index = lastIndex\n  var accumulator =
initial\n  while (index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is
empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the
next accumulator value.\n */\npublic inline fun <R> LongArray.foldRight(initial: R, operation: (Long, acc: R) -> R):
R {\n  var index = lastIndex\n  var accumulator = initial\n  while

```

```

(index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n } \n return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param\n [operation] function that takes an element and current accumulator value, and calculates the next accumulator\n value.\n */\npublic inline fun <R> FloatArray.foldRight(initial: R, operation: (Float, acc: R) -> R): R {\n    var index\n = lastIndex\n    var accumulator = initial\n    while (index >= 0) {\n        accumulator = operation(get(index--),\n accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is\n empty.\n * \n * @param [operation] function\n that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> DoubleArray.foldRight(initial: R, operation: (Double, acc: R) -> R): R {\n    var index = lastIndex\n    var\n accumulator = initial\n    while (index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right\n to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is\n empty.\n * \n * @param [operation] function\n that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> BooleanArray.foldRight(initial: R, operation: (Boolean, acc: R)\n -> R): R {\n    var index = lastIndex\n    var accumulator = initial\n    while (index >= 0) {\n        accumulator =\n operation(get(index--), accumulator)\n    }\n    return\n accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to\n left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is\n empty.\n * \n * @param [operation] function\n that takes an element and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> CharArray.foldRight(initial: R, operation: (Char, acc: R) -> R):\n R {\n    var index = lastIndex\n    var accumulator = initial\n    while (index >= 0) {\n        accumulator =\n operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param\n [operation] function that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <T, R>\n Array<out T>.foldRightIndexed(initial: R, operation: (index: Int, T, acc: R) -> R): R {\n    var index = lastIndex\n    var\n accumulator = initial\n    while (index >= 0) {\n        accumulator = operation(index, get(index), accumulator)\n\n        --index\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function\n that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> ByteArray.foldRightIndexed(initial: R, operation: (index: Int, Byte, acc: R) -> R):\n R {\n    var index = lastIndex\n    var accumulator = initial\n\n    while (index >= 0) {\n        accumulator = operation(index, get(index), accumulator)\n\n        --index\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right\n to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function\n that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun <R> ShortArray.foldRightIndexed(initial: R, operation: (index: Int, Short, acc: R) -> R): R {\n    var index = lastIndex\n    var accumulator = initial\n    while (index >= 0) {\n        accumulator = operation(index,\n get(index), accumulator)\n\n        --index\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function\n that takes the index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator value.\n */\npublic inline fun

```

```

<R> IntArray.foldRightIndexed(initial: R, operation: (index: Int, Int, acc: R) -> R): R {
  var index = lastIndex
  var accumulator = initial
  while (index >= 0) {
    accumulator = operation(index, get(index), accumulator)
    --index
  }
  return accumulator
}

```

Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

Returns the specified [initial] value if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

public inline fun <R>
LongArray.foldRightIndexed(initial: R, operation: (index: Int, Long, acc: R) -> R): R {
  var index = lastIndex
  var accumulator = initial
  while (index >= 0) {
    accumulator = operation(index, get(index), accumulator)
    --index
  }
  return accumulator
}

```

Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

Returns the specified [initial] value if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

public inline fun <R> FloatArray.foldRightIndexed(initial: R, operation: (index: Int, Float, acc: R) ->
R): R {
  var index = lastIndex
  var accumulator = initial
  while (index >= 0) {
    accumulator = operation(index, get(index), accumulator)
    --index
  }
  return accumulator
}

```

Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

Returns the specified [initial] value if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

public inline fun <R> DoubleArray.foldRightIndexed(initial: R, operation: (index: Int, Double, acc: R) -> R): R
{
  var index = lastIndex
  var accumulator = initial
  while (index >= 0) {
    accumulator =
operation(index, get(index), accumulator)
    --index
  }
  return accumulator
}

```

Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

Returns the specified [initial] value if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

public inline fun <R>
BooleanArray.foldRightIndexed(initial: R, operation: (index: Int, Boolean, acc: R) -> R): R {
  var index =
lastIndex
  var accumulator = initial
  while (index >= 0) {
    accumulator = operation(index, get(index),
accumulator)
    --index
  }
  return accumulator
}

```

Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

Returns the specified [initial] value if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

public inline fun <R>
CharArray.foldRightIndexed(initial: R, operation: (index: Int, Char, acc: R) -> R): R {
  var index = lastIndex
  var accumulator = initial
  while (index >= 0) {
    accumulator = operation(index, get(index), accumulator)
    --index
  }
  return accumulator
}

```

Performs the given [action] on each element.

```

public inline fun <T> Array<out T>.forEach(action: (T) -> Unit): Unit {
  for (element in this)
action(element)
}

```

Performs the given [action] on each element.

```

public inline fun
ByteArray.forEach(action: (Byte) -> Unit): Unit {
  for (element in this)
action(element)
}

```

Performs the given [action] on each element.

```

public inline fun
ShortArray.forEach(action: (Short) -> Unit): Unit {
  for (element in this)
action(element)
}

```

Performs the given [action] on each element.

```

public inline fun
IntArray.forEach(action: (Int) -> Unit): Unit {
  for (element in this)
action(element)
}

```

Performs the given [action] on each element.

```

public inline fun
LongArray.forEach(action: (Long) -> Unit): Unit {
  for (element in this)
action(element)
}

```

Performs the given [action] on each element.

```

public inline fun
FloatArray.forEach(action: (Float) -> Unit): Unit {
  for (element in this)
action(element)
}

```

Performs the given [action] on each element.

```

public inline fun
DoubleArray.forEach(action: (Double) -> Unit): Unit {
  for (element in this)
action(element)
}

```

```

for (element in this) action(element)\n\n/**\n * Performs the given [action] on each element.\n */\npublic inline
fun BooleanArray.forEach(action: (Boolean) -> Unit): Unit {\n  for (element in this) action(element)\n}\n/**\n *
Performs the given [action] on each element.\n */\npublic inline fun CharArray.forEach(action: (Char) -> Unit):
Unit {\n  for (element in this) action(element)\n}\n\n/**\n *
Performs the given [action] on each element, providing sequential index with the element.\n * @param [action]
function that takes the index of an element and the element itself\n * and performs the action on the element.\n
*/\npublic inline fun <T> Array<out T>.forEachIndexed(action: (index: Int, T) -> Unit): Unit {\n  var index = 0\n  for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing
sequential index with the element.\n * @param [action] function that takes the index of an element and the element
itself\n * and performs the action on the element.\n */\npublic inline fun ByteArray.forEachIndexed(action: (index:
Int, Byte) -> Unit): Unit {\n  var index = 0\n  for (item in this) action(index++, item)\n}\n\n/**\n * Performs the
given [action] on each element, providing sequential index with the element.\n * @param [action] function that
takes the index of an element and the element itself\n * and performs the action on the
element.\n */\npublic inline fun ShortArray.forEachIndexed(action: (index: Int, Short) -> Unit): Unit {\n  var
index = 0\n  for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element,
providing sequential index with the element.\n * @param [action] function that takes the index of an element and
the element itself\n * and performs the action on the element.\n */\npublic inline fun
IntArray.forEachIndexed(action: (index: Int, Int) -> Unit): Unit {\n  var index = 0\n  for (item in this)
action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with
the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs
the action on the element.\n */\npublic inline fun LongArray.forEachIndexed(action: (index: Int, Long) -> Unit):
Unit {\n  var index = 0\n  for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on
each element, providing sequential index with the element.\n * @param [action] function that takes the index of an
element and the element itself\n * and performs the action on the element.\n */\npublic inline fun
FloatArray.forEachIndexed(action: (index: Int, Float) -> Unit): Unit {\n  var index = 0\n  for (item in this)
action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with
the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs
the action on the element.\n */\npublic inline fun DoubleArray.forEachIndexed(action: (index: Int, Double) -> Unit):
Unit {\n  var index = 0\n  for (item in this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on
each element, providing sequential index with the element.\n * @param [action] function that takes the index of an
element and the element itself\n * and performs the action on the element.\n */\npublic inline
fun BooleanArray.forEachIndexed(action: (index: Int, Boolean) -> Unit): Unit {\n  var index = 0\n  for (item in
this) action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index
with the element.\n * @param [action] function that takes the index of an element and the element itself\n * and
performs the action on the element.\n */\npublic inline fun CharArray.forEachIndexed(action: (index: Int, Char) ->
Unit): Unit {\n  var index = 0\n  for (item in this) action(index++, item)\n}\n\n/**\n * Returns the largest
element.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the array
is empty.\n
*/\n\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun Array<out Double>.max(): Double {\n  if (isEmpty()) throw NoSuchElementException()\n  var
max = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    max = maxOf(max,
e)\n  }\n  return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is `NaN` returns
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun Array<out Float>.max(): Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var
max = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    max = maxOf(max, e)\n  }\n  return
max\n}\n\n/**\n * Returns the largest element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")

```

```

DS`)npublic fun <T : Comparable<T>> Array<out T>.max(): T {n  if (isEmpty()) throw
NoSuchElementException()n  var max = this[0]n  for (i in 1..lastIndex) {n    val e = this[i]n    if (max < e)
max = e\n  }n  return max\n}n/n/**n * Returns the largest element.n
* n * @throws NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun ByteArray.max(): Byte {n  if (isEmpty()) throw NoSuchElementException()n  var max =
this[0]n  for (i in 1..lastIndex) {n    val e = this[i]n    if (max < e) max = e\n  }n  return max\n}n/n/**n *
Returns the largest element.n * n * @throws NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun ShortArray.max(): Short {n  if (isEmpty()) throw NoSuchElementException()n  var max =
this[0]n  for (i in 1..lastIndex) {n    val e = this[i]n    if (max < e) max = e\n  }n  return max\n}n/n/**n *
Returns the largest element.n * n * @throws NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic
fun IntArray.max(): Int {n  if (isEmpty()) throw NoSuchElementException()n  var max = this[0]n  for (i in
1..lastIndex) {n    val e = this[i]n    if (max < e) max = e\n  }n  return max\n}n/n/**n * Returns the largest
element.n * n * @throws NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun LongArray.max(): Long {n  if (isEmpty()) throw NoSuchElementException()n  var max =
this[0]n  for (i in 1..lastIndex) {n    val e = this[i]n    if (max < e) max = e\n  }n  return max\n}n/n/**n *
Returns the largest element.n * n * If any of elements is `NaN` returns `NaN`.n * n * @throws
NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun FloatArray.max(): Float {n  if (isEmpty()) throw
NoSuchElementException()n  var max = this[0]n  for (i in 1..lastIndex) {n    val e = this[i]n    max =
maxOf(max, e)\n  }n  return max\n}n/n/**n * Returns the largest element.n * n * If any of elements is `NaN`
returns `NaN`.n * n * @throws NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun DoubleArray.max(): Double {n  if (isEmpty()) throw NoSuchElementException()n  var max =
this[0]n  for (i in 1..lastIndex) {n    val e = this[i]n    max = maxOf(max, e)\n  }n  return max\n}n/n/**n *
Returns the largest element.n * n * @throws NoSuchElementException if the array is empty.n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun CharArray.max(): Char {n  if (isEmpty()) throw NoSuchElementException()n  var max =
this[0]n  for (i in 1..lastIndex) {n    val
e = this[i]n    if (max < e) max = e\n  }n  return max\n}n/n/**n * Returns the first element yielding the
largest value of the given function.n * n * @throws NoSuchElementException if the array is empty.n * n *
@sample samples.collections.Collections.Aggregates.maxBy\n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxByOrThrow")n@Suppress("CONFLICTING_OVERL
OADS`)npublic inline fun <T, R : Comparable<R>> Array<out T>.maxBy(selector: (T) -> R): T {n  if
(isEmpty()) throw NoSuchElementException()n  var maxElem = this[0]n  val lastIndex = this.lastIndex\n  if
(lastIndex == 0) return maxElem\n  var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {n    val e =
this[i]n    val v = selector(e)\n    if (maxValue < v) {n      maxElem = e\n      maxValue = v\n    }n
  }n  return maxElem\n}n/n/**n * Returns the first element yielding the largest value of the given function.n * n
* @throws NoSuchElementException
if the array is empty.n * n * @sample samples.collections.Collections.Aggregates.maxBy\n
*/n/n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("maxByOrThrow")n@Suppress("CONFLICTING_OVERL
OADS`)npublic inline fun <R : Comparable<R>> ByteArray.maxBy(selector: (Byte) -> R): Byte {n  if
(isEmpty()) throw NoSuchElementException()n  var maxElem = this[0]n  val lastIndex = this.lastIndex\n  if

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(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS")\npublic
inline fun <R : Comparable<R>> ShortArray.maxBy(selector: (Short) -> R): Short {\n    if (isEmpty()) throw
NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if (lastIndex == 0)
return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        val v
= selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS")\npublic inline fun <R : Comparable<R>> IntArray.maxBy(selector: (Int) -> R): Int {\n    if (isEmpty())
throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n
    if (lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e
= this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS")\npublic inline fun <R : Comparable<R>> LongArray.maxBy(selector: (Long) -> R): Long {\n    if
(isEmpty()) throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if
(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v)
{\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return maxElem\n}\n\n/**\n * Returns the first
element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is
empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS")\npublic inline fun <R : Comparable<R>> FloatArray.maxBy(selector: (Float) -> R): Float {\n    if
(isEmpty()) throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if
(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS")\npublic inline fun <R : Comparable<R>> DoubleArray.maxBy(selector: (Double) -> R): Double {\n    if
(isEmpty()) throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if
(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL

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OADS\")\npublic
inline fun <R : Comparable<R>> BooleanArray.maxBy(selector: (Boolean) -> R): Boolean {\n  if (isEmpty())
throw NoSuchElementException()\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex ==
0) return maxElem\n  var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val
v = selector(e)\n    if (maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS\")\npublic inline fun <R : Comparable<R>> CharArray.maxBy(selector: (Char) -> R): Char {\n  if
(isEmpty()) throw NoSuchElementException()\n  var maxElem
= this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return maxElem\n  var maxValue =
selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (maxValue < v)
{\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n * Returns the first
element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\npublic inline fun <T, R :
Comparable<R>> Array<out T>.maxByOrNull(selector: (T) -> R): T? {\n  if (isEmpty()) return null\n  var
maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return maxElem\n  var maxValue =
selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (maxValue < v)
{\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n * Returns the first element
yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\npublic inline fun <R : Comparable<R>> ByteArray.maxByOrNull(selector: (Byte) ->
R): Byte? {\n  if (isEmpty()) return null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if
(lastIndex == 0) return maxElem\n  var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e =
this[i]\n    val v = selector(e)\n    if (maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n
return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or
`null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\npublic inline fun <R : Comparable<R>> ShortArray.maxByOrNull(selector:
(Short) -> R): Short? {\n  if (isEmpty()) return null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n
if (lastIndex == 0) return maxElem\n  var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e =
this[i]\n    val v = selector(e)\n    if (maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n
return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or
`null` if there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\npublic inline fun <R : Comparable<R>> IntArray.maxByOrNull(selector: (Int) -> R):
Int? {\n  if (isEmpty()) return null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex ==
0) return maxElem\n  var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val
v = selector(e)\n    if
(maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\npublic inline fun
<R : Comparable<R>> LongArray.maxByOrNull(selector: (Long) -> R): Long? {\n  if (isEmpty()) return null\n
var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return maxElem\n  var maxValue =
selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (maxValue < v)
{\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n * Returns the first
element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\npublic

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inline fun <R : Comparable<R>> FloatArray.maxByOrNull(selector: (Float) -> R): Float? {\n  if (isEmpty())
return null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return maxElem\n
var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if
(maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n *
Returns the first element yielding the largest value of the given function or `null` if there are no elements.\n * \n *
@sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun
<R : Comparable<R>> DoubleArray.maxByOrNull(selector: (Double) -> R): Double? {\n  if (isEmpty()) return
null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return maxElem\n  var
maxValue = selector(maxElem)\n  for
(i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (maxValue < v) {\n      maxElem = e\n
maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n * Returns the first element yielding the largest
value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun <R :
Comparable<R>> BooleanArray.maxByOrNull(selector: (Boolean) -> R): Boolean? {\n  if (isEmpty()) return
null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return maxElem\n  var
maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if
(maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n  return maxElem\n}\n\n/**\n *
Returns the first element yielding the largest value of the given function or `null` if
there are no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun <R : Comparable<R>> CharArray.maxByOrNull(selector: (Char) ->
R): Char? {\n  if (isEmpty()) return null\n  var maxElem = this[0]\n  val lastIndex = this.lastIndex\n  if
(lastIndex == 0) return maxElem\n  var maxValue = selector(maxElem)\n  for (i in 1..lastIndex) {\n    val e =
this[i]\n    val v = selector(e)\n    if (maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  }\n
return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n *
applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned
result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <T> Array<out T>.maxOf(selector: (T) -> Double): Double {\n  if (isEmpty()) throw
NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =
selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the
largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If
any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.maxOf(selector: (Byte) ->
Double): Double {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for
(i in 1..lastIndex) {\n    val v
= selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the
largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If
any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.maxOf(selector: (Short) ->
Double): Double {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for
(i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced

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by [selector] function is `NaN`, the returned result is `NaN`.  
@throws NoSuchElementException if the array is empty.

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.maxOf(selector: (Int) -> Double):\nDouble {\n    if (isEmpty()) throw NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return\n    maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * If any of values produced by [selector] function is `NaN`, the returned result is\n * `NaN`.\n * @throws NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic\n    inline fun LongArray.maxOf(selector: (Long) -> Double): Double {\n        if (isEmpty()) throw\n        NoSuchElementException()\n        var maxValue = selector(this[0])\n        for (i in 1..lastIndex) {\n            val v =\n            selector(this[i])\n            maxValue = maxOf(maxValue, v)\n        }\n        return maxValue\n}\n\n/**\n * Returns the\n * largest value among all values produced by [selector] function\n * applied to each element in the array.\n * If\n * any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * @throws\n * NoSuchElementException if the array is empty.
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```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.maxOf(selector: (Float) ->\nDouble): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all\n * values produced by [selector] function\n * applied to each element in the array.\n * If any of values produced by\n * [selector] function is `NaN`, the returned result is `NaN`.\n * @throws NoSuchElementException if the array is\n * empty.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.maxOf(selector: (Double) ->\nDouble): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return\n    maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * If any of values produced by [selector] function\n * is `NaN`, the returned result is `NaN`.\n * @throws NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.maxOf(selector: (Boolean) ->\nDouble): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return\n    maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * If any of values produced by [selector] function is `NaN`, the returned result is\n * `NaN`.\n * @throws NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic\n    inline fun CharArray.maxOf(selector: (Char) -> Double): Double {\n        if (isEmpty()) throw\n        NoSuchElementException()\n        var maxValue = selector(this[0])\n        for (i in 1..lastIndex) {\n            val v =\n            selector(this[i])\n            maxValue = maxOf(maxValue, v)\n        }\n        return maxValue\n}\n\n/**\n * Returns the\n * largest value among all values produced by [selector] function\n * applied to each element in the array.\n * If\n * any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * @throws\n * NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
```

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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.maxOf(selector: (T) ->
Float): Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.maxOf(selector: (Byte) -> Float):
Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`,
the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.maxOf(selector: (Short) ->
Float): Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun IntArray.maxOf(selector: (Int) -> Float): Float {\n  if (isEmpty()) throw NoSuchElementException()\n
var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue =
maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.maxOf(selector: (Long) ->
Float): Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue,
v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector]
function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`,
the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.maxOf(selector: (Float) ->
Float): Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n */\n\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.maxOf(selector: (Double) ->
Float): Float {\n  if (isEmpty()) throw NoSuchElementException()\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is

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`NaN`.n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.maxOf(selector:
( Boolean) -> Float): Float {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n
}\n return maxValue}\n}\n\n**\n * Returns the largest value among all values produced by [selector] function\n *
applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned
result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.maxOf(selector: (Char) -> Float):
Float {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in
1..lastIndex) {\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n
return maxValue}\n}\n\n**\n * Returns the largest value among all values produced by [selector] function\n *
applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Array<out
T>.maxOf(selector: (T) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (maxValue < v) {\n
maxValue = v\n }\n }\n return maxValue}\n}\n\n**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the
array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R : Comparable<R>> ByteArray.maxOf(selector: (Byte) -> R): R {\n if (isEmpty()) throw
NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n if (maxValue < v) {\n maxValue = v\n }\n }\n return maxValue}\n}\n\n**\n *
Returns the largest value among all values produced by [selector] function\n * applied to each element in the
array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
ShortArray.maxOf(selector: (Short) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (maxValue
< v) {\n maxValue = v\n }\n }\n return maxValue}\n}\n\n**\n * Returns the largest value among all
values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
IntArray.maxOf(selector: (Int) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (maxValue
< v) {\n maxValue = v\n }\n }\n return maxValue}\n}\n\n**\n * Returns the largest value among all
values produced by [selector] function\n * applied to each element in the array.\n * \n * @throws
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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R : Comparable<R>> LongArray.maxOf(selector: (Long) -> R): R {\n if (isEmpty()) throw
NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n if (maxValue < v) {\n maxValue = v\n }\n }\n return maxValue}\n}\n\n**\n *
Returns the largest value among all values produced by [selector] function\n * applied to each element in the

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array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
FloatArray.maxOf(selector: (Float) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
    val v = selector(this[i])\n    if (maxValue < v) {\n        maxValue = v\n    }\n }\n return
maxValue}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
DoubleArray.maxOf(selector: (Double) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n
        maxValue = v\n    }\n }\n return maxValue}\n\n/**\n * Returns the largest value among all values
produced by [selector] function\n * applied to each element in the array.\n * \n * @throws
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empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
BooleanArray.maxOf(selector: (Boolean) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n
        maxValue = v\n    }\n }\n return maxValue}\n\n/**\n * Returns the largest value among all values
produced by [selector] function\n * applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
CharArray.maxOf(selector: (Char) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n
        maxValue = v\n    }\n }\n return maxValue}\n\n/**\n * Returns the largest value among all values
produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If
any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.maxOfOrNull(selector:
(T) -> Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in
1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n }\n return
maxValue}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function
is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.maxOfOrNull(selector: (Byte) ->
Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n }\n return maxValue}\n\n/**\n * Returns
the largest value among all values produced by [selector] function\n * applied to each element in the array or `null`
if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun ShortArray.maxOfOrNull(selector: (Short) -> Double): Double? {\n if (isEmpty()) return null\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue =

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maxOf(maxValue, v)\n } return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.maxOfOrNull(selector: (Int) ->
Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function
is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.maxOfOrNull(selector: (Long) -
> Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex)
{\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array
or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned
result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun FloatArray.maxOfOrNull(selector: (Float) -> Double): Double? {\n if (isEmpty()) return null\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n maxValue =
maxOf(maxValue, v)\n }\n return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.maxOfOrNull(selector:
(Double) -> Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n
for (i in 1..lastIndex) {\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function
is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.maxOfOrNull(selector:
(Boolean) -> Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in
1..lastIndex) {\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no
elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.maxOfOrNull(selector: (Char) ->
Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return maxValue\n}\n\n/**\n * Returns
the largest value among all values produced by [selector] function\n * applied to each element in the array or `null`
if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out

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T>.maxOrNull(selector: (T) -> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue =  
selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector]  
function is `NaN`, the returned result is `NaN`.\n
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```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.maxOrNull(selector: (Byte) ->  
Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns  
the largest value  
among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no  
elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.maxOrNull(selector: (Short) -  
> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns  
the largest value among all values produced by [selector] function\n * applied to each element in the array or `null`  
if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is  
`NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.maxOrNull(selector: (Int) -> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue =  
selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue,  
v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector]  
function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced  
by [selector] function is `NaN`, the returned result is `NaN`.\n
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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.maxOrNull(selector: (Long) -  
> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all  
values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.maxOrNull(selector: (Float) -  
> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns  
the largest value among all values produced by [selector] function\n * applied to each element in the array or `null`  
if there are no elements.\n * \n * If any of values produced by [selector] function is  
`NaN`, the returned result is `NaN`.\n
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```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.maxOrNull(selector:  
(Double) -> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in  
1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return  
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to  
each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function  
is `NaN`, the returned result is `NaN`.\n
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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution  
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.maxOrNull(selector:  
(Double) -> Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in  
1..lastIndex) {\n    val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return  
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to  
each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function  
is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
```



```

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.maxOrNull(selector:
(Boolean) -> Float): Float? {\n  if (isEmpty())
return null\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n
maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all
values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n *
*\n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.maxOrNull(selector: (Char) ->
Float): Float? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n
val v = selector(this[i])\n    maxValue = maxOf(maxValue, v)\n  }\n  return maxValue\n}\n\n/**\n * Returns
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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Array<out
T>.maxOrNull(selector: (T) -> R): R? {\n  if (isEmpty()) return null\n  var maxValue = selector(this[0])\n  for
(i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n      maxValue = v\n    }\n  }\n
return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n *
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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
ByteArray.maxOrNull(selector: (Byte) -> R): R? {\n  if (isEmpty()) return null\n  var maxValue
= selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n
maxValue = v\n    }\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
ShortArray.maxOrNull(selector: (Short) -> R): R? {\n  if (isEmpty()) return null\n  var maxValue =
selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n
maxValue = v\n    }\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R : Comparable<R>> IntArray.maxOrNull(selector: (Int) -> R): R? {\n  if (isEmpty()) return null\n
var maxValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v)
{\n      maxValue = v\n    }\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values
produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
LongArray.maxOrNull(selector: (Long) -> R): R? {\n  if (isEmpty()) return null\n  var maxValue =
selector(this[0])\n  for (i in 1..lastIndex) {\n    val
v = selector(this[i])\n    if (maxValue < v) {\n      maxValue = v\n    }\n  }\n  return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
FloatArray.maxOrNull(selector: (Float) -> R): R? {\n  if (isEmpty()) return null\n  var maxValue =
selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (maxValue < v) {\n
maxValue = v\n    }\n  }\n  return maxValue\n}\n\n/**\n * Returns the largest value among all values produced

```

```

by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R : Comparable<R>> DoubleArray.maxOfOrNull(selector: (Double) -> R): R? {\n if (isEmpty())
return null\n var max\nValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if
(max\nValue < v) {\n max\nValue = v\n }\n }\n return max\nValue\n}\n\n/**\n * Returns the largest value
among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no
elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
BooleanArray.maxOfOrNull(selector: (Boolean) -> R): R? {\n if (isEmpty()) return null\n var max\nValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (max\nValue < v) {\n
max\nValue = v\n }\n }\n return max\nValue\n}\n\n/**\n * Returns the largest value among all values
produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
CharArray.maxOfOrNull(selector: (Char) -> R): R? {\n if (isEmpty()) return null\n var max\nValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (max\nValue < v) {\n
max\nValue = v\n }\n }\n return max\nValue\n}\n\n/**\n * Returns the largest value according to the provided
[comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <T, R> Array<out T>.maxOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n if
(isEmpty()) throw NoSuchElementException()\n var max\nValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n if (comparator.compare(max\nValue, v) < 0) {\n max\nValue = v\n }\n }\n
return max\nValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all
values produced by [selector] function applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.maxOfWith(comparator:
Comparator<in R>, selector: (Byte) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n
var max\nValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if
(comparator.compare(max\nValue, v) < 0) {\n max\nValue = v\n }\n }\n return max\nValue\n}\n\n/**\n *
Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.maxOfWith(comparator:
Comparator<in R>, selector: (Short) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
max\nValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if
(comparator.compare(max\nValue, v) < 0) {\n max\nValue = v\n }\n }\n return max\nValue\n}\n\n/**\n *
Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.maxOfWith(comparator:
Comparator<in R>, selector: (Int) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var max\nValue
= selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if
(comparator.compare(max\nValue, v) < 0) {\n max\nValue = v\n }\n }\n return max\nValue\n}\n\n/**\n *
Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array. @throws NoSuchElementException if the array is empty.

```

*\/@SinceKotlin("1.4")@OptIn(kotlin.experimental.ExperimentalTypeInference::class)@OverloadResolution
ByLambdaReturnType@kotlin.internal.InlineOnly\npublic
inline fun <R> LongArray.maxOfWith(comparator: Comparator<in R>, selector: (Long) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxV = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxV, v) < 0) {
            maxV = v
        }
    }
    return maxV
}

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array. @throws NoSuchElementException if the array is empty.

```

*\/@SinceKotlin("1.4")@OptIn(kotlin.experimental.ExperimentalTypeInference::class)@OverloadResolution
ByLambdaReturnType@kotlin.internal.InlineOnly\npublic inline fun <R> FloatArray.maxOfWith(comparator:
Comparator<in R>, selector:
(Float) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxV = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxV, v) < 0) {
            maxV = v
        }
    }
    return maxV
}

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array. @throws NoSuchElementException if the array is empty.

```

*\/@SinceKotlin("1.4")@OptIn(kotlin.experimental.ExperimentalTypeInference::class)@OverloadResolution
ByLambdaReturnType@kotlin.internal.InlineOnly\npublic inline fun <R> DoubleArray.maxOfWith(comparator:
Comparator<in R>, selector: (Double) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxV = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxV, v) < 0) {
            maxV = v
        }
    }
    return maxV
}

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array. @throws NoSuchElementException if the array is empty.

```

*\/@SinceKotlin("1.4")@OptIn(kotlin.experimental.ExperimentalTypeInference::class)@OverloadResolution
ByLambdaReturnType@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.maxOfWith(comparator:
Comparator<in R>, selector: (Boolean) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxV = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxV, v) < 0) {
            maxV = v
        }
    }
    return maxV
}

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array. @throws NoSuchElementException if the array is empty.

```

*\/@SinceKotlin("1.4")@OptIn(kotlin.experimental.ExperimentalTypeInference::class)@OverloadResolution
ByLambdaReturnType@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.maxOfWith(comparator:
Comparator<in R>, selector: (Char) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxV = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxV, v) < 0) {
            maxV = v
        }
    }
    return maxV
}

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.

```

*\/@SinceKotlin("1.4")@OptIn(kotlin.experimental.ExperimentalTypeInference::class)@OverloadResolution
ByLambdaReturnType@kotlin.internal.InlineOnly\npublic inline fun <T, R> Array<out
T>.maxOfWithOrNull(comparator:
Comparator<in R>, selector: (T) -> R): R? {
    if (isEmpty()) return null
    var maxV = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxV, v) < 0) {
            maxV = v
        }
    }
    return maxV
}

```

Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array or `null` if

there are no elements.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nByteArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Byte) -> R): R? {\n    if (isEmpty()) return\n    null\n    var max\n    Value = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if\n        (comparator.compare(max\n    Value, v) < 0) {\n            max\n            Value\n            = v\n        }\n    }\n    return max\n    Value\n}\n\n/**\n * Returns the largest value according to the provided\n [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if\n there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nShortArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Short) -> R): R? {\n    if (isEmpty())\n    return null\n    var max\n    Value = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if\n        (comparator.compare(max\n    Value, v) < 0) {\n            max\n            Value = v\n        }\n    }\n    return max\n    Value\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]\n function applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic\n    inline fun <R> IntArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Int) -> R): R? {\n        if\n        (isEmpty()) return null\n        var max\n        Value = selector(this[0])\n        for (i in 1..lastIndex) {\n            val v =\n            selector(this[i])\n            if\n            (comparator.compare(max\n        Value, v) < 0) {\n                max\n                Value = v\n            }\n        }\n        return\n        max\n        Value\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values\n produced by [selector] function applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nLongArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Long) -> R): R? {\n    if (isEmpty())\n    return null\n\n    var max\n    Value = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if\n        (comparator.compare(max\n    Value, v) < 0) {\n            max\n            Value = v\n        }\n    }\n    return max\n    Value\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]\n function applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nFloatArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Float) -> R): R? {\n    if (isEmpty())\n    return null\n    var max\n    Value = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if\n        (comparator.compare(max\n    Value, v) < 0) {\n            max\n            Value = v\n        }\n    }\n    return max\n    Value\n}\n\n/**\n * Returns the largest value according to the\n provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or\n `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nDoubleArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Double) -> R): R? {\n    if (isEmpty())\n    return null\n    var max\n    Value = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if\n        (comparator.compare(max\n    Value, v) < 0) {\n            max\n            Value = v\n        }\n    }\n    return max\n    Value\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]\n function applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
```

```

inline fun <R> BooleanArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Boolean) -> R): R? {
    if (isEmpty()) return null
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxValue, v) < 0)
            maxValue = v
    }
    return maxValue
}
// Returns the largest value according to the provided [comparator] among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.
// @SinceKotlin("1.4")
// @OptIn(kotlin.experimental.ExperimentalTypeInference::class)
// @OverloadResolutionByLambdaReturnType
// @kotlin.internal.InlineOnly
public inline fun <R> CharArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Char) -> R): R? {
    if (isEmpty()) return null
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (comparator.compare(maxValue, v) < 0)
            maxValue = v
    }
    return maxValue
}
// Returns the largest element or `null` if there are no elements.
// * If any of elements is `NaN` returns `NaN`.
// @SinceKotlin("1.4")
public fun Array<out Double>.maxOrNull(): Double? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        max = maxOf(max, e)
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// * If any of elements is `NaN` returns `NaN`.
// @SinceKotlin("1.4")
public fun Array<out Float>.maxOrNull(): Float? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        max = maxOf(max, e)
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// @SinceKotlin("1.4")
public fun <T : Comparable<T>> Array<out T>.maxOrNull(): T? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (max < e) max = e
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// @SinceKotlin("1.4")
public fun ByteArray.maxOrNull(): Byte? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (max < e) max = e
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// @SinceKotlin("1.4")
public fun ShortArray.maxOrNull(): Short? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (max < e) max = e
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// @SinceKotlin("1.4")
public fun IntArray.maxOrNull(): Int? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (max < e) max = e
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// @SinceKotlin("1.4")
public fun LongArray.maxOrNull(): Long? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (max < e) max = e
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// * If any of elements is `NaN` returns `NaN`.
// @SinceKotlin("1.4")
public fun FloatArray.maxOrNull(): Float? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        max = maxOf(max, e)
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// * If any of elements is `NaN` returns `NaN`.
// @SinceKotlin("1.4")
public fun DoubleArray.maxOrNull(): Double? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        max = maxOf(max, e)
    }
    return max
}
// Returns the largest element or `null` if there are no elements.
// @SinceKotlin("1.4")
public fun CharArray.maxOrNull(): Char? {
    if (isEmpty()) return null
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (max < e) max = e
    }
    return max
}
// Returns the first element having the largest value according to the provided [comparator].
// * @throws NoSuchElementException if the array is empty.
// @SinceKotlin("1.7")
// @kotlin.jvm.JvmName("maxWithOrThrow")
// @Suppress("CONFLICTING_OVERLOADS")
public fun <T> Array<out T>.maxWith(comparator: Comparator<in T>): T {
    if (isEmpty()) throw NoSuchElementException()
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (comparator.compare(max, e) < 0) max = e
    }
    return max
}
// Returns the first element having the largest value according to the provided [comparator].
// * @throws NoSuchElementException if the array is empty.

```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun ByteArray.maxWith(comparator: Comparator<in Byte>): Byte {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if\n        (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the\n    largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is\n    empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun ShortArray.maxWith(comparator: Comparator<in Short>): Short {\n    if (isEmpty()) throw\n    NoSuchElementException()\n\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max\n        = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided\n    [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun IntArray.maxWith(comparator: Comparator<in Int>): Int {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if\n        (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the\n    largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is\n    empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun\n    LongArray.maxWith(comparator: Comparator<in Long>): Long {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if\n        (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the\n    largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is\n    empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun FloatArray.maxWith(comparator: Comparator<in Float>): Float {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if\n        (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the\n    largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is\n    empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic\n    fun DoubleArray.maxWith(comparator: Comparator<in Double>): Double {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if\n        (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the\n    largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is\n    empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun BooleanArray.maxWith(comparator: Comparator<in Boolean>): Boolean {\n    if\n    (isEmpty()) throw NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e =\n        this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first\n    element having the largest value\n    according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun CharArray.maxWith(comparator: Comparator<in Char>): Char {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if\n        (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the\n
```

largest value according to the provided [comparator] or `null` if there are no elements.

```
*\n@SinceKotlin("1.4")\npublic fun <T> Array<out T>.maxOrNull(comparator: Comparator<in T>): T? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according
```

```
to the provided [comparator] or `null` if there are no elements.\n *\n@SinceKotlin("1.4")\npublic fun\nByteArray.maxOrNull(comparator: Comparator<in Byte>): Byte? {\n    if (isEmpty()) return null\n    var max =\n    this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator]
```

```
or `null` if there are no elements.\n *\n@SinceKotlin("1.4")\npublic fun ShortArray.maxOrNull(comparator:\nComparator<in Short>): Short? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun IntArray.maxOrNull(comparator:\nComparator<in Int>): Int? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun LongArray.maxOrNull(comparator: Comparator<in Long>): Long? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun FloatArray.maxOrNull(comparator: Comparator<in Float>): Float? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun DoubleArray.maxOrNull(comparator: Comparator<in Double>):\nDouble? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun BooleanArray.maxOrNull(comparator: Comparator<in Boolean>):\nBoolean? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun CharArray.maxOrNull(comparator: Comparator<in Char>): Char? {\n    if (isEmpty()) return null\n    var max = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the smallest element.\n *\n * If any of elements is `NaN` returns `NaN`.\n *\n * @throws NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun Array<out Double>.min(): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        min = minOf(min, e)\n    }\n    return min\n}\n\n/**\n * Returns the smallest element.\n *\n * If any of elements is `NaN` returns `NaN`.\n *\n * @throws NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun Array<out Float>.min(): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        min = minOf(min, e)\n    }\n    return min\n}\n\n/**\n * Returns the smallest element.\n *\n * @throws NoSuchElementException if the array is empty.
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun <T : Comparable<T>> Array<out T>.min(): T {\n    if (isEmpty()) throw
```

```

NoSuchElementException() \n var min = this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n if (min > e)
min = e \n } \n return min \n} \n \n/** \n * Returns the smallest element. \n * \n * @throws
NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic
fun ByteArray.min(): Byte { \n if (isEmpty()) throw NoSuchElementException() \n var min = this[0] \n for (i in
1..lastIndex) { \n val e = this[i] \n if (min > e) min = e \n } \n return min \n} \n \n/** \n * Returns the smallest
element. \n * \n * @throws NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic fun ShortArray.min(): Short { \n if (isEmpty()) throw NoSuchElementException() \n var min =
this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n if (min > e) min = e \n } \n return min \n} \n \n/** \n *
Returns the smallest element. \n * \n * @throws NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic fun IntArray.min(): Int { \n if (isEmpty()) throw NoSuchElementException() \n var min
= this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n if (min > e) min = e \n } \n return min \n} \n \n/** \n *
Returns the smallest element. \n * \n * @throws NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic fun LongArray.min(): Long { \n if (isEmpty()) throw NoSuchElementException() \n var min =
this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n if (min > e) min = e \n } \n return min \n} \n \n/** \n *
Returns the smallest element. \n * \n * If any of elements is `NaN` returns `NaN`. \n * \n * @throws
NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic fun FloatArray.min(): Float { \n if (isEmpty()) throw NoSuchElementException() \n var min =
this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n min = minOf(min,
e) \n } \n return min \n} \n \n/** \n * Returns the smallest element. \n * \n * If any of elements is `NaN` returns
`NaN`. \n * \n * @throws NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic fun DoubleArray.min(): Double { \n if (isEmpty()) throw NoSuchElementException() \n var min =
this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n min = minOf(min, e) \n } \n return min \n} \n \n/** \n *
Returns the smallest element. \n * \n * @throws NoSuchElementException if the array is empty. \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minOrThrow") \n@Suppress("CONFLICTING_OVERLOA
DS") \npublic fun CharArray.min(): Char { \n if (isEmpty()) throw NoSuchElementException() \n var min =
this[0] \n for (i in 1..lastIndex) { \n val e = this[i] \n if (min > e) min = e \n } \n return min \n} \n \n/** \n *
Returns the first element yielding the smallest
value of the given function. \n * \n * @throws NoSuchElementException if the array is empty. \n * \n * @sample
samples.collections.Collections.Aggregates.minBy \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minByOrThrow") \n@Suppress("CONFLICTING_OVERLO
ADS") \npublic inline fun <T, R : Comparable<R>> Array<out T>.minBy(selector: (T) -> R): T { \n if (isEmpty())
throw NoSuchElementException() \n var minElem = this[0] \n val lastIndex = this.lastIndex \n if (lastIndex ==
0) return minElem \n var minValue = selector(minElem) \n for (i in 1..lastIndex) { \n val e = this[i] \n val
v = selector(e) \n if (minValue > v) { \n minElem = e \n minValue = v \n } \n } \n return
minElem \n} \n \n/** \n * Returns the first element yielding the smallest value of the given function. \n * \n * @throws
NoSuchElementException if the array is empty. \n * \n * @sample
samples.collections.Collections.Aggregates.minBy \n
*\n@SinceKotlin("1.7") \n@kotlin.jvm.JvmName("minByOrThrow") \n@Suppress("CONFLICTING_OVERLO
ADS") \npublic
inline fun <R : Comparable<R>> ByteArray.minBy(selector: (Byte) -> R): Byte { \n if (isEmpty()) throw
NoSuchElementException() \n var minElem = this[0] \n val lastIndex = this.lastIndex \n if (lastIndex == 0)

```



```

return minElem\n  var minValue = selector(minElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v =
selector(e)\n    if (minValue > v) {\n      minElem = e\n      minValue = v\n    }\n  }\n  return
minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.minBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@Suppress("CONFLICTING_OVERLO
ADS")\npublic inline fun <R : Comparable<R>> ShortArray.minBy(selector: (Short) -> R): Short {\n  if
(isEmpty()) throw NoSuchElementException()\n
  var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return minElem\n  var minValue
= selector(minElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (minValue >
v) {\n      minElem = e\n      minValue = v\n    }\n  }\n  return minElem\n}\n\n/**\n * Returns the first
element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the array is
empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@Suppress("CONFLICTING_OVERLO
ADS")\npublic inline fun <R : Comparable<R>> IntArray.minBy(selector: (Int) -> R): Int {\n  if (isEmpty())
throw NoSuchElementException()\n  var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex ==
0) return minElem\n  var minValue = selector(minElem)\n  for (i in 1..lastIndex) {\n
    val e = this[i]\n    val v = selector(e)\n    if (minValue > v) {\n      minElem = e\n      minValue = v\n
    }\n  }\n  return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given
function.\n * \n * @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.minBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@Suppress("CONFLICTING_OVERLO
ADS")\npublic inline fun <R : Comparable<R>> LongArray.minBy(selector: (Long) -> R): Long {\n  if
(isEmpty()) throw NoSuchElementException()\n  var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if
(lastIndex == 0) return minElem\n  var minValue = selector(minElem)\n  for (i in 1..lastIndex) {\n    val e =
this[i]\n    val v = selector(e)\n    if (minValue > v) {\n      minElem = e\n      minValue = v\n    }\n  }\n
return minElem\n}\n\n/**\n * Returns the
first element yielding the smallest value of the given function.\n * \n * @throws NoSuchElementException if the
array is empty.\n * \n * @sample samples.collections.Collections.Aggregates.minBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@Suppress("CONFLICTING_OVERLO
ADS")\npublic inline fun <R : Comparable<R>> FloatArray.minBy(selector: (Float) -> R): Float {\n  if
(isEmpty()) throw NoSuchElementException()\n  var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if
(lastIndex == 0) return minElem\n  var minValue = selector(minElem)\n  for (i in 1..lastIndex) {\n    val e =
this[i]\n    val v = selector(e)\n    if (minValue > v) {\n      minElem = e\n      minValue = v\n    }\n  }\n
return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n
* @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.minBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@Suppress("CONFLICTING_OVERLO
ADS")\npublic inline fun <R : Comparable<R>> DoubleArray.minBy(selector: (Double) -> R): Double {\n  if
(isEmpty()) throw NoSuchElementException()\n  var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if
(lastIndex == 0) return minElem\n  var minValue = selector(minElem)\n  for (i in 1..lastIndex) {\n    val e =
this[i]\n    val v = selector(e)\n    if (minValue > v) {\n      minElem = e\n      minValue = v\n    }\n  }\n
return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function.\n * \n
* @throws NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.minBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@Suppress("CONFLICTING_OVERLO
ADS")\npublic inline fun <R : Comparable<R>> BooleanArray.minBy(selector: (Boolean) ->

```

```

R): Boolean {
    if (isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function.
@throws NoSuchElementException if the array is empty.
@sample samples.collections.Collections.Aggregates.minBy

@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <R : Comparable<R>> CharArray.minBy(selector: (Char) -> R): Char {
    if (isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
@sample samples.collections.Collections.Aggregates.minByOrNull

@SinceKotlin("1.4")
public inline fun <T, R : Comparable<R>> Array<out T>.minByOrNull(selector: (T) -> R): T? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
@sample samples.collections.Collections.Aggregates.minByOrNull

@SinceKotlin("1.4")
public inline fun <R : Comparable<R>> ByteArray.minByOrNull(selector: (Byte) -> R): Byte? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
@sample samples.collections.Collections.Aggregates.minByOrNull

@SinceKotlin("1.4")
public inline fun <R : Comparable<R>> ShortArray.minByOrNull(selector: (Short) -> R): Short? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
@sample samples.collections.Collections.Aggregates.minByOrNull

@SinceKotlin("1.4")
public inline fun <R : Comparable<R>> IntArray.minByOrNull(selector: (Int) -> R): Int? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
@sample samples.collections.Collections.Aggregates.minByOrNull

@SinceKotlin("1.4")
public inline fun <R : Comparable<R>> LongArray.minByOrNull(selector: (Long) -> R): Long? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
@sample samples.collections.Collections.Aggregates.minByOrNull

@SinceKotlin("1.4")
public inline fun <R : Comparable<R>> FloatArray.minByOrNull(selector: (Float) -> R): Float? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e =

```

```

this[i]\n    val v = selector(e)\n    if (minValue > v) {\n        minElem = e\n        minValue = v\n    }\n}\nreturn minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or\n * `null` if there are no elements.\n */\n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun <R : Comparable<R>> DoubleArray.minByOrNull(selector: (Double\n-> R): Double? {\n    if (isEmpty()) return null\n    var minElem = this[0]\n    val lastIndex = this.lastIndex\n    if (lastIndex == 0) return minElem\n    var minValue = selector(minElem)\n    for (i in 1..lastIndex) {\n        val e =\nthis[i]\n        val v = selector(e)\n        if (minValue > v)\n        {\n            minElem = e\n            minValue = v\n        }\n    }\n}\nreturn minElem\n}\n\n/**\n * Returns the first\n * element yielding the smallest value of the given function or `null` if there are no elements.\n */\n * @sample\n * samples.collections.Collections.Aggregates.minByOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun <R :\nComparable<R>> BooleanArray.minByOrNull(selector: (Boolean) -> R): Boolean? {\n    if (isEmpty()) return\nnull\n    var minElem = this[0]\n    val lastIndex = this.lastIndex\n    if (lastIndex == 0) return minElem\n    var\nminValue = selector(minElem)\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        val v = selector(e)\n        if\n(minValue > v) {\n            minElem = e\n            minValue = v\n        }\n    }\n}\nreturn minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the given function or `null` if there are no elements.\n */\n * @sample\n * samples.collections.Collections.Aggregates.minByOrNull\n */\n\n@SinceKotlin("1.4")\npublic\ninline fun <R : Comparable<R>> CharArray.minByOrNull(selector: (Char) -> R): Char? {\n    if (isEmpty()) return\nnull\n    var minElem = this[0]\n    val lastIndex = this.lastIndex\n    if (lastIndex == 0) return minElem\n    var\nminValue = selector(minElem)\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        val v = selector(e)\n        if\n(minValue > v) {\n            minElem = e\n            minValue = v\n        }\n    }\n}\nreturn minElem\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the\n * array.\n */\n * @throws NoSuchElementException if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.minOf(selector: (T) ->\nDouble): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for\n(i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n}\nreturn\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to\n * each element in the array.\n */\n * @throws NoSuchElementException if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.minOf(selector: (Byte) ->\nDouble): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for\n(i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n}\nreturn\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the\n * array.\n */\n * @throws NoSuchElementException if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.minOf(selector: (Short) ->\nDouble): Double {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for\n(i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n}\nreturn\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to\n * each element in the array.\n */\n * @throws NoSuchElementException\n * if the array is empty.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.minOf(selector: (Int) -> Double):

```

```

Double {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

/**
 * Returns the smallest value among all values produced by [selector] function
 * applied to each element in the array.
 * If any of values produced by [selector] function is `NaN`, the returned result is
 * `NaN`.
 * @throws NoSuchElementException if the array is empty.
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun LongArray.minOf(selector: (Long) -> Double): Double {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

/**
 * Returns the smallest value among all values produced by [selector] function
 * applied to each element in the array.
 * If any of values produced by [selector] function is `NaN`, the returned result is
 * `NaN`.
 * @throws NoSuchElementException if the array is empty.
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun FloatArray.minOf(selector: (Float) -> Double): Double {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

/**
 * Returns the smallest value among all values produced by [selector] function
 * applied to each element in the array.
 * If any of values produced by [selector] function is `NaN`, the returned result is
 * `NaN`.
 * @throws NoSuchElementException if the array is empty.
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun DoubleArray.minOf(selector: (Double) -> Double): Double {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

/**
 * Returns the smallest value among all values produced by [selector] function
 * applied to each element in the array.
 * If any of values produced by [selector] function is `NaN`, the returned result is
 * `NaN`.
 * @throws NoSuchElementException if the array is empty.
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun BooleanArray.minOf(selector: (Boolean) -> Double): Double {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

/**
 * Returns the smallest value among all values produced by [selector] function
 * applied to each element in the array.
 * If any of values produced by [selector] function is `NaN`, the returned result is
 * `NaN`.
 * @throws NoSuchElementException if the array is empty.
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun CharArray.minOf(selector: (Char) -> Double): Double {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

/**
 * Returns the smallest value among all values produced by [selector] function
 * applied to each element in the array.
 * If any of values produced by [selector] function is `NaN`, the returned result is
 * `NaN`.
 * @throws NoSuchElementException if the array is empty.
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun <T> Array<out T>.minOf(selector: (T) -> Float): Float {
    if (isEmpty()) throw NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return

```

```

minValue}\n\n/**\n * Returns the smallest
value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.minOf(selector: (Byte) -> Float):
Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in
1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return
minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.minOf(selector: (Short) ->
Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in
1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return
minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.minOf(selector: (Int) -> Float):
Float {\n    if (isEmpty()) throw
NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return minValue}\n\n/**\n * Returns the smallest
value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.minOf(selector: (Long) ->
Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in
1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return
minValue}\n\n/**\n * Returns the smallest value among all values
produced by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by
[selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is
empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.minOf(selector: (Float) -> Float):
Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in
1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return
minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun DoubleArray.minOf(selector: (Double) -> Float): Float {\n    if (isEmpty()) throw
NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return minValue}\n\n/**\n * Returns the smallest
value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n

```

NoSuchElementException if the array is empty.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.minOf(selector: (Boolean) ->\nFloat): Float {\n    if (isEmpty()) throw NoSuchElementException()\n
```

```
    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue =\n        minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]\n * function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.minOf(selector: (Char) -> Float):\nFloat {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in\n1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n    }\n    return\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced by\n [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the array\n is empty.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Array<out\nT>.minOf(selector: (T) -> R): R {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue =\n    selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the\n array is empty.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>\nByteArray.minOf(selector: (Byte) -> R): R {\n    if (isEmpty()) throw NoSuchElementException()\n    var\n    minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the\n array is empty.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>\nShortArray.minOf(selector: (Short) -> R): R {\n    if (isEmpty()) throw NoSuchElementException()\n    var\n    minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * @throws\n
```

NoSuchElementException if the array is empty.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>\nIntArray.minOf(selector: (Int) -> R): R {\n    if (isEmpty()) throw NoSuchElementException()\n    var\n    minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * @throws\n
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NoSuchElementException if the array is empty.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>\nLongArray.minOf(selector: (Long) -> R): R {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var\n    minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =\n        selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * @throws\n
```

```
NoSuchElementException if the array is empty.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic\n
```

```
inline fun <R : Comparable<R>> LongArray.minOf(selector: (Long) -> R): R {\n    if (isEmpty()) throw\n    NoSuchElementException()\n    var\n    minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =\n        selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return\nminValue\n}\n\n/**\n * Returns the smallest value among all values produced\n * by [selector] function\n * applied to each element in the array.\n * \n * @throws\n
```

Returns the smallest value among all values produced by [selector] function applied to each element in the array. @throws NoSuchElementException if the array is empty.

```

*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic inline fun <R : Comparable<R>>
FloatArray.minOf(selector: (Float) -> R): R {\/n    if (isEmpty()) throw NoSuchElementException()\/n    var
minValue = selector(this[0])\/n    for (i in 1..lastIndex) {\/n        val v = selector(this[i])\/n        if (minValue > v) {\/n
    minValue
= v\/n    }\/n }\/n    return minValue}\/n}\/n**\/n * Returns the smallest value among all values produced by
[selector] function applied to each element in the array. @throws NoSuchElementException if the array
is empty.
*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic inline fun <R : Comparable<R>>
DoubleArray.minOf(selector: (Double) -> R): R {\/n    if (isEmpty()) throw NoSuchElementException()\/n    var
minValue = selector(this[0])\/n    for (i in 1..lastIndex) {\/n        val v = selector(this[i])\/n        if (minValue > v) {\/n
    minValue = v\/n    }\/n }\/n    return minValue}\/n}\/n**\/n * Returns the smallest value among all values
produced by [selector] function applied to each element in the array. @throws
NoSuchElementException if the array is empty.
*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic
inline fun <R : Comparable<R>> BooleanArray.minOf(selector: (Boolean) -> R): R {\/n    if (isEmpty()) throw
NoSuchElementException()\/n    var minValue = selector(this[0])\/n    for (i in 1..lastIndex) {\/n        val v =
selector(this[i])\/n        if (minValue > v) {\/n            minValue = v\/n        }\/n    }\/n    return minValue}\/n}\/n**\/n *
Returns the smallest value among all values produced by [selector] function applied to each element in the
array. @throws NoSuchElementException if the array is empty.
*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic inline fun <R : Comparable<R>>
CharArray.minOf(selector: (Char) -> R): R {\/n    if (isEmpty()) throw NoSuchElementException()\/n    var minValue
= selector(this[0])\/n    for (i in 1..lastIndex) {\/n        val v =
selector(this[i])\/n        if (minValue > v) {\/n            minValue = v\/n        }\/n    }\/n    return minValue}\/n}\/n**\/n *
Returns the smallest value among all values produced by [selector] function applied to each element in the array
or `null` if there are no elements. @throws NoSuchElementException if any of values produced by [selector] function
is `NaN`, the returned result is `NaN`.
*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic inline fun <T> Array<out T>.minOfOrNull(selector:
(T) -> Double): Double? {\/n    if (isEmpty()) return null\/n    var minValue = selector(this[0])\/n    for (i in
1..lastIndex) {\/n        val v = selector(this[i])\/n        minValue = minOf(minValue, v)\/n    }\/n    return
minValue}\/n}\/n**\/n * Returns the smallest value among all values produced by [selector] function applied to
each element in the array or `null` if there are no elements. @throws NoSuchElementException if
any of values produced by [selector] function is `NaN`, the returned result is `NaN`.
*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic inline fun ByteArray.minOfOrNull(selector: (Byte) ->
Double): Double? {\/n    if (isEmpty()) return null\/n    var minValue = selector(this[0])\/n    for (i in
1..lastIndex) {\/n        val v = selector(this[i])\/n        minValue = minOf(minValue, v)\/n    }\/n    return
minValue}\/n}\/n**\/n * Returns the smallest value among all values produced by [selector] function applied to
each element in the array or `null` if there are no elements. @throws NoSuchElementException if
any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.
*\/n@SinceKotlin("1.4")\/n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\/n@OverloadResolution
ByLambdaReturnType\/n@kotlin.internal.InlineOnly\/npublic inline fun ShortArray.minOfOrNull(selector:

```

(Short) -> Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/\*\*\n \* Returns the smallest value among all values produced by [selector] function\n \* applied to each element in the array or `null` if there are no elements.\n \* \n \* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.minOfOrNull(selector: (Int) -> Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced
```

by [selector] function\n \* applied to each element in the array or `null` if there are no elements.\n \* \n \* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.minOfOrNull(selector: (Long) -> Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
```

```
inline fun FloatArray.minOfOrNull(selector: (Float) -> Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.minOfOrNull(selector:
```

```
(Double) -> Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.minOfOrNull(selector:
```

```
(Boolean) -> Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.minOfOrNull(selector: (Char) ->
```

```
Double): Double? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
```



```

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.minOrNull(selector:
(T) -> Float): Float? {\n  if (isEmpty())\n    return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all
values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n *
\n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.minOrNull(selector: (Byte) ->
Float): Float? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n
val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each
element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is
`NaN`, the returned result is `NaN`.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.minOrNull(selector: (Short) -
> Float): Float? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n
val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if
there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun IntArray.minOrNull(selector: (Int) -> Float): Float? {\n  if (isEmpty()) return null\n  var minValue =
selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue = minOf(minValue, v)\n
}\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n *
applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.minOrNull(selector: (Long) -
> Float): Float? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n
val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each element in the
array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the
returned result is `NaN`.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.minOrNull(selector: (Float) ->
Float): Float? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n
val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if
there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun DoubleArray.minOrNull(selector: (Double) -> Float): Float? {\n  if (isEmpty()) return null\n  var
minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue =
minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n

```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.minOrNull(selector:
(Boolean) -> Float): Float? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n
for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return
minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function
is `NaN`, the returned result is `NaN`.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.minOrNull(selector: (Char) ->
Float): Float? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue}\n\n/**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each element in the array or `null` if
there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>> Array<out
T>.minOrNull(selector: (T) -> R): R? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for
(i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v) {\n minValue = v\n }\n }\n
return minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n *
applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
ByteArray.minOrNull(selector: (Byte) -> R): R? {\n if (isEmpty()) return null\n var minValue =
selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n if (minValue > v) {\n minValue = v\n }\n }\n return
minValue}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
ShortArray.minOrNull(selector: (Short) -> R): R? {\n if (isEmpty()) return null\n var minValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v) {\n
minValue = v\n }\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R : Comparable<R>> IntArray.minOrNull(selector: (Int) -> R): R? {\n if (isEmpty()) return null\n
var minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v)
{\n minValue = v\n }\n }\n return minValue}\n\n/**\n * Returns the smallest value among all
values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
LongArray.minOrNull(selector: (Long) -> R): R? {\n if (isEmpty()) return null\n var minValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v) {\n
minValue = v\n }\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values
produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
FloatArray.minOrNull(selector: (Float) -> R): R? {\n if (isEmpty()) return null\n var minValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v) {\n
minValue = v\n }\n }\n return minValue}\n\n/**\n * Returns the smallest value among all values
produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
```

```

minValue = v\n    }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R : Comparable<R>> DoubleArray.minOrNull(selector: (Double) -> R): R? {\n    if (isEmpty())
return null\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if
(minValue > v) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value
among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no
elements.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
BooleanArray.minOrNull(selector: (Boolean) -> R): R? {\n    if (isEmpty()) return null\n    var minValue =
selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (minValue > v) {\n
minValue = v\n        }\n    }\n    return
minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the array or `null` if there are no elements.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
CharArray.minOrNull(selector: (Char) -> R): R? {\n    if (isEmpty()) return null\n    var minValue =
selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (minValue > v) {\n
minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value according to the provided
[comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Array<out T>.minOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n    if
(isEmpty()) throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n
val v = selector(this[i])\n        if (comparator.compare(minValue, v) > 0) {\n            minValue = v\n        }\n    }\n
return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all
values produced by [selector] function applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.minOfWith(comparator:
Comparator<in R>, selector: (Byte) -> R): R {\n    if (isEmpty()) throw NoSuchElementException()\n    var
minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (comparator.compare(minValue, v) > 0) {\n
minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value according to the provided
[comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.minOfWith(comparator:
Comparator<in R>, selector: (Short) -> R): R {\n    if (isEmpty()) throw NoSuchElementException()\n    var
minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if
(comparator.compare(minValue, v) > 0) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value according
to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the
array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

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```

ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.minOfWith(comparator:
Comparator<in R>, selector: (Int) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var minValue
= selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue,
v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value
according to the provided [comparator]\n * among all values produced by [selector] function applied to each
element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R> LongArray.minOfWith(comparator: Comparator<in R>, selector: (Long) -> R): R {\n  if
(isEmpty()) throw NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n
val v = selector(this[i])\n  if (comparator.compare(minValue, v) > 0) {\n    minValue = v\n  }\n  }\n
return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all
values produced by [selector] function applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> FloatArray.minOfWith(comparator:
Comparator<in R>, selector: (Float) -> R): R {\n  if (isEmpty()) throw
NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =
selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n
return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all
values produced by [selector] function applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> DoubleArray.minOfWith(comparator:
Comparator<in R>, selector: (Double) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var
minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if
(comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n
* Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.minOfWith(comparator:
Comparator<in R>, selector: (Boolean) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var
minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if
(comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n
* Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the array.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.minOfWith(comparator:
Comparator<in R>, selector: (Char) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var
minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if
(comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n
* Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the array or `null` if there are no elements.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R> Array<out
T>.minOfWithOrNull(comparator: Comparator<in R>,

```

```

selector: (T) -> R): R? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex)\n  {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <R>
ByteArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Byte) -> R): R? {\n  if (isEmpty()) return\n  null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if\n  (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]\n function applied to each element in the array or `null` if there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <R>
ShortArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Short) -> R): R? {\n  if (isEmpty())\n  return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if\n  (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]\n function applied to each element in the array or `null` if there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public\n  inline fun <R> IntArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Int) -> R): R? {\n  if\n  (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =\n  selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return\n  minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values\n produced by [selector] function applied to each element in the array or `null` if there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <R>
LongArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Long) -> R): R? {\n  if (isEmpty()) return\n  null\n  var minValue = selector(this[0])\n\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n\n  minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided\n [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if\n there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <R>
FloatArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Float) -> R): R? {\n  if (isEmpty()) return\n  null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if\n  (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all\n values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <R>
DoubleArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Double) -> R): R? {\n  if (isEmpty())\n  return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if\n  (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]\n function applied to each element in the array or `null` if there are no elements.\n\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution

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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R> BooleanArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Boolean) -> R): R? {\n
if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =
selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return
minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values
produced by [selector] function applied to each element in the array or `null` if there are no elements.\n
*\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>
CharArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (Char) -> R): R? {\n  if (isEmpty()) return
null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if
(comparator.compare(minValue,
v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest element or
`null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n
*\n*\n@SinceKotlin("1.4")\npublic fun Array<out Double>.minOrNull(): Double? {\n  if (isEmpty()) return null\n
var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    min = minOf(min, e)\n  }\n  return
min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of elements is
`NaN` returns `NaN`.\n *\n*\n@SinceKotlin("1.4")\npublic fun Array<out Float>.minOrNull(): Float? {\n  if
(isEmpty()) return null\n  var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    min = minOf(min,
e)\n  }\n  return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n
*\n*\n@SinceKotlin("1.4")\npublic fun <T : Comparable<T>> Array<out T>.minOrNull():
T? {\n  if (isEmpty()) return null\n  var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if
(min > e) min = e\n  }\n  return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no
elements.\n *\n*\n@SinceKotlin("1.4")\npublic fun ByteArray.minOrNull(): Byte? {\n  if (isEmpty()) return null\n
var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if (min > e) min = e\n  }\n  return
min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n
*\n*\n@SinceKotlin("1.4")\npublic fun ShortArray.minOrNull(): Short? {\n  if (isEmpty()) return null\n  var min =
this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if (min > e) min = e\n  }\n  return min\n}\n\n/**\n *
Returns the smallest element or `null` if there are no elements.\n *\n*\n@SinceKotlin("1.4")\npublic fun
IntArray.minOrNull(): Int? {\n  if (isEmpty()) return null\n  var min =
this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if (min > e) min = e\n  }\n  return min\n}\n\n/**\n *
Returns the smallest element or `null` if there are no elements.\n *\n*\n@SinceKotlin("1.4")\npublic fun
LongArray.minOrNull(): Long? {\n  if (isEmpty()) return null\n  var min = this[0]\n  for (i in 1..lastIndex) {\n
val e = this[i]\n    if (min > e) min = e\n  }\n  return min\n}\n\n/**\n * Returns the smallest element or `null`
if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n*\n@SinceKotlin("1.4")\npublic fun
FloatArray.minOrNull(): Float? {\n  if (isEmpty()) return null\n  var min = this[0]\n  for (i in 1..lastIndex) {\n
val e = this[i]\n    min = minOf(min, e)\n  }\n  return min\n}\n\n/**\n * Returns the smallest element or `null`
if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n *\n*\n@SinceKotlin("1.4")\npublic fun
DoubleArray.minOrNull(): Double?
{\n  if (isEmpty()) return null\n  var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    min =
minOf(min, e)\n  }\n  return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n
*\n*\n@SinceKotlin("1.4")\npublic fun CharArray.minOrNull(): Char? {\n  if (isEmpty()) return null\n  var min =
this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if (min > e) min = e\n  }\n  return min\n}\n\n/**\n *
Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun <T> Array<out T>.minWith(comparator: Comparator<in T>): T {\n  if (isEmpty()) throw
NoSuchElementException()\n  var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if
(comparator.compare(min, e)

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> 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first element having the smallest value according to the
provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun ByteArray.minWith(comparator: Comparator<in Byte>): Byte {\n if (isEmpty()) throw
NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n }\n return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
[comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun ShortArray.minWith(comparator: Comparator<in Short>): Short {\n if (isEmpty()) throw
NoSuchElementException()\n var min
= this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (comparator.compare(min, e) > 0) min = e\n }\n
return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
[comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun IntArray.minWith(comparator: Comparator<in Int>): Int {\n if (isEmpty()) throw
NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n }\n return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
[comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun LongArray.minWith(comparator:
Comparator<in Long>): Long {\n if (isEmpty()) throw NoSuchElementException()\n var min = this[0]\n for (i
in 1..lastIndex) {\n val e = this[i]\n if (comparator.compare(min, e) > 0) min = e\n }\n return
min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n
* @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun FloatArray.minWith(comparator: Comparator<in Float>): Float {\n if (isEmpty()) throw
NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n }\n return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
[comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic
fun DoubleArray.minWith(comparator: Comparator<in Double>): Double {\n if (isEmpty()) throw
NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n }\n return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
[comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun BooleanArray.minWith(comparator: Comparator<in Boolean>): Boolean {\n if
(isEmpty()) throw NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e =
this[i]\n if (comparator.compare(min, e) > 0) min = e\n }\n return min\n}\n\n/**\n * Returns the first
element having the smallest value according
to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun CharArray.minWith(comparator: Comparator<in Char>): Char {\n if (isEmpty()) throw
NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if

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(comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first element having the
smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun <T> Array<out T>.minOrNull(comparator: Comparator<in T>): T? {\n
if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first element having the
smallest value according to the provided
[comparator] or `null` if there are no elements.\n *\n@SinceKotlin("1.4")\npublic fun
ByteArray.minOrNull(comparator: Comparator<in Byte>): Byte? {\n if (isEmpty()) return null\n var min =
this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (comparator.compare(min, e) > 0) min = e\n } \n
return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator]
or `null` if there are no elements.\n *\n@SinceKotlin("1.4")\npublic fun ShortArray.minOrNull(comparator:
Comparator<in Short>): Short? {\n if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n
val e = this[i]\n if (comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first
element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun IntArray.minOrNull(comparator:
Comparator<in Int>): Int? {\n if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val
e = this[i]\n if (comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first
element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun LongArray.minOrNull(comparator: Comparator<in Long>): Long? {\n
if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first element having the
smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun FloatArray.minOrNull(comparator: Comparator<in Float>): Float? {\n
if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e
= this[i]\n if (comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first
element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun DoubleArray.minOrNull(comparator: Comparator<in Double>):
Double? {\n if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first element having the
smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun BooleanArray.minOrNull(comparator: Comparator<in Boolean>):
Boolean? {\n if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n
if (comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns the first
element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\npublic fun CharArray.minOrNull(comparator: Comparator<in Char>): Char? {\n
if (isEmpty()) return null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n } \n return min\n}\n\n/**\n * Returns `true` if the array has no
elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n *\npublic fun <T> Array<out
T>.none(): Boolean {\n return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n *
@sample samples.collections.Collections.Aggregates.none\n *\npublic fun ByteArray.none(): Boolean {\n return
isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.none\n *\npublic fun ShortArray.none(): Boolean {\n return
isEmpty()\n}\n\n/**\n * Returns
`true` if the array has no elements.\n * \n * @sample samples.collections.Collections.Aggregates.none\n *\npublic
fun IntArray.none(): Boolean {\n return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n
* @sample samples.collections.Collections.Aggregates.none\n *\npublic fun LongArray.none(): Boolean {\n
return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.none\n *\npublic fun FloatArray.none(): Boolean {\n return

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isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.none\n */\npublic fun DoubleArray.none(): Boolean {\n    return
isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.none\n */\npublic fun BooleanArray.none(): Boolean {\n    return
isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n
 * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun CharArray.none(): Boolean {\n
return isEmpty()\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun <T> Array<out
T>.none(predicate: (T) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return false\n    return
true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun ByteArray.none(predicate:
(Byte) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return false\n    return
true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun ShortArray.none(predicate:
(Short) -> Boolean): Boolean {\n
    for (element in this) if (predicate(element)) return false\n    return true\n}\n\n/**\n * Returns `true` if no elements
match the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n
*/\npublic inline fun IntArray.none(predicate: (Int) -> Boolean): Boolean {\n    for (element in this) if
(predicate(element)) return false\n    return true\n}\n\n/**\n * Returns `true` if no elements match the given
[predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun
LongArray.none(predicate: (Long) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return
false\n    return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun FloatArray.none(predicate:
(Float) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return false\n
    return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun DoubleArray.none(predicate:
(Double) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return false\n    return
true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun
BooleanArray.none(predicate: (Boolean) -> Boolean): Boolean {\n    for (element in this) if (predicate(element))
return false\n    return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline fun CharArray.none(predicate:
(Char) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return false\n    return
true\n}\n\n/**\n * Performs the given [action]
on each element and returns the array itself afterwards.\n
 */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.onEach(action: (T) ->
Unit): Array<out T> {\n    return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given
[action] on each element and returns the array itself afterwards.\n
 */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.onEach(action: (Byte) ->
Unit): ByteArray {\n    return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given
[action] on each element and returns the array itself afterwards.\n
 */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.onEach(action: (Short) ->
Unit): ShortArray {\n    return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given
[action] on each element and returns the array itself afterwards.\n
 */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic
inline fun IntArray.onEach(action: (Int) -> Unit): IntArray {\n    return apply { for (element in this) action(element)
}\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself afterwards.\n
 */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.onEach(action: (Long) ->

```

```

Unit): LongArray { \n  return apply { for (element in this) action(element) } \n } \n \n /** \n * Performs the given
[action] on each element and returns the array itself afterwards. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.onEach(action: (Float) ->
Unit): FloatArray { \n  return apply { for (element in this) action(element) } \n } \n \n /** \n * Performs the given
[action] on each element and returns the array itself afterwards. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.onEach(action: (Double) ->
Unit): DoubleArray { \n  return apply { for (element in this) action(element) } \n } \n \n /** \n
* Performs the given [action] on each element and returns the array itself afterwards. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.onEach(action: (Boolean)
-> Unit): BooleanArray { \n  return apply { for (element in this) action(element) } \n } \n \n /** \n * Performs the given
[action] on each element and returns the array itself afterwards. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun CharArray.onEach(action: (Char) ->
Unit): CharArray { \n  return apply { for (element in this) action(element) } \n } \n \n /** \n * Performs the given
[action] on each element, providing sequential index with the element, \n * and returns the array itself afterwards. \n *
@param [action] function that takes the index of an element and the element itself \n * and performs the action on
the element. \n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out
T>.onEachIndexed(action: (index: Int, T) -> Unit):
Array<out T> { \n  return apply { forEachIndexed(action) } \n } \n \n /** \n * Performs the given [action] on each
element, providing sequential index with the element, \n * and returns the array itself afterwards. \n * @param
[action] function that takes the index of an element and the element itself \n * and performs the action on the
element. \n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun
ByteArray.onEachIndexed(action: (index: Int, Byte) -> Unit): ByteArray { \n  return apply {
forEachIndexed(action) } \n } \n \n /** \n * Performs the given [action] on each element, providing sequential index
with the element, \n * and returns the array itself afterwards. \n * @param [action] function that takes the index of an
element and the element itself \n * and performs the action on the element. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.onEachIndexed(action:
(index: Int, Short) -> Unit): ShortArray { \n  return apply { forEachIndexed(action)
} \n } \n \n /** \n * Performs the given [action] on each element, providing sequential index with the element, \n *
and returns the array itself afterwards. \n * @param [action] function that takes the index of an element and the element
itself \n * and performs the action on the element. \n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic
inline fun IntArray.onEachIndexed(action: (index: Int, Int) -> Unit): IntArray { \n  return apply {
forEachIndexed(action) } \n } \n \n /** \n * Performs the given [action] on each element, providing sequential index
with the element, \n * and returns the array itself afterwards. \n * @param [action] function that takes the index of an
element and the element itself \n * and performs the action on the element. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.onEachIndexed(action:
(index: Int, Long) -> Unit): LongArray { \n  return apply { forEachIndexed(action) } \n } \n \n /** \n * Performs the
given [action]
on each element, providing sequential index with the element, \n * and returns the array itself afterwards. \n *
@param [action] function that takes the index of an element and the element itself \n * and performs the action on
the element. \n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun
FloatArray.onEachIndexed(action: (index: Int, Float) -> Unit): FloatArray { \n  return apply {
forEachIndexed(action) } \n } \n \n /** \n * Performs the given [action] on each element, providing sequential index
with the element, \n * and returns the array itself afterwards. \n * @param [action] function that takes the index of an
element and the element itself \n * and performs the action on the element. \n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleArray.onEachIndexed(action:
(index: Int, Double) -> Unit): DoubleArray { \n  return apply { forEachIndexed(action) } \n } \n \n /** \n * Performs
the given [action] on each element, providing sequential index

```

with the element, and returns the array itself afterwards.

@param [action] function that takes the index of an element and the element itself and performs the action on the element.

```

@SinceKotlin("1.4")
@kotlin.internal.InlineOnly
public inline fun BooleanArray.onEachIndexed(action:
(index: Int, Boolean) -> Unit): BooleanArray {
    return apply { forEachIndexed(action) }
}

```

Performs the given [action] on each element, providing sequential index with the element, and returns the array itself afterwards.

@param [action] function that takes the index of an element and the element itself and performs the action on the element.

```

@SinceKotlin("1.4")
@kotlin.internal.InlineOnly
public inline fun
CharArray.onEachIndexed(action: (index: Int, Char) -> Unit): CharArray {
    return apply {
        forEachIndexed(action)
    }
}

```

Accumulates value starting with the first element and applying [operation] from left to right to current accumulator value and each element.

Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.

@sample samples.collections.Collections.Aggregates.reduce

```

public inline fun
<S, T : S>
Array<out T>.reduce(operation: (acc: S, T) -> S): S {
    if (isEmpty())
        throw
        UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator: S = this[0]
    for (index
in 1..lastIndex) {
        accumulator = operation(accumulator, this[index])
    }
    return accumulator
}

```

Accumulates value starting with the first element and applying [operation] from left to right to current accumulator value and each element.

Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.

@sample samples.collections.Collections.Aggregates.reduce

```

public inline fun
ByteArray.reduce(operation: (acc: Byte, Byte) -> Byte): Byte {
    if (isEmpty())
        throw
        UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = this[0]
    for (index in
1..lastIndex) {
        accumulator = operation(accumulator, this[index])
    }
    return accumulator
}

```

Accumulates value starting with the first element and applying [operation] from left to right to current accumulator value and each element.

Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.

@sample samples.collections.Collections.Aggregates.reduce

```

public inline fun
ShortArray.reduce(operation: (acc: Short, Short) -> Short): Short {
    if (isEmpty())
        throw
        UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = this[0]
    for (index in
1..lastIndex) {
        accumulator = operation(accumulator, this[index])
    }
    return accumulator
}

```

Accumulates value starting with the first element and applying [operation] from left to right to current accumulator value and each element.

Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.

@sample samples.collections.Collections.Aggregates.reduce

```

public inline fun
IntArray.reduce(operation: (acc: Int, Int) -> Int): Int {
    if (isEmpty())
        throw
        UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = this[0]
    for (index in
1..lastIndex) {
        accumulator = operation(accumulator, this[index])
    }
    return accumulator
}

```

Accumulates value starting with the first element and applying [operation] from left to right to current accumulator value and each element.

Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.

@sample samples.collections.Collections.Aggregates.reduce

```

public inline fun
LongArray.reduce(operation: (acc: Long, Long) -> Long): Long {
    if (isEmpty())
        throw
        UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = this[0]
    for (index in

```

```

1..lastIndex) {\n    accumulator = operation(accumulator, this[index])\n } \n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty\n * in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun\nFloatArray.reduce(operation: (acc: Float, Float) -> Float): Float {\n    if (isEmpty())\n        throw\n        UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in\n        1..lastIndex) {\n            accumulator = operation(accumulator, this[index])\n        }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty\n * in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun\nDoubleArray.reduce(operation: (acc: Double, Double) -> Double): Double {\n    if (isEmpty())\n        throw\n        UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in\n        1..lastIndex) {\n            accumulator = operation(accumulator, this[index])\n        }\n    return\n        accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty\n * in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is\n * empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun\nBooleanArray.reduce(operation: (acc: Boolean, Boolean) -> Boolean): Boolean {\n    if (isEmpty())\n        throw\n        UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in\n        1..lastIndex) {\n            accumulator = operation(accumulator, this[index])\n        }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation]\n * from left to right\n * to current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be empty\n * in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is\n * empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun\nCharArray.reduce(operation: (acc: Char, Char) -> Char): Char {\n    if (isEmpty())\n        throw\n        UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in\n        1..lastIndex) {\n            accumulator = operation(accumulator, this[index])\n        }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation]\n * from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty\n * in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun <S,\n    T : S> Array<out T>.reduceIndexed(operation: (index: Int, acc: S, T) -> S): S {\n    if (isEmpty())\n        throw\n        UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator: S = this[0]\n    for (index\n        in 1..lastIndex) {\n            accumulator = operation(index, accumulator, this[index])\n        }\n    return\n        accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation]\n * from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty\n * in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun

```

```

ByteArray.reduceIndexed(operation: (index: Int, acc: Byte, Byte) -> Byte): Byte {\n if (isEmpty())\n throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator = this[0]\n for (index in
1..lastIndex) {\n accumulator = operation(index, accumulator, this[index])\n }\n return
accumulator}\n\n/**\n * Accumulates value starting with the first element and applying [operation]
from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n *
Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use
[reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function
that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun
ShortArray.reduceIndexed(operation: (index: Int, acc: Short, Short) -> Short): Short {\n if (isEmpty())\n throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator = this[0]\n for (index in
1..lastIndex) {\n accumulator = operation(index, accumulator, this[index])\n }\n return
accumulator}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from
left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws
an exception if this array is empty. If the array can be empty in an expected way,\n * please use
[reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function
that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun
IntArray.reduceIndexed(operation: (index: Int, acc: Int, Int) -> Int): Int {\n if (isEmpty())\n throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator = this[0]\n for (index in
1..lastIndex) {\n accumulator = operation(index, accumulator, this[index])\n }\n return
accumulator}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an
exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull]
instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun
LongArray.reduceIndexed(operation: (index: Int, acc: Long, Long) -> Long): Long {\n if (isEmpty())\n throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator = this[0]\n for (index in
1..lastIndex) {\n accumulator = operation(index, accumulator, this[index])\n }\n return
accumulator}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an
exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull]
instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun FloatArray.reduceIndexed(operation:
(index: Int, acc: Float, Float) -> Float): Float {\n if (isEmpty())\n throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator = this[0]\n for (index in
1..lastIndex) {\n accumulator = operation(index, accumulator, this[index])\n }\n return
accumulator}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an
exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull]
instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun DoubleArray.reduceIndexed(operation:
(index: Int, acc: Double, Double) -> Double): Double {\n if (isEmpty())\n throw

```

```

UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n\npublic inline fun BooleanArray.reduceIndexed(operation: (index: Int, acc: Boolean, Boolean) -> Boolean): Boolean {\n    if (isEmpty())\n        throw UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\n\npublic inline fun CharArray.reduceIndexed(operation: (index: Int, acc: Char, Char) -> Char): Char {\n    if (isEmpty())\n        throw UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun <S, T : S> Array<out T>.reduceIndexedOrNull(operation: (index: Int, acc: S, T) -> S): S? {\n    if (isEmpty())\n        return null\n    var accumulator: S = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun ByteArray.reduceIndexedOrNull(operation: (index: Int, acc: Byte, Byte) -> Byte): Byte? {\n    if (isEmpty())\n        return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n\n@SinceKotlin("1.4")\npublic inline fun ShortArray.reduceIndexedOrNull(operation: (index: Int, acc: Short, Short) -> Short): Short? {\n    if (isEmpty())\n        return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator

```

value and the element itself,\n \* and calculates the next accumulator value.\n \* \n \* @sample

```

samples.collections.Collections.Aggregates.reduceOrNull\n *^\n@SinceKotlin("1.4")\npublic inline fun
IntArray.reduceIndexedOrNull(operation: (index: Int, acc: Int, Int) -> Int): Int? {\n
    if (isEmpty())\n        return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator =
operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting
with the first element and applying [operation] from left to right\n * to current accumulator value and each element
with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the
next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n
*^\n@SinceKotlin("1.4")\npublic inline fun LongArray.reduceIndexedOrNull(operation: (index: Int, acc: Long,
Long) -> Long): Long? {\n    if (isEmpty())\n        return null\n    var accumulator = this[0]\n    for (index in
1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation]
from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n *
Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current
accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n *^\n@SinceKotlin("1.4")\npublic inline fun
FloatArray.reduceIndexedOrNull(operation: (index: Int, acc: Float, Float) -> Float): Float? {\n    if (isEmpty())\n
return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index,
accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first
element and applying [operation] from left to right\n * to current accumulator value
and each element with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param
[operation] function that takes the index of an element, current accumulator value and the element itself,\n * and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n
*^\n@SinceKotlin("1.4")\npublic inline fun DoubleArray.reduceIndexedOrNull(operation: (index: Int, acc:
Double, Double) -> Double): Double? {\n    if (isEmpty())\n        return null\n    var accumulator = this[0]\n    for
(index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns `null`
if the array is empty.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.reduceOrNull\n *^\n@SinceKotlin("1.4")\npublic inline fun
BooleanArray.reduceIndexedOrNull(operation: (index: Int, acc: Boolean, Boolean) -> Boolean): Boolean? {\n    if
(isEmpty())\n        return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator =
operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting
with the first element and applying [operation] from left to right\n * to current accumulator value and each element
with its index in the original array.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value and the element itself,\n * and calculates the
next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n
*^\n@SinceKotlin("1.4")\npublic inline fun CharArray.reduceIndexedOrNull(operation: (index: Int, acc: Char,
Char) -> Char): Char? {\n    if (isEmpty())\n        return null\n    var accumulator = this[0]\n    for (index in
1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n *
@param [operation] function that takes current accumulator value and an element,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n
*^\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S>
Array<out T>.reduceOrNull(operation: (acc: S, T) -> S): S? {\n    if (isEmpty())\n        return null\n    var

```

accumulator:

```
S = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun\nByteArray.reduceOrNull(operation: (acc: Byte, Byte) -> Byte): Byte? {\n if (isEmpty())\n     return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun\nShortArray.reduceOrNull(operation: (acc: Short, Short) -> Short): Short? {\n if (isEmpty())\n     return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun\nIntArray.reduceOrNull(operation: (acc: Int, Int) -> Int): Int? {\n if (isEmpty())\n     return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun\nLongArray.reduceOrNull(operation: (acc: Long, Long) -> Long): Long? {\n if (isEmpty())\n     return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun\nFloatArray.reduceOrNull(operation: (acc: Float, Float) -> Float): Float? {\n if (isEmpty())\n     return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun\nDoubleArray.reduceOrNull(operation: (acc: Double, Double) -> Double): Double? {\n if (isEmpty())\n     return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n     accumulator = operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns
```



```

`null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and an
element,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
BooleanArray.reduceOrNull(operation: (acc: Boolean, Boolean) -> Boolean): Boolean? {\n if (isEmpty())\n return null\n var accumulator = this[0]\n for (index in 1..lastIndex) {\n accumulator =
operation(accumulator, this[index])\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the
first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n *
Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and
an element,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
CharArray.reduceOrNull(operation: (acc: Char, Char) -> Char): Char? {\n if (isEmpty())\n return null\n var
accumulator = this[0]\n for (index in 1..lastIndex) {\n accumulator = operation(accumulator, this[index])\n
}\n return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation]
from right to left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is
empty. If the array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null`
when its receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator
value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun <S, T : S> Array<out
T>.reduceRight(operation: (T, acc: S) -> S): S {\n var index = lastIndex\n if (index < 0) throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator: S = get(index--)\n while
(index >= 0) {\n accumulator = operation(get(index--), accumulator)\n }\n return accumulator\n}\n\n/**\n *
Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and
current accumulator value.\n * \n * Throws an exception if this array is empty. If the array can be empty in an
expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its receiver is empty.\n * \n *
@param [operation] function that takes an element and current accumulator value,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline
fun ByteArray.reduceRight(operation: (Byte, acc: Byte) -> Byte): Byte {\n var index = lastIndex\n if (index < 0)
throw UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator =
get(index--)\n while (index >= 0) {\n accumulator = operation(get(index--), accumulator)\n }\n return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is empty. If the
array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n *
and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun ShortArray.reduceRight(operation:
(Short, acc: Short) -> Short): Short {\n var index = lastIndex\n if (index < 0) throw
UnsupportedOperationException("Empty array can't be
reduced.")\n var accumulator = get(index--)\n while (index >= 0) {\n accumulator = operation(get(index--),
accumulator)\n }\n return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and
applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Throws an
exception if this array is empty. If the array can be empty in an expected way,\n * please use [reduceRightOrNull]
instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that takes an element
and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\npublic inline fun IntArray.reduceRight(operation:
(Int, acc: Int) -> Int): Int {\n var index = lastIndex\n if (index < 0) throw
UnsupportedOperationException("Empty array can't be reduced.")\n var accumulator = get(index--)\n while

```

```

(index >= 0) {\n    accumulator
= operation(get(index--), accumulator)\n } \n return accumulator\n}\n\n/**\n * Accumulates value starting with
the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n
* Throws an exception if this array is empty. If the array can be empty in an expected way,\n * please use
[reduceRightOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function that
takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\n\npublic inline fun LongArray.reduceRight(operation:
(Long, acc: Long) -> Long): Long {\n    var index = lastIndex\n    if (index < 0) throw
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = get(index--)\n    while
(index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n
* Accumulates value starting with the last element and applying [operation] from right to left\n * to each element
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expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its receiver is empty.\n * \n *
@param [operation] function that takes an element and current accumulator value,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n */\n\npublic inline
fun FloatArray.reduceRight(operation: (Float, acc: Float) -> Float): Float {\n    var index = lastIndex\n    if (index
< 0) throw UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = get(index--)\n
while (index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation]
from right to left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is
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when its receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator
value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\n\npublic inline fun DoubleArray.reduceRight(operation:
(Double, acc: Double) -> Double): Double {\n    var index = lastIndex\n    if (index < 0) throw
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = get(index--)\n    while
(index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n
* to each element and current accumulator value.\n * \n * Throws an exception if this array is empty. If the array can
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empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates
the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\n\npublic inline fun BooleanArray.reduceRight(operation:
(Boolean, acc: Boolean) -> Boolean): Boolean {\n    var index = lastIndex\n    if (index < 0) throw
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator =
get(index--)\n    while (index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
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the array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n *
and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n */\n\npublic inline fun CharArray.reduceRight(operation:
(Char, acc: Char) -> Char): Char {\n    var index = lastIndex\n    if (index < 0) throw
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = get(index--)\n    while
(index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n
* Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with
its index in the original array and current accumulator value.\n * \n * Throws an exception if this array is empty. If
the array can be empty in an expected way,\n

```

\* please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

```

 * @param [operation] function that takes the index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample samples.collections.Collections.Aggregates.reduceRight
 */
public inline fun <S, T : S> Array<out T>.reduceRightIndexed(operation: (index: Int, T, acc: S) -> S): S {
    var index = lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator: S = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

\* Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

\* Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

```

 * @param [operation] function that takes the index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample samples.collections.Collections.Aggregates.reduceRight
 */
public inline fun
ByteArray.reduceRightIndexed(operation: (index: Int, Byte, acc: Byte) -> Byte): Byte {
    var index = lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator =
get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

\* Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

\* Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

```

 * @param [operation] function that takes the index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample samples.collections.Collections.Aggregates.reduceRight
 */
public inline fun
ShortArray.reduceRightIndexed(operation: (index: Int, Short, acc: Short) -> Short): Short {
    var index =
lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

\* Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

\* Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

```

 * @param [operation] function that takes the index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample samples.collections.Collections.Aggregates.reduceRight
 */
public inline fun
IntArray.reduceRightIndexed(operation: (index: Int, Int, acc: Int) -> Int): Int {
    var index = lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

\* Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value.

\* Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

```

 * @param [operation] function that takes the index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample samples.collections.Collections.Aggregates.reduceRight
 */
public inline fun
LongArray.reduceRightIndexed(operation: (index: Int, Long, acc: Long) -> Long): Long {
    var index =
lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

\* Accumulates value starting with the last

element and applying [operation] from right to left

\* to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. @sample samples.collections.Collections.Aggregates.reduceRight

```
public inline fun  
FloatArray.reduceRightIndexed(operation: (index: Int, Float, acc: Float) -> Float): Float {  
    var index = lastIndex  
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")  
    var accumulator = get(index--)  
    while (index >= 0) {  
        accumulator = operation(index, get(index), accumulator)  
        --index  
    }  
    return accumulator  
}
```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. @sample

samples.collections.Collections.Aggregates.reduceRight

```
public inline fun  
DoubleArray.reduceRightIndexed(operation: (index: Int, Double, acc: Double) -> Double): Double {  
    var index = lastIndex  
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")  
    var accumulator = get(index--)  
    while (index >= 0) {  
        accumulator = operation(index, get(index), accumulator)  
        --index  
    }  
    return accumulator  
}
```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. @sample

samples.collections.Collections.Aggregates.reduceRight

```
public inline fun  
BooleanArray.reduceRightIndexed(operation: (index: Int, Boolean, acc: Boolean) -> Boolean): Boolean {  
    var index = lastIndex  
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")  
    var accumulator = get(index--)  
    while (index >= 0) {  
        accumulator = operation(index, get(index), accumulator)  
        --index  
    }  
    return accumulator  
}
```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use

[reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. @sample samples.collections.Collections.Aggregates.reduceRight

```
public inline fun  
CharArray.reduceRightIndexed(operation: (index: Int, Char, acc: Char) -> Char): Char {  
    var index = lastIndex  
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")  
    var accumulator = get(index--)  
    while (index >= 0) {  
        accumulator = operation(index, get(index), accumulator)  
        --index  
    }  
    return accumulator  
}
```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns `null` if the array is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. @sample samples.collections.Collections.Aggregates.reduceRightOrNull

```
@SinceKotlin("1.4")  
public inline fun <S, T : S> Array<out T>.reduceRightIndexedOrNull(operation: (index: Int, T, acc: S) -> S): S? {  
    var index = lastIndex  
    if (index < 0) return null  
    var accumulator: S = get(index--)  
    while (index >= 0) {  
        accumulator = operation(index, get(index), accumulator)  
        --index  
    }  
    return accumulator  
}
```

```

    }
    return accumulator
}

/**
 * Accumulates value starting with the last element
 and applying [operation] from right to left
 * to each element with its index in the original array and current
 accumulator value.
 * Returns `null` if the array is empty.
 * @param [operation] function that takes the
 index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator
 value.
 * @sample samples.collections.Collections.Aggregates.reduceRightOrNull
 */
@SinceKotlin("1.4")
public inline fun ByteArray.reduceRightIndexedOrNull(operation: (index: Int, Byte,
acc: Byte) -> Byte): Byte? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/**
 * Accumulates value starting with the last element and applying [operation] from
 right to left
 * to each element with its index in the original array and current accumulator value.
 * Returns `null` if the array is empty.
 * @param [operation] function that takes the index of an element,
 the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample
 samples.collections.Collections.Aggregates.reduceRightOrNull
 */
@SinceKotlin("1.4")
public inline fun ShortArray.reduceRightIndexedOrNull(operation: (index: Int, Short, acc: Short) -> Short): Short? {
    var index =
lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/**
 * Accumulates value starting with the last element and applying [operation] from right to left
 * to each element with its index in the original array and current accumulator value.
 * Returns `null` if the array is empty.
 * @param [operation] function that takes the index of an element, the element
 itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample
 samples.collections.Collections.Aggregates.reduceRightOrNull
 */
@SinceKotlin("1.4")
public inline fun IntArray.reduceRightIndexedOrNull(operation: (index: Int, Int, acc: Int) -> Int): Int? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator =
operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/**
 * Accumulates value starting with the last element and applying [operation]
 value starting with the last element and applying [operation] from right to left
 * to each element with its index in
 the original array and current accumulator value.
 * Returns `null` if the array is empty.
 * @param
 [operation] function that takes the index of an element, the element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample
 samples.collections.Collections.Aggregates.reduceRightOrNull
 */
@SinceKotlin("1.4")
public inline fun LongArray.reduceRightIndexedOrNull(operation: (index: Int, Long,
acc: Long) -> Long): Long? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator =
get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/**
 * Accumulates value starting with the last element and applying [operation]
 from right to left
 * to each element with its index in the original array and current accumulator value.
 * Returns `null` if the array is empty.
 * @param [operation] function that takes the index of an element, the
 element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample
 samples.collections.Collections.Aggregates.reduceRightOrNull
 */
@SinceKotlin("1.4")
public inline fun FloatArray.reduceRightIndexedOrNull(operation: (index: Int,
Float, acc: Float) -> Float): Float? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator =
get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/**
 * Accumulates value starting with the last element and applying [operation]
 from right to left
 * to each element with its index in the original array and current accumulator value.
 * Returns `null` if the array is empty.
 * @param [operation] function that takes the index of an element, the
 element itself and current accumulator value,
 * and calculates the next accumulator value.
 * @sample
 samples.collections.Collections.Aggregates.reduceRightOrNull
 */
@SinceKotlin("1.4")
public inline fun DoubleArray.reduceRightIndexedOrNull(operation: (index: Int, Double, acc: Double) -> Double): Double? {
    var
index = lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
}

```

```

while (index >= 0) {
    accumulator = operation(index, get(index), accumulator)
    --index
}
return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull

```

Since Kotlin 1.4

```

public inline fun
BooleanArray.reduceRightIndexedOrNull(operation: (index: Int, Boolean, acc: Boolean) -> Boolean): Boolean? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull

```

Since Kotlin 1.4

```

public inline fun
CharArray.reduceRightIndexedOrNull(operation: (index: Int, Char, acc: Char) -> Char): Char? {
    var index =
lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull

```

Since Kotlin 1.4

Was Experimental (ExperimentalStdlibApi::class)

```

public inline fun <S, T : S>
Array<out T>.reduceRightOrNull(operation: (T, acc: S) -> S): S? {
    var index = lastIndex
    if (index < 0)
return null
    var accumulator: S = get(index--)
    while (index >= 0) {
        accumulator = operation(get(index--),
accumulator)
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes an element and current accumulator value, and

calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull

```

Since Kotlin 1.4

Was Experimental (ExperimentalStdlibApi::class)

```

public inline fun
ByteArray.reduceRightOrNull(operation: (Byte, acc: Byte) -> Byte): Byte? {
    var index = lastIndex
    if (index
< 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator =
operation(get(index--), accumulator)
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull

```

Since Kotlin 1.4

Was Experimental (ExperimentalStdlibApi::class)

```

public
inline fun ShortArray.reduceRightOrNull(operation: (Short, acc: Short) -> Short): Short? {
    var index =
lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(get(index--), accumulator)
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull

```

Since Kotlin 1.4

Was Experimental (ExperimentalStdlibApi::class)

```

public inline fun
IntArray.reduceRightOrNull(operation: (Int, acc: Int) -> Int): Int? {
    var index = lastIndex
    if (index < 0)

```

```

return null\n    var accumulator = get(index--)\n    while
(index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
LongArray.reduceRightOrNull(operation: (Long, acc: Long) -> Long): Long? {\n    var index = lastIndex\n    if
(index < 0) return null\n    var accumulator = get(index--)\n    while (index >= 0) {\n        accumulator =
operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the
last element and applying [operation] from
right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n *
@param [operation] function that takes an element and current accumulator value,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
FloatArray.reduceRightOrNull(operation: (Float, acc: Float) -> Float): Float? {\n    var index = lastIndex\n    if
(index < 0) return null\n    var accumulator = get(index--)\n    while (index >= 0) {\n        accumulator =
operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the
last element and applying [operation] from
right to left\n * to each element and current accumulator value.\n * \n * Returns `null` if the array is empty.\n * \n *
@param [operation] function that takes an element and current
accumulator
value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
DoubleArray.reduceRightOrNull(operation: (Double, acc: Double) -> Double): Double? {\n    var index =
lastIndex\n    if (index < 0) return null\n    var accumulator = get(index--)\n    while (index >= 0) {\n
accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value
starting with the last element and applying [operation] from right to left\n * to each element and current accumulator
value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and
current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic
inline fun BooleanArray.reduceRightOrNull(operation: (Boolean, acc: Boolean) -> Boolean): Boolean? {\n    var
index = lastIndex\n    if (index < 0) return null\n    var accumulator = get(index--)\n    while (index >= 0) {\n
accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value
starting with the last element and applying [operation] from right to left\n * to each element and current accumulator
value.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and
current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
CharArray.reduceRightOrNull(operation: (Char, acc: Char) -> Char): Char? {\n    var index = lastIndex\n    if (index
< 0) return null\n    var
accumulator = get(index--)\n    while (index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n
    }\n    return accumulator\n}\n\n/**\n * Returns a list containing successive accumulation values generated by
applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial]
value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value
and an element, and calculates the next accumulator value.\n * \n * @sample

```

```

samples.collections.Collections.Aggregates.runningFold\n *^@SinceKotlin("1.4")\npublic inline fun <T, R>
Array<out T>.runningFold(initial: R, operation: (acc: R, T) -> R): List<R> {\n  if (isEmpty()) return
listOf(initial)\n  val result = ArrayList<R>(size + 1).apply { add(initial) }\n  var accumulator = initial\n  for
(element in
  this) {\n    accumulator = operation(accumulator, element)\n    result.add(accumulator)\n  }\n  return
result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from
left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc`
value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n
*^@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ByteArray.runningFold(initial: R,
operation: (acc: R, Byte) -> R): List<R> {\n  if (isEmpty()) return listOf(initial)\n  val result = ArrayList<R>(size
+ 1).apply { add(initial) }\n  var accumulator = initial\n  for (element
in this) {\n    accumulator = operation(accumulator, element)\n    result.add(accumulator)\n  }\n  return
result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from
left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc`
value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n
*^@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> ShortArray.runningFold(initial: R,
operation: (acc: R, Short) -> R): List<R> {\n  if (isEmpty()) return listOf(initial)\n  val result = ArrayList<R>(size
+ 1).apply { add(initial) }\n  var accumulator = initial\n  for
(element in this) {\n    accumulator = operation(accumulator, element)\n    result.add(accumulator)\n  }\n
return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n
* Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the
previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an
element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningFold\n
*^@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> IntArray.runningFold(initial: R,
operation: (acc: R, Int) -> R): List<R> {\n  if (isEmpty()) return listOf(initial)\n  val result = ArrayList<R>(size +
1).apply { add(initial) }\n  var accumulator = initial\n  for
(element in this) {\n    accumulator = operation(accumulator, element)\n    result.add(accumulator)\n  }\n
return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n
* Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the
previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an
element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningFold\n
*^@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> LongArray.runningFold(initial: R,
operation: (acc: R, Long) -> R): List<R> {\n  if (isEmpty()) return listOf(initial)\n  val result = ArrayList<R>(size
+ 1).apply { add(initial) }\n  var accumulator = initial\n
for (element in this) {\n    accumulator = operation(accumulator, element)\n    result.add(accumulator)\n  }\n
return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n
* Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the
previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an
element, and calculates the next accumulator value.\n * \n * @sample

```



```

samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> FloatArray.runningFold(initial: R,
operation: (acc: R, Float) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size
+ 1).apply { add(initial) }\n    var accumulator = initial\n
    for (element in this) {\n        accumulator = operation(accumulator, element)\n        result.add(accumulator)\n
    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n
* Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the
previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an
element, and calculates the next accumulator value.\n * \n * @sample

```

```

samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> DoubleArray.runningFold(initial: R,
operation: (acc: R, Double) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result =
ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator
= initial\n    for (element in this) {\n        accumulator = operation(accumulator, element)\n
result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation
values generated by applying [operation] from left to right\n * to each element and current accumulator value that
starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n *
otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current
accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample

```

```

samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.runningFold(initial:
R, operation: (acc: R, Boolean) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result =
ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator
= initial\n    for (element in this) {\n        accumulator = operation(accumulator, element)\n
result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation
values generated by applying [operation] from left to right\n * to each element and current accumulator value that
starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n *
otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current
accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample

```

```

samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharArray.runningFold(initial: R,
operation: (acc: R, Char) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size
+ 1).apply { add(initial) }\n    var
accumulator = initial\n    for (element in this) {\n        accumulator = operation(accumulator, element)\n
result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation
values generated by applying [operation] from left to right\n * to each element, its index in the original array and
current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation]
function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the
next accumulator value.\n * \n * @sample

```

```

samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\npublic inline fun <T, R> Array<out T>.runningFoldIndexed(initial: R, operation:
(index: Int, acc: R, T) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n
    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\n    for (index in indices)
{\n        accumulator = operation(index, accumulator, this[index])\n        result.add(accumulator)\n    }\n    return
result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from
left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial]
value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would

```

affect the previous value in resulting list.\n \* \n \* @param [operation] function that takes the index of an element, current accumulator value\n \* and the element itself, and calculates the next accumulator value.\n \* \n \* @sample samples.collections.Collections.Aggregates.runningFold\n

```
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>
```

```
ByteArray.runningFoldIndexed(initial:
```

```
 R, operation: (index: Int, acc: R, Byte) -> R): List<R> {\n if (isEmpty()) return listOf(initial)\n val result =\n ArrayList<R>(size + 1).apply { add(initial) }\n var accumulator = initial\n for (index in indices) {\n accumulator = operation(index, accumulator, this[index])\n result.add(accumulator)\n }\n return
```

```
result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from\n left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial]\n value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would\n affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element,\n current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n
```

```
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic
```

```
inline fun <R> ShortArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Short) -> R): List<R> {\n if (isEmpty()) return listOf(initial)\n val result = ArrayList<R>(size + 1).apply { add(initial) }\n var accumulator\n = initial\n for (index in indices) {\n accumulator = operation(index, accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n/**\n * Returns a list containing successive accumulation
```

```
 values generated by applying [operation] from left to right\n * to each element, its index in the original array and\n current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function\n should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation]\n function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the\n next
```

```
 accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n
```

```
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>
```

```
IntArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Int) -> R): List<R> {\n if (isEmpty()) return\n listOf(initial)\n val result = ArrayList<R>(size + 1).apply { add(initial) }\n var accumulator = initial\n for\n (index in indices) {\n accumulator = operation(index, accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
```

```
 [operation] from left to right\n * to each element, its index in the original array and current accumulator value that\n starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes\n the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator\n value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n
```

```
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>
```

```
LongArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Long) -> R): List<R> {\n if (isEmpty())\n return listOf(initial)\n val result = ArrayList<R>(size + 1).apply { add(initial) }\n var accumulator = initial\n for (index in indices) {\n accumulator = operation(index, accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n/**\n * Returns a list containing successive accumulation
```

```
 values generated by applying [operation] from left to right\n * to each element, its index in the original array and\n current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function\n should not be mutated;\n * otherwise
```

```
 it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an\n element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n
```

```
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>
```

```
FloatArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Float) -> R): List<R> {\n if (isEmpty())
```

```

return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\nfor (index in indices) {\n    accumulator = operation(index, accumulator, this[index])\nresult.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation\n values generated by applying [operation] from left to right\n * to each element, its index in the original array and\n current accumulator value that starts with [initial]\n value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would\n affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element,\n current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n\n*/\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nDoubleArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Double) -> R): List<R> {\n    if\n (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator =\n initial\n    for (index in indices) {\n        accumulator = operation(index, accumulator, this[index])\nresult.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation\n values generated by applying [operation] from left to\n right\n * to each element, its index in the original array and current accumulator value that starts with [initial]\n value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would\n affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element,\n current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n\n*/\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nBooleanArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Boolean) -> R): List<R> {\n    if\n (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator =\n initial\n    for (index in indices) {\n        accumulator = operation(index, accumulator, this[index])\nresult.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the\n previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current\n accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningFold\n\n*/\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nCharArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): List<R> {\n    if (isEmpty())\n return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\nfor (index in indices) {\n    accumulator = operation(index,\n accumulator, this[index])\n    result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list\n containing successive accumulation values generated by applying [operation] from left to right\n * to each element\n and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to\n [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and the element, and calculates the next\n accumulator value.\n * \n * @sample\n samples.collections.Collections.Aggregates.runningReduce\n\n*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S>\nArray<out T>.runningReduce(operation: (acc: S, T) -> S): List<S> {\n    if (isEmpty()) return emptyList()\n    var\n accumulator: S = this[0]\n    val result = ArrayList<S>(size).apply { add(accumulator) }\n    for\n (index in 1 until size) {\n        accumulator = operation(accumulator, this[index])\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying\n [operation] from left to right\n * to each element and current accumulator value that starts with the first element of\n this array.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates

```

```

the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.runningReduce(operation:\n
(acc: Byte, Byte) -> Byte): List<Byte> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n val\n
result = ArrayList<Byte>(size).apply { add(accumulator) }\n for (index in 1 until size) {\n accumulator =\n
operation(accumulator, this[index])\n result.add(accumulator)\n }\n\n
return result\n}\n\n**\n * Returns a list containing successive accumulation values generated by applying\n
[operation] from left to right\n * to each element and current accumulator value that starts with the first element of\n
this array.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates\n
the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.runningReduce(operation:\n
(acc: Short, Short) -> Short): List<Short> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n\n
val result = ArrayList<Short>(size).apply { add(accumulator) }\n for (index in 1 until size) {\n accumulator =\n
operation(accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n**\n * Returns a list\n
containing successive accumulation values generated by applying [operation]\n
from left to right\n * to each element and current accumulator value that starts with the first element of this array.\n
*\n * @param [operation] function that takes current accumulator value and an element, and calculates the next\n
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.runningReduce(operation: (acc:\n
Int, Int) -> Int): List<Int> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n val result =\n
ArrayList<Int>(size).apply { add(accumulator) }\n for (index in 1 until size) {\n accumulator =\n
operation(accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n**\n * Returns a list\n
containing successive accumulation values generated by applying [operation] from left to right\n * to each element\n
and current accumulator value that starts with the first element of this array.\n * \n * @param\n
[operation] function that takes current accumulator value and an element, and calculates the next accumulator\n
value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun LongArray.runningReduce(operation:\n
(acc: Long, Long) -> Long): List<Long> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n\n
val result = ArrayList<Long>(size).apply { add(accumulator) }\n for (index in 1 until size) {\n accumulator =\n
operation(accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n**\n * Returns a list\n
containing successive accumulation values generated by applying [operation] from left to right\n * to each element\n
and current accumulator value that starts with the first element of this array.\n * \n * @param [operation] function\n
that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n *\n
\n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.runningReduce(operation:\n
(acc: Float, Float) -> Float): List<Float> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n val\n
result = ArrayList<Float>(size).apply { add(accumulator) }\n for (index in 1 until size) {\n accumulator =\n
operation(accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n**\n * Returns a list\n
containing successive accumulation values generated by applying [operation] from left to right\n * to each element\n
and current accumulator value that starts with the first element of this array.\n * \n * @param [operation] function\n
that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n *\n
\n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic\n
inline fun DoubleArray.runningReduce(operation: (acc: Double, Double) -> Double): List<Double> {\n if\n
(isEmpty()) return emptyList()\n var accumulator = this[0]\n val result = ArrayList<Double>(size).apply {\n
add(accumulator) }\n for (index in 1 until size) {\n accumulator = operation(accumulator, this[index])\n\n
result.add(accumulator)\n }\n return result\n}\n\n**\n * Returns a list containing successive accumulation\n
values generated by applying [operation] from left to right\n * to each element and current accumulator value that\n
starts with the first element of this array.\n * \n * @param [operation] function that takes current accumulator value

```

and an element, and calculates the next accumulator value.

```

samples.collections.Collections.Aggregates.runningReduce
*/@SinceKotlin("1.4")@kotlin.internal.InlineOnly
public inline fun BooleanArray.runningReduce(operation:
(acc: Boolean, Boolean) -> Boolean): List<Boolean> {
    if (isEmpty()) return emptyList()
    var accumulator = this[0]
    val result = ArrayList<Boolean>(size).apply {
        add(accumulator)
    }
    for (index in 1 until size) {
        accumulator = operation(accumulator, this[index])
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element and current accumulator value that starts with the first element of this array.

@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.runningReduce
*/@SinceKotlin("1.4")@kotlin.internal.InlineOnly
public inline fun CharArray.runningReduce(operation:
(acc: Char, Char) -> Char): List<Char> {
    if (isEmpty()) return emptyList()
    var accumulator = this[0]
    val result = ArrayList<Char>(size).apply {
        add(accumulator)
    }
    for (index in 1 until size) {
        accumulator = operation(accumulator, this[index])
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element, its index in the original array and current accumulator value that starts with the first element of this array.

Note that `acc` value passed to [operation] function should not be mutated; otherwise it would affect the previous value in resulting list.

@param [operation] function that takes the index of an element, current accumulator value and the element itself, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.runningReduce
*/@SinceKotlin("1.4")@kotlin.internal.InlineOnly
public inline fun <S, T : S> Array<out T>.runningReduceIndexed(operation: (index: Int, acc: S, T) -> S): List<S> {
    if (isEmpty()) return emptyList()
    var accumulator: S = this[0]
    val result = ArrayList<S>(size).apply {
        add(accumulator)
    }
    for (index in 1 until size) {
        accumulator = operation(index, accumulator, this[index])
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element, its index in the original array and current accumulator value that starts with the first element of this array.

@param [operation] function that takes the index of an element, current accumulator value and the element itself, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.runningReduce
*/@SinceKotlin("1.4")@kotlin.internal.InlineOnly
public inline fun
ByteArray.runningReduceIndexed(operation: (index: Int, acc: Byte, Byte) -> Byte): List<Byte> {
    if (isEmpty()) return emptyList()
    var accumulator = this[0]
    val result = ArrayList<Byte>(size).apply {
        add(accumulator)
    }
    for (index in 1 until size) {
        accumulator = operation(index, accumulator, this[index])
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element, its index in the original array and current accumulator value that starts with the first element of this array.

@param [operation] function that takes the index of an element, current accumulator value and the element itself, and calculates the next accumulator value.

@sample

```

samples.collections.Collections.Aggregates.runningReduce
*/@SinceKotlin("1.4")@kotlin.internal.InlineOnly
public inline fun
ShortArray.runningReduceIndexed(operation: (index: Int, acc: Short, Short) -> Short): List<Short> {
    if (isEmpty()) return emptyList()
    var accumulator = this[0]
    val result = ArrayList<Short>(size).apply {
        add(accumulator)
    }
    for (index in 1 until size) {
        accumulator = operation(index, accumulator, this[index])
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element, its index in the original array and current accumulator value that starts with the first element of this array.

@param [operation]

function that takes the index of an element, current accumulator value and the element itself, and calculates the next accumulator value.

```

@sample samples.collections.Collections.Aggregates.runningReduce
*/n@SinceKotlin("1.4")n@kotlin.internal.InlineOnlynpublic inline fun
IntArray.runningReduceIndexed(operation: (index: Int, acc: Int, Int) -> Int): List<Int> {n if (isEmpty()) return
emptyList()n var accumulator = this[0]n val result = ArrayList<Int>(size).apply { add(accumulator)
}n for (index in 1 until size) {n accumulator = operation(index, accumulator, this[index])n
result.add(accumulator)n }n return resultn}n/n/**n * Returns a list containing successive accumulation
values generated by applying [operation] from left to rightn * to each element, its index in the original array and
current accumulator value that starts with the first element of this array.n * n * @param [operation] function that
takes the index of an element, current accumulator value and the element itself, and calculates the next
accumulator value.n * n * @sample samples.collections.Collections.Aggregates.runningReduce
*/n@SinceKotlin("1.4")n@kotlin.internal.InlineOnlynpublic inline fun
LongArray.runningReduceIndexed(operation: (index: Int, acc: Long, Long) -> Long): List<Long> {n if
(isEmpty()) return emptyList()n var accumulator = this[0]n val result = ArrayList<Long>(size).apply {
add(accumulator) }n for (index in 1 until
size) {n accumulator = operation(index, accumulator, this[index])n result.add(accumulator)n }n
return resultn}n/n/**n * Returns a list containing successive accumulation values generated by applying
[operation] from left to rightn * to each element, its index in the original array and current accumulator value that
starts with the first element of this array.n * n * @param [operation] function that takes the index of an element,
current accumulator value and the element itself, and calculates the next accumulator value.n * n * @sample
samples.collections.Collections.Aggregates.runningReduce
*/n@SinceKotlin("1.4")n@kotlin.internal.InlineOnlynpublic inline fun
FloatArray.runningReduceIndexed(operation: (index: Int, acc: Float, Float) -> Float): List<Float> {n if
(isEmpty()) return emptyList()n var accumulator = this[0]n val result = ArrayList<Float>(size).apply {
add(accumulator) }n for (index in 1 until size) {n accumulator
= operation(index, accumulator, this[index])n result.add(accumulator)n }n return resultn}n/n/**n *
Returns a list containing successive accumulation values generated by applying [operation] from left to rightn * to
each element, its index in the original array and current accumulator value that starts with the first element of this
array.n * n * @param [operation] function that takes the index of an element, current accumulator value and
the element itself, and calculates the next accumulator value.n * n * @sample
samples.collections.Collections.Aggregates.runningReduce
*/n@SinceKotlin("1.4")n@kotlin.internal.InlineOnlynpublic inline fun
DoubleArray.runningReduceIndexed(operation: (index: Int, acc: Double, Double) -> Double): List<Double> {n if
(isEmpty()) return emptyList()n var accumulator = this[0]n val result = ArrayList<Double>(size).apply {
add(accumulator) }n for (index in 1 until size) {n accumulator = operation(index,
accumulator, this[index])n result.add(accumulator)n }n return resultn}n/n/**n * Returns a list
containing successive accumulation values generated by applying [operation] from left to rightn * to each element,
its index in the original array and current accumulator value that starts with the first element of this array.n * n *
@param [operation] function that takes the index of an element, current accumulator value and the element
itself, and calculates the next accumulator value.n * n * @sample
samples.collections.Collections.Aggregates.runningReduce
*/n@SinceKotlin("1.4")n@kotlin.internal.InlineOnlynpublic inline fun
BooleanArray.runningReduceIndexed(operation: (index: Int, acc: Boolean, Boolean) -> Boolean): List<Boolean>
{n if (isEmpty()) return emptyList()n var accumulator = this[0]n val result =
ArrayList<Boolean>(size).apply { add(accumulator) }n for (index in 1 until size) {n accumulator =
operation(index, accumulator,
this[index])n result.add(accumulator)n }n return resultn}n/n/**n * Returns a list containing successive
accumulation values generated by applying [operation] from left to rightn * to each element, its index in the original

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array and current accumulator value that starts with the first element of this array.

```

    * \n * @param [operation]
    function that takes the index of an element, current accumulator value
    * and the element itself, and calculates the
    next accumulator value.
    * \n * @sample samples.collections.Collections.Aggregates.runningReduce
    * \n @SinceKotlin("1.4") \n @kotlin.internal.InlineOnly \n public inline fun
    CharArray.runningReduceIndexed(operation: (index: Int, acc: Char, Char) -> Char): List<Char> { \n
    if (isEmpty())
    return emptyList() \n
    var accumulator = this[0] \n
    val result = ArrayList<Char>(size).apply { add(accumulator)
    } \n
    for (index in 1 until size) { \n
    accumulator = operation(index, accumulator, this[index]) \n
    result.add(accumulator) \n
    } \n
    return result \n
    } \n
    * \n * Returns a list containing successive accumulation
    values generated by applying [operation] from left to right
    * to each element and current accumulator value that
    starts with [initial] value.
    * \n * Note that `acc` value passed to [operation] function should not be mutated;
    * otherwise it would affect the previous value in resulting list.
    * \n * @param [operation] function that takes current
    accumulator value and an element, and calculates the next accumulator value.
    * \n * @sample
    samples.collections.Collections.Aggregates.scan
    * \n @SinceKotlin("1.4") \n @WasExperimental(ExperimentalStdlibApi::class) \n public inline fun <T, R>
    Array<out T>.scan(initial: R, operation: (acc: R, T) -> R): List<R> { \n
    return runningFold(initial,
    operation) \n
    } \n
    * \n * Returns a list containing successive accumulation values generated by applying [operation]
    from left to right
    * to each element and current accumulator value that
    starts with [initial] value.
    * \n * Note that `acc` value passed to [operation] function should not be mutated;
    * otherwise it would affect the previous value in resulting list.
    * \n * @param [operation] function that takes current
    accumulator value and an element, and calculates the next accumulator value.
    * \n * @sample
    samples.collections.Collections.Aggregates.scan
    * \n @SinceKotlin("1.4") \n @WasExperimental(ExperimentalStdlibApi::class) \n @kotlin.internal.InlineOnly \n public
    inline fun <R> ByteArray.scan(initial: R, operation: (acc: R, Byte) -> R): List<R> { \n
    return runningFold(initial,
    operation) \n
    } \n
    * \n * Returns a list containing successive accumulation values generated by applying [operation]
    from left to right
    * to each element and current accumulator value that starts with [initial] value.
    * \n * Note that
    `acc` value passed to [operation] function should not be mutated;
    * otherwise it would affect the previous value in
    resulting list.
    * \n * @param
    [operation] function that takes current accumulator value and an element, and calculates the next accumulator
    value.
    * \n * @sample samples.collections.Collections.Aggregates.scan
    * \n @SinceKotlin("1.4") \n @WasExperimental(ExperimentalStdlibApi::class) \n @kotlin.internal.InlineOnly \n public
    inline fun <R> ShortArray.scan(initial: R, operation: (acc: R, Short) -> R): List<R> { \n
    return
    runningFold(initial, operation) \n
    } \n
    * \n * Returns a list containing successive accumulation values generated by
    applying [operation] from left to right
    * to each element and current accumulator value that starts with [initial]
    value.
    * \n * Note that `acc` value passed to [operation] function should not be mutated;
    * otherwise it would
    affect the previous value in resulting list.
    * \n * @param [operation] function that takes current accumulator value
    and an element, and calculates the next accumulator value.
    * \n * @sample
    samples.collections.Collections.Aggregates.scan
    * \n @SinceKotlin("1.4") \n @WasExperimental(ExperimentalStdlibApi::class) \n @kotlin.internal.InlineOnly \n public
    inline fun <R> IntArray.scan(initial: R, operation: (acc: R, Int) -> R): List<R> { \n
    return runningFold(initial,
    operation) \n
    } \n
    * \n * Returns a list containing successive accumulation values generated by applying [operation]
    from left to right
    * to each element and current accumulator value that starts with [initial] value.
    * \n * Note that
    `acc` value passed to [operation] function should not be mutated;
    * otherwise it would affect the previous value in
    resulting list.
    * \n * @param [operation] function that takes current accumulator value and an element, and
    calculates the next accumulator value.
    * \n * @sample samples.collections.Collections.Aggregates.scan
    * \n @SinceKotlin("1.4") \n @WasExperimental(ExperimentalStdlibApi::class) \n @kotlin.internal.InlineOnly \n public
    inline fun <R> LongArray.scan(initial: R, operation: (acc: R, Long) -> R): List<R> { \n
    return
    runningFold(initial,

```

```

operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation]
from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that
`acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*\n*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> FloatArray.scan(initial: R, operation: (acc: R, Float) -> R): List<R> {\n    return
runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by
applying [operation] from left to right\n * to each element and current accumulator
value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be
mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that
takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.scan\n
*\n*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> DoubleArray.scan(initial: R, operation: (acc: R, Double) -> R): List<R> {\n    return
runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by
applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial]
value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value
and an element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.scan\n
*\n*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> BooleanArray.scan(initial: R, operation: (acc: R, Boolean) -> R): List<R> {\n    return
runningFold(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by
applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial]
value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value
and an element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.scan\n
*\n*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> CharArray.scan(initial: R, operation: (acc: R, Char) -> R): List<R> {\n    return runningFold(initial,
operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation]
from left to right\n * to each element, its index in the original array and current accumulator value that starts with
[initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it
would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.scan\n
*\n*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <T, R>
Array<out T>.scanIndexed(initial:
R, operation: (index: Int, acc: R, T) -> R): List<R> {\n    return runningFoldIndexed(initial, operation)\n}\n\n/**\n
 * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to
each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n *
Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the
previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current
accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.scan\n
*\n*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> ByteArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Byte) -> R): List<R> {\n    return

```



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runningFoldIndexed(initial,
    operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation]
from left to right\n * to each element, its index in the original array and current accumulator value that starts with
[initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it
would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an
element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.scan\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> ShortArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Short) -> R): List<R> {\n    return
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values
generated by applying
[operation] from left to right\n * to each element, its index in the original array and current accumulator value that
starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n *
otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the
index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator
value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> IntArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Int) -> R): List<R> {\n    return
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values
generated by applying [operation] from left to right\n * to each element, its index in the original array and current
accumulator
value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be
mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that
takes the index of an element, current accumulator value\n * and the element itself, and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> LongArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Long) -> R): List<R> {\n    return
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values
generated by applying [operation] from left to right\n * to each element, its index in the original array and current
accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function
should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param
[operation] function that takes the index of an element, current accumulator value\n * and the element itself, and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> FloatArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Float) -> R): List<R> {\n    return
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values
generated by applying [operation] from left to right\n * to each element, its index in the original array and current
accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function
should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n *
\n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element
itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.scan\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> DoubleArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Double) -> R): List<R> {\n    return
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values
generated by applying [operation] from left to right\n * to each element, its index in the original array and current
accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function
should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation]

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function that takes the index of an element, current accumulator value\n \*  
and the element itself, and calculates the next accumulator value.\n \* \n \* @sample  
samples.collections.Collections.Aggregates.scan\n

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*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> BooleanArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Boolean) -> R): List<R> {\n
return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns a list containing successive accumulation values
generated by applying [operation] from left to right\n * to each element, its index in the original array and current
accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should
not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the
next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
inline fun <R> CharArray.scanIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): List<R> {\n
return
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun <T>
Array<out T>.sumBy(selector: (T) -> Int): Int {\n
var sum: Int = 0\n
for (element in this) {\n
sum +=
selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
ByteArray.sumBy(selector:
(Byte) -> Int): Int {\n
var sum: Int = 0\n
for (element in this) {\n
sum += selector(element)\n
}\n
return
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the
array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
ShortArray.sumBy(selector: (Short) -> Int): Int {\n
var sum: Int = 0\n
for (element in this) {\n
sum +=
selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
IntArray.sumBy(selector: (Int) -> Int): Int {\n
var sum: Int = 0\n
for (element in this) {\n
sum +=
selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns
the sum of all values produced by [selector] function applied to each element in the array.\n *\n@Deprecated("Use
sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince =
"1.5")\npublic inline fun LongArray.sumBy(selector: (Long) -> Int): Int {\n
var sum: Int = 0\n
for (element in
this) {\n
sum += selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
FloatArray.sumBy(selector: (Float) -> Int): Int {\n
var sum: Int = 0\n
for (element in this) {\n
sum +=
selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince
= "1.5")\npublic inline fun DoubleArray.sumBy(selector: (Double) -> Int): Int {\n
var sum: Int = 0\n
for
(element in this) {\n
sum += selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns the sum of all values
produced by [selector] function applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
BooleanArray.sumBy(selector: (Boolean) -> Int): Int {\n
var sum: Int = 0\n
for (element in this) {\n
sum +=
selector(element)\n
}\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n *\n@Deprecated("Use sumOf instead.",

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ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
CharArray.sumBy(selector: (Char) -> Int): Int {\n    var sum: Int = 0\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all
values produced by [selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf
instead.", ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline
fun <T> Array<out T>.sumByDouble(selector: (T) -> Double): Double {\n    var sum: Double = 0.0\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
ByteArray.sumByDouble(selector: (Byte) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this)
{\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values
produced by [selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
ShortArray.sumByDouble(selector: (Short) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this)
{\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
IntArray.sumByDouble(selector: (Int) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this) {\n
        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector]
function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince
= "1.5")\npublic inline fun LongArray.sumByDouble(selector: (Long) -> Double): Double {\n    var sum: Double
= 0.0\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum
of all values produced by [selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf
instead.", ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline
fun FloatArray.sumByDouble(selector: (Float) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
DoubleArray.sumByDouble(selector: (Double)
-> Double): Double {\n    var sum: Double = 0.0\n    for (element in this) {\n        sum += selector(element)\n    }\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in
the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
BooleanArray.sumByDouble(selector: (Boolean) -> Double): Double {\n    var sum: Double = 0.0\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n */\n\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
CharArray.sumByDouble(selector: (Char) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this)
{\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfDouble")\n@kotlin.internal.InlineOnly\npublic inline fun
<T> Array<out T>.sumOf(selector: (T) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

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ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
ByteArray.sumOf(selector: (Byte) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each
element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
ShortArray.sumOf(selector: (Short) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
IntArray.sumOf(selector: (Int) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in this)
{\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each
element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.sumOf(selector: (Long) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
FloatArray.sumOf(selector: (Float) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector]
function applied to each element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
DoubleArray.sumOf(selector: (Double) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
BooleanArray.sumOf(selector: (Boolean) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for
(element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfDouble\\")\n@kotlin.internal.InlineOnly\npublic inline fun
CharArray.sumOf(selector: (Char) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n@SinceKotlin(\\"1.4\\")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName(\\"sumOfInt\\")\n@kotlin.internal.InlineOnly\npublic inline fun <T>
Array<out T>.sumOf(selector: (T) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n

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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nByteArray.sumOf(selector: (Byte) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function\n    applied to each element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nShortArray.sumOf(selector: (Short) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector]\n    function applied to each element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nIntArray.sumOf(selector: (Int) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function\n    applied to each element in the array.\n
```

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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nLongArray.sumOf(selector: (Long) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each\n    element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nFloatArray.sumOf(selector: (Float) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function\n    applied to each element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nDoubleArray.sumOf(selector: (Double) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in\n    the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nBooleanArray.sumOf(selector: (Boolean) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector]\n    function applied to each element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun\nCharArray.sumOf(selector: (Char) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun\n<T> Array<out T>.sumOf(selector: (T) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this)\n    {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by\n    [selector] function applied to each element in the array.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
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ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
ByteArray.sumOf(selector: (Byte) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the sum of all values produced by [selector] function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
ShortArray.sumOf(selector: (Short) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the sum of all values produced by [selector]
function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
IntArray.sumOf(selector: (Int) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns
the sum of all values produced by [selector] function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.sumOf(selector: (Long) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the sum of all values produced by [selector]
function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
FloatArray.sumOf(selector: (Float) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the
sum of all values produced by [selector] function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
DoubleArray.sumOf(selector: (Double) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this)
{\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
BooleanArray.sumOf(selector: (Boolean) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this)
{\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the
sum of all values produced by [selector] function applied to each element in the array.\n
*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
CharArray.sumOf(selector: (Char) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
* Returns the sum of all values produced by [selector]
function applied to each element in the array.\n
*\n\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType
s::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> UInt): UInt {\n
var sum: UInt = 0.toUInt()\n    for (element in this) {\n    sum += selector(element)\n
}\n    return sum\n}\n\n/**\n
* Returns the sum of all values produced by [selector] function applied to each
element in the array.\n
*\n\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("\sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType
s::class)\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> UInt): UInt {\n    var

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sum: UInt = 0.toUInt()\n  for (element in this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> UInt): UInt {\n  var sum: UInt = 0.toUInt()\n  for (element in this) {\n    sum += selector(element)\n  }\n  return\nsum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the\n array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> UInt): UInt {\n  var\nsum: UInt = 0.toUInt()\n  for (element in this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic\ninline fun LongArray.sumOf(selector: (Long) -> UInt): UInt {\n  var sum: UInt = 0.toUInt()\n  for (element in\nthis) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by\n [selector] function applied to each element in the array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> UInt): UInt {\n  var\nsum: UInt = 0.toUInt()\n  for (element in this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic\ninline fun DoubleArray.sumOf(selector: (Double) -> UInt): UInt {\n  var sum: UInt = 0.toUInt()\n  for (element\nin this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced\n by [selector] function applied to each element in the array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> UInt): UInt\n{\n  var sum: UInt = 0.toUInt()\n  for (element in this) {\n    sum += selector(element)\n  }\n  return\nsum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the\n array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType\ns::class)\n@kotlin.internal.InlineOnly\npublic\ninline fun CharArray.sumOf(selector: (Char) -> UInt): UInt {\n  var sum: UInt = 0.toUInt()\n  for (element in\nthis) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by\n [selector] function applied to each element in the array.\n */\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTy\npes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Array<out T>.sumOf(selector: (T) -> ULong):\nULong {\n  var sum: ULong = 0.toULong()\n  for (element in this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all

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values produced by [selector] function applied to each element in the array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ByteArray.sumOf(selector: (Byte) -> ULong): ULong
{\n    var sum: ULong = 0.toULong()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the
array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ShortArray.sumOf(selector: (Short) -> ULong): ULong
{\n    var sum: ULong = 0.toULong()\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each element in the array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun IntArray.sumOf(selector: (Int) -> ULong): ULong {\n
var sum: ULong = 0.toULong()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the
array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.sumOf(selector: (Long) -> ULong): ULong {\n    var sum: ULong = 0.toULong()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun FloatArray.sumOf(selector: (Float) -> ULong): ULong
{\n    var sum: ULong = 0.toULong()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the
array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic
inline fun DoubleArray.sumOf(selector: (Double) -> ULong): ULong {\n    var sum: ULong = 0.toULong()\n    for
(element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values
produced by [selector] function applied to each element in the array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun BooleanArray.sumOf(selector: (Boolean) -> ULong):
ULong {\n    var sum: ULong = 0.toULong()\n    for (element in this) {\n        sum += selector(element)\n    }\n
    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in
the array.\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic
inline fun CharArray.sumOf(selector: (Char) -> ULong): ULong {\n    var sum: ULong = 0.toULong()\n    for
(element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns an original collection

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containing all the non-`null` elements, throwing an [IllegalArgumentException] if there are any `null` elements.\n
*\npublic fun <T : Any> Array<T>.requireNoNulls(): Array<T> {\n    for (element in this) {\n        if (element ==\n        null) {\n            throw IllegalArgumentException("null element found in $this.")\n        }\n    }\n    @Suppress("UNCHECKED_CAST")\n    return this as Array<T>\n}\n\n/**\n * Splits the original array into pair\n of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list\n contains elements for which [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun <T> Array<out\n T>.partition(predicate: (T) -> Boolean): Pair<List<T>, List<T>> {\n    val first = ArrayList<T>()\n    val second =\n    ArrayList<T>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        } else {\n            second.add(element)\n        }\n    }\n    return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair\n of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains\n elements for which [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun\n ByteArray.partition(predicate: (Byte) -> Boolean): Pair<List<Byte>, List<Byte>> {\n    val first =\n    ArrayList<Byte>()\n    val second = ArrayList<Byte>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        } else {\n            second.add(element)\n        }\n    }\n    return Pair(first, second)\n}\n\n/**\n * Splits the original array into pair of\n lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains\n elements for which [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun\n ShortArray.partition(predicate: (Short) -> Boolean): Pair<List<Short>, List<Short>> {\n    val first =\n    ArrayList<Short>()\n    val second = ArrayList<Short>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        } else {\n            second.add(element)\n        }\n    }\n    return Pair(first,\n    second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which\n [predicate]\n yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun\n IntArray.partition(predicate: (Int) -> Boolean): Pair<List<Int>, List<Int>> {\n    val first = ArrayList<Int>()\n    val\n    second = ArrayList<Int>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        }\n        else {\n            second.add(element)\n        }\n    }\n    return Pair(first, second)\n}\n\n/**\n * Splits the original\n array into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while\n *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun\n LongArray.partition(predicate: (Long) -> Boolean): Pair<List<Long>, List<Long>> {\n    val first =\n    ArrayList<Long>()\n    val second = ArrayList<Long>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        } else {\n            second.add(element)\n        }\n    }\n    return Pair(first,\n    second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first* list contains elements for which\n [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun\n FloatArray.partition(predicate: (Float) -> Boolean): Pair<List<Float>, List<Float>> {\n    val first =\n    ArrayList<Float>()\n    val second = ArrayList<Float>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        } else {\n            second.add(element)\n        }\n    }\n    return Pair(first,\n    second)\n}\n\n/**\n * Splits the original array into pair of lists,\n * where *first*\n list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which\n [predicate] yielded `false`.\n * \n * @sample\n samples.collections.Arrays.Transformations.partitionArrayOfPrimitives\n */\npublic inline fun\n DoubleArray.partition(predicate: (Double) -> Boolean): Pair<List<Double>, List<Double>> {\n    val first =

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ArrayList<Double>() \n val second = ArrayList<Double>() \n for (element in this) { \n     if (predicate(element))
{\n         first.add(element)\n     } else {\n         second.add(element)\n     } \n } \n return Pair(first,
second)\n}\n\n/** \n * Splits the original array into pair of lists, \n * where *first* list contains elements for which
[predicate] yielded `true`, \n * while *second* list contains elements for which [predicate] yielded `false`. \n * \n *
@sample samples.collections.Arrays.Transformations.partitionArrayOfPrimitives \n */ \n public inline fun
BooleanArray.partition(predicate: (Boolean) -> Boolean):
Pair<List<Boolean>, List<Boolean>> { \n     val first = ArrayList<Boolean>() \n     val second =
ArrayList<Boolean>() \n     for (element in this) { \n         if (predicate(element)) {\n             first.add(element)\n         }
else {\n             second.add(element)\n         } \n     } \n     return Pair(first, second)\n}\n\n/** \n * Splits the original array
into pair of lists, \n * where *first* list contains elements for which [predicate] yielded `true`, \n * while *second* list
contains elements for which [predicate] yielded `false`. \n * \n * @sample
samples.collections.Arrays.Transformations.partitionArrayOfPrimitives \n */ \n public inline fun
CharArray.partition(predicate: (Char) -> Boolean): Pair<List<Char>, List<Char>> { \n     val first =
ArrayList<Char>() \n     val second = ArrayList<Char>() \n     for (element in this) { \n         if (predicate(element)) {\n
            first.add(element)\n         } else {\n             second.add(element)\n         } \n     } \n     return Pair(first,
second)\n}\n\n/** \n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index. \n * The
returned list has length of the shortest collection. \n * \n * @sample
samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <T, R> Array<out T>.zip(other:
Array<out R>): List<Pair<T, R>> { \n     return zip(other) { t1, t2 -> t1 to t2 } \n } \n\n/** \n * Returns a list of pairs
built from the elements of `this` array and the [other] array with the same index. \n * The returned list has length of
the shortest collection. \n * \n * @sample samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun
<R> ByteArray.zip(other: Array<out R>): List<Pair<Byte, R>> { \n     return zip(other) { t1, t2 -> t1 to t2
} \n } \n\n/** \n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same
index. \n * The returned list has length of the shortest collection. \n * \n * @sample
samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R> ShortArray.zip(other: Array<out R>): List<Pair<Short, R>> { \n
return zip(other) { t1, t2 -> t1 to t2 } \n } \n\n/** \n * Returns a list of pairs built from the elements of `this` array and the
[other] array with the same index. \n * The returned list has length of the shortest collection. \n * \n * @sample
samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R> IntArray.zip(other: Array<out R>):
List<Pair<Int, R>> { \n     return zip(other) { t1, t2 -> t1 to t2 } \n } \n\n/** \n * Returns a list of pairs built from the
elements of `this` array and the [other] array with the same index. \n * The returned list has length of the shortest
collection. \n * \n * @sample samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R>
LongArray.zip(other: Array<out R>): List<Pair<Long, R>> { \n     return zip(other) { t1, t2 -> t1 to t2 } \n } \n\n/** \n * Returns a list of pairs built from the elements of `this` array and the
[other] array with the same index. \n * The returned list has length of the shortest collection. \n * \n * @sample
samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R> FloatArray.zip(other: Array<out
R>): List<Pair<Float, R>> { \n     return zip(other) { t1, t2 -> t1 to t2 } \n } \n\n/** \n * Returns a list of pairs built from
the elements of `this` array and the [other] array with the same index. \n * The returned list has length of the shortest
collection. \n * \n * @sample samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R>
DoubleArray.zip(other: Array<out R>): List<Pair<Double, R>> { \n     return zip(other) { t1, t2 -> t1 to t2
} \n } \n\n/** \n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same
index. \n * The returned list has length of the shortest collection. \n * \n * @sample
samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R> BooleanArray.zip(other: Array<out
R>):
List<Pair<Boolean, R>> { \n     return zip(other) { t1, t2 -> t1 to t2 } \n } \n\n/** \n * Returns a list of pairs built from
the elements of `this` array and the [other] array with the same index. \n * The returned list has length of the shortest
collection. \n * \n * @sample samples.collections.Iterables.Operations.zipIterable \n */ \n public infix fun <R>

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CharArray.zip(other: Array<out R>): List<Pair<Char, R>> {\n  return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <T, R, V> Array<out T>.zip(other: Array<out R>, transform: (a: T, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> ByteArray.zip(other: Array<out R>, transform: (a: Byte, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> ShortArray.zip(other: Array<out R>, transform: (a: Short, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> IntArray.zip(other: Array<out R>, transform: (a: Int, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> LongArray.zip(other: Array<out R>, transform: (a: Long, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> FloatArray.zip(other: Array<out R>, transform: (a: Float, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> DoubleArray.zip(other: Array<out R>, transform: (a: Double, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n    list.add(transform(this[i], other[i]))\n  }\n  return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n */\npublic inline fun <R, V> BooleanArray.zip(other: Array<out R>, transform: (a: Boolean, b: R) -> V): List<V> {\n  val size = minOf(size, other.size)\n  val list = ArrayList<V>(size)\n  for (i in 0 until size) {\n

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T>.zip(other: Iterable<R>, transform: (a: T, b: R) -> V): List<V> {\n    val arraySize = size\n    val list =
ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n    var i = 0\n    for (element in other) {\n
if (i >= arraySize) break\n        list.add(transform(this[i++], element))\n    }\n    return list\n}\n\n/**\n * Returns a
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other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i], other[i]))\n
}\n    return list\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the
given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value
of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string
(which defaults to "...").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n *\npublic fun
<T, A : Appendable> Array<out T>.joinTo(buffer: A, separator: CharSequence = "\", \"", prefix: CharSequence = "\",
postfix: CharSequence = "\", limit: Int = -1, truncated: CharSequence = "...", transform: ((T) -> CharSequence)? =
null): A {\n    buffer.append(prefix)\n    var count = 0\n    for (element in this) {\n        if (++count > 1)
buffer.append(separator)\n        if (limit < 0 ||
count <= limit) {\n            buffer.appendElement(element, transform)\n        } else break\n    }\n    if (limit >= 0 &&
count > limit) buffer.append(truncated)\n    buffer.append(postfix)\n    return buffer\n}\n\n/**\n * Appends the
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[limit]\n * elements will be appended, followed by the [truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinTo\n *\npublic fun <A : Appendable>
ByteArray.joinTo(buffer: A, separator: CharSequence = "\", \"", prefix: CharSequence = "\", postfix: CharSequence =
\"", limit: Int = -1, truncated: CharSequence = "...", transform: ((Byte) -> CharSequence)? = null): A {\n
buffer.append(prefix)\n    var count = 0\n    for (element in this) {\n        if (++count >

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```

1) buffer.append(separator)\n    if (limit < 0 || count <= limit) {\n        if (transform != null)\nbuffer.append(transform(element))\n        else\n            buffer.append(element.toString())\n    } else break\n}\n if (limit >= 0 && count > limit) buffer.append(truncated)\n buffer.append(postfix)\n return
buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given
[prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of
[limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which
defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n * \npublic fun <A :
Appendable> ShortArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix:
CharSequence = \"\", limit: Int = -1, truncated: CharSequence =
\"...\", transform: ((Short) -> CharSequence)? = null): A {\n    buffer.append(prefix)\n    var count = 0\n    for
(element in this) {\n        if (++count > 1) buffer.append(separator)\n        if (limit < 0 || count <= limit) {\n            if
(transform != null)\n                buffer.append(transform(element))\n            else\nbuffer.append(element.toString())\n        } else break\n    }\n    if (limit >= 0 && count > limit)
buffer.append(truncated)\n    buffer.append(postfix)\n    return buffer\n}\n\n/**\n * Appends the string from all the
elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection
could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will
be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample
samples.collections.Collections.Transformations.joinTo\n * \npublic fun <A : Appendable> IntArray.joinTo(buffer:
A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1,
truncated: CharSequence = \"...\", transform: ((Int) -> CharSequence)? = null): A {\n    buffer.append(prefix)\n    var
count = 0\n    for (element in this) {\n        if (++count > 1) buffer.append(separator)\n        if (limit < 0 || count <=
limit) {\n            if (transform != null)\n                buffer.append(transform(element))\n            else\nbuffer.append(element.toString())\n        } else break\n    }\n    if (limit >= 0 && count > limit)
buffer.append(truncated)\n    buffer.append(postfix)\n    return buffer\n}\n\n/**\n * Appends the string from all the
elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection
could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will
be appended, followed by the [truncated]
string (which defaults to \"...\").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n * \npublic fun <A : Appendable> LongArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix:
CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated: CharSequence = \"...\", transform:
((Long) -> CharSequence)? = null): A {\n    buffer.append(prefix)\n    var count = 0\n    for (element in this) {\n
if (++count > 1) buffer.append(separator)\n        if (limit < 0 || count <= limit) {\n            if (transform != null)\n                buffer.append(transform(element))\n            else\n                buffer.append(element.toString())\n        } else
break\n    }\n    if (limit >= 0 && count > limit) buffer.append(truncated)\n    buffer.append(postfix)\n    return
buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given
[prefix] and [postfix] if supplied.\n * \n * If the collection
could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will
be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n * @sample
samples.collections.Collections.Transformations.joinTo\n * \npublic fun <A : Appendable>
FloatArray.joinTo(buffer: A, separator: CharSequence = \", \", prefix: CharSequence = \"\", postfix: CharSequence =
\"\", limit: Int = -1, truncated: CharSequence = \"...\", transform: ((Float) -> CharSequence)? = null): A {\n
buffer.append(prefix)\n    var count = 0\n    for (element in this) {\n        if (++count > 1) buffer.append(separator)\n
        if (limit < 0 || count <= limit) {\n            if (transform != null)\n                buffer.append(transform(element))\n            else\n                buffer.append(element.toString())\n        } else
break\n    }\n    if (limit >= 0 && count > limit)
buffer.append(truncated)\n    buffer.append(postfix)\n    return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if
supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only
the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to \"...\").\n * \n *

```



```

@sample samples.collections.Collections.Transformations.joinTo\n *\npublic fun <A : Appendable>
DoubleArray.joinTo(buffer: A, separator: CharSequence = "\", \", prefix: CharSequence = "\"", postfix:
CharSequence = "\"", limit: Int = -1, truncated: CharSequence = "\"...\"", transform: ((Double) -> CharSequence)? =
null): A {\n  buffer.append(prefix)\n  var count = 0\n  for (element in this) {\n    if (++count > 1)
buffer.append(separator)\n    if (limit < 0 || count <= limit) {\n      if (transform != null)\nbuffer.append(transform(element))\n      else\n        buffer.append(element.toString())\n    } else break\n  }\n  if (limit >= 0 && count > limit) buffer.append(truncated)\n  buffer.append(postfix)\n}
return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given
[prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of
[limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string (which
defaults to "\"...\"").\n * \n * @sample samples.collections.Collections.Transformations.joinTo\n *\npublic fun <A :
Appendable> BooleanArray.joinTo(buffer: A, separator: CharSequence = "\", \", prefix: CharSequence = "\"",
postfix: CharSequence = "\"", limit: Int = -1, truncated: CharSequence = "\"...\"", transform: ((Boolean) ->
CharSequence)? = null): A {\n  buffer.append(prefix)\n  var count = 0\n  for (element in this) {\n    if (++count
> 1) buffer.append(separator)\n    if (limit < 0
|| count <= limit) {\n      if (transform != null)\n        buffer.append(transform(element))\n      else\n
buffer.append(element.toString())\n    } else break\n  }\n  if (limit >= 0 && count > limit)
buffer.append(truncated)\n  buffer.append(postfix)\n}
return buffer\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection
could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will
be appended, followed by the [truncated] string (which defaults to "\"...\"").\n * \n * @sample
samples.collections.Collections.Transformations.joinTo\n *\npublic fun <A : Appendable>
CharArray.joinTo(buffer: A, separator: CharSequence = "\", \", prefix: CharSequence = "\"", postfix: CharSequence =
\"", limit: Int = -1, truncated: CharSequence = "\"...\"", transform: ((Char) -> CharSequence)? = null):
A {\n  buffer.append(prefix)\n  var count = 0\n  for (element in this) {\n    if (++count > 1)
buffer.append(separator)\n    if (limit < 0 || count <= limit) {\n      if (transform != null)\nbuffer.append(transform(element))\n      else\n        buffer.append(element)\n    } else break\n  }\n  if
(limit >= 0 && count > limit) buffer.append(truncated)\n  buffer.append(postfix)\n}
return buffer\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if
supplied.\n * \n * If the collection could be huge, you can specify a non-negative value of [limit], in which case only
the first [limit]\n * elements will be appended, followed by the [truncated] string (which defaults to "\"...\"").\n * \n *
@sample samples.collections.Collections.Transformations.joinToString\n *\npublic fun <T> Array<out
T>.joinToString(separator: CharSequence = "\", \", prefix: CharSequence
= "\"", postfix: CharSequence = "\"", limit: Int = -1, truncated: CharSequence = "\"...\"", transform: ((T) ->
CharSequence)? = null): String {\n  return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated,
transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the
given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value
of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string
(which defaults to "\"...\"").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n
*\npublic fun ByteArray.joinToString(separator: CharSequence = "\", \", prefix: CharSequence = "\"", postfix:
CharSequence = "\"", limit: Int = -1, truncated: CharSequence = "\"...\"", transform: ((Byte) -> CharSequence)? =
null): String {\n  return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated,
transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the
given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value
of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string
(which defaults to "\"...\"").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n
*\npublic fun ShortArray.joinToString(separator: CharSequence = "\", \", prefix: CharSequence = "\"", postfix:
CharSequence = "\"", limit: Int = -1, truncated: CharSequence = "\"...\"", transform: ((Short) -> CharSequence)? =

```

```

null): String {\n    return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated,
transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the
given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can
specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed
by the [truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinToString\n
*/\npublic fun IntArray.joinToString(separator:
CharSequence = "\", \"\", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated:
CharSequence = "...\", transform: ((Int) -> CharSequence)? = null): String {\n    return joinTo(StringBuilder(),
separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements
separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be
huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be
appended, followed by the [truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinToString\n
*/\npublic fun LongArray.joinToString(separator: CharSequence = "\", \"\", prefix: CharSequence = \"\", postfix:
CharSequence = \"\", limit: Int = -1, truncated: CharSequence = "...\", transform: ((Long) -> CharSequence)? =
null): String {\n    return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated,
transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and using the
given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-negative value
of [limit], in which case only the first [limit]\n * elements will be appended, followed by the [truncated] string
(which defaults to "...").\n * \n * @sample samples.collections.Collections.Transformations.joinToString\n
*/\npublic fun FloatArray.joinToString(separator: CharSequence = "\", \"\", prefix: CharSequence = \"\", postfix:
CharSequence = \"\", limit: Int = -1, truncated: CharSequence = "...\", transform:
((Float) -> CharSequence)? = null): String {\n    return joinTo(StringBuilder(), separator, prefix, postfix, limit,
truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements separated using [separator] and
using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-
negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the
[truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinToString\n
*/\npublic fun DoubleArray.joinToString(separator:
CharSequence = "\", \"\", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated:
CharSequence = "...\", transform: ((Double) -> CharSequence)? = null): String {\n    return joinTo(StringBuilder(),
separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates a string from all the elements
separated
using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you
can specify a non-negative value of [limit], in which case only the first [limit]\n * elements will be appended,
followed by the [truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinToString\n
*/\npublic fun
BooleanArray.joinToString(separator: CharSequence = "\", \"\", prefix: CharSequence = \"\", postfix: CharSequence =
\"\", limit: Int = -1, truncated: CharSequence = "...\", transform: ((Boolean) -> CharSequence)? = null): String {\n
return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates
a string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n
* If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first
[limit]\n
* elements will be appended, followed by the [truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinToString\n
*/\npublic fun CharArray.joinToString(separator:
CharSequence = "\", \"\", prefix: CharSequence = \"\", postfix: CharSequence = \"\", limit: Int = -1, truncated:
CharSequence = "...\", transform: ((Char) -> CharSequence)? = null): String {\n    return joinTo(StringBuilder(),
separator, prefix, postfix, limit, truncated, transform).toString()\n}\n\n/**\n * Creates an [Iterable] instance that
wraps the original array returning its elements when being iterated.\n */\npublic fun <T> Array<out T>.asIterable():

```

```

Iterable<T> {\n  if (isEmpty()) return emptyList()\n  return Iterable { this.iterator() }\n}\n\n/**\n * Creates an
[Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun
ByteArray.asIterable(): Iterable<Byte> {\n  if (isEmpty()) return emptyList()\n  return
Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its
elements when being iterated.\n */\npublic fun ShortArray.asIterable(): Iterable<Short> {\n  if (isEmpty()) return
emptyList()\n  return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original
array returning its elements when being iterated.\n */\npublic fun IntArray.asIterable(): Iterable<Int> {\n  if
(isEmpty()) return emptyList()\n  return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that
wraps the original array returning its elements when being iterated.\n */\npublic fun LongArray.asIterable():
Iterable<Long> {\n  if (isEmpty()) return emptyList()\n  return Iterable { this.iterator() }\n}\n\n/**\n * Creates an
[Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun
FloatArray.asIterable(): Iterable<Float> {\n  if (isEmpty())
return emptyList()\n  return Iterable { this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the
original array returning its elements when being iterated.\n */\npublic fun DoubleArray.asIterable():
Iterable<Double> {\n  if (isEmpty()) return emptyList()\n  return Iterable { this.iterator() }\n}\n\n/**\n * Creates
an [Iterable] instance that wraps the original array returning its elements when being iterated.\n */\npublic fun
BooleanArray.asIterable(): Iterable<Boolean> {\n  if (isEmpty()) return emptyList()\n  return Iterable {
this.iterator() }\n}\n\n/**\n * Creates an [Iterable] instance that wraps the original array returning its elements when
being iterated.\n */\npublic fun CharArray.asIterable(): Iterable<Char> {\n  if (isEmpty()) return emptyList()\n
return Iterable { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning
its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun <T> Array<out T>.asSequence(): Sequence<T> {\n  if (isEmpty()) return emptySequence()\n
return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning
its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun ByteArray.asSequence(): Sequence<Byte> {\n  if (isEmpty()) return emptySequence()\n  return
Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its
elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun ShortArray.asSequence(): Sequence<Short> {\n  if (isEmpty()) return emptySequence()\n  return
Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its
elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun IntArray.asSequence(): Sequence<Int> {\n  if (isEmpty()) return emptySequence()\n  return
Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its
elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun LongArray.asSequence(): Sequence<Long> {\n  if (isEmpty()) return emptySequence()\n  return
Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its
elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun FloatArray.asSequence(): Sequence<Float> {\n  if (isEmpty()) return emptySequence()\n  return
Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning its
elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun DoubleArray.asSequence(): Sequence<Double> {\n  if (isEmpty()) return emptySequence()\n
return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning
its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun BooleanArray.asSequence(): Sequence<Boolean> {\n  if (isEmpty()) return emptySequence()\n
return Sequence { this.iterator() }\n}\n\n/**\n * Creates a [Sequence] instance that wraps the original array returning
its elements when being iterated.\n * \n * @sample samples.collections.Sequences.Building.sequenceFromArray\n
*/\npublic fun CharArray.asSequence(): Sequence<Char> {\n  if (isEmpty()) return emptySequence()\n  return
Sequence { this.iterator() }\n}\n\n/**\n * Returns an average value of elements in the array.\n
*/\n\n@kotlin.jvm.JvmName("averageOfByte")\npublic fun Array<out Byte>.average():

```

```

Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

@kotlin.jvm.JvmName("averageOfShort")
public fun Array<out Short>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

@kotlin.jvm.JvmName("averageOfInt")
public fun Array<out Int>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

@kotlin.jvm.JvmName("averageOfLong")
public fun Array<out Long>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

@kotlin.jvm.JvmName("averageOfFloat")
public fun Array<out Float>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

@kotlin.jvm.JvmName("averageOfDouble")
public fun Array<out Double>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

public fun ByteArray.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

public fun ShortArray.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

public fun IntArray.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

public fun LongArray.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

public fun FloatArray.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

public fun DoubleArray.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        ++count
    }
    return if (count == 0) Double.NaN else sum / count
}

@kotlin.jvm.JvmName("sumOfByte")
public fun Array<out Byte>.sum(): Int {
    var sum: Int = 0
    for (element in this) {
        sum += element
    }
    return sum
}

@kotlin.jvm.JvmName("sumOfShort")
public fun Array<out Short>.sum(): Int {
    var sum: Int = 0
    for (element in this) {
        sum += element
    }
    return sum
}

@kotlin.jvm.JvmName("sumOfInt")
public fun Array<out Int>.sum(): Int {
    var sum: Int = 0
    for (element in this) {
        sum += element
    }
    return sum
}

@kotlin.jvm.JvmName("sumOfLong")
public fun Array<out Long>.sum(): Long {
    var sum: Long = 0L
    for (element in this) {
        sum += element
    }
    return sum
}

@kotlin.jvm.JvmName("sumOfFloat")
public fun Array<out Float>.sum(): Float {
    var sum: Float = 0.0f
    for (element in this) {
        sum += element
    }
    return sum
}

@kotlin.jvm.JvmName("sumOfDouble")
public fun Array<out Double>.sum(): Double {
    var sum: Double = 0.0
    for (element in this) {
        sum += element
    }
    return sum
}

```

```

ByteArray.sum(): Int {
    var sum: Int = 0
    for (element in this) {
        sum += element
    }
    return sum
}

/** Returns the sum of all elements in the array. */
public fun ShortArray.sum(): Int {
    var sum: Int = 0
    for (element in this) {
        sum += element
    }
    return sum
}

/** Returns the sum of all elements in the array. */
public fun IntArray.sum(): Int {
    var sum: Int = 0
    for (element in this) {
        sum += element
    }
    return sum
}

/** Returns the sum of all elements in the array. */
public fun LongArray.sum(): Long {
    var sum: Long = 0L
    for (element in this) {
        sum += element
    }
    return sum
}

/** Returns the sum of all elements in the array. */
public fun FloatArray.sum(): Float {
    var sum: Float = 0.0f
    for (element in this) {
        sum += element
    }
    return sum
}

/** Returns the sum of all elements in the array. */
public fun DoubleArray.sum(): Double {
    var sum: Double = 0.0
    for (element in this) {
        sum += element
    }
    return sum
}
}

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 */

@file:kotlin.jvm.JvmMultifileClass
@file:kotlin.jvm.JvmName("RangesKt")
package kotlin.ranges

// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt
// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib
import kotlin.random.*

/** Returns the first element.
 * @throws NoSuchElementException if the progression is empty.
 */
@SinceKotlin("1.7")
public fun IntProgression.first(): Int {
    if (isEmpty()) throw NoSuchElementException("Progression $this is empty.")
    return this.first
}

/** Returns the first element.
 * @throws NoSuchElementException if the progression is empty.
 */
@SinceKotlin("1.7")
public fun LongProgression.first(): Long {
    if (isEmpty()) throw NoSuchElementException("Progression $this is empty.")
    return this.first
}

/** Returns the first element.
 * @throws NoSuchElementException if the progression is empty.
 */
@SinceKotlin("1.7")
public fun CharProgression.first(): Char {
    if (isEmpty()) throw NoSuchElementException("Progression $this is empty.")
    return this.first
}

/** Returns the first element, or `null` if the progression is empty.
 */
@SinceKotlin("1.7")
public fun IntProgression.firstOrNull(): Int? {
    return if (isEmpty()) null else this.first
}

/** Returns the first element, or `null` if the progression is empty.
 */
@SinceKotlin("1.7")
public fun LongProgression.firstOrNull(): Long? {
    return if (isEmpty()) null else this.first
}

/** Returns the first element, or `null` if the progression is empty.
 */
@SinceKotlin("1.7")
public fun CharProgression.firstOrNull(): Char? {
    return if (isEmpty()) null else this.first
}

/** Returns the last element.
 * @throws NoSuchElementException if the progression is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.7")
public fun IntProgression.last(): Int {
    if (isEmpty()) throw NoSuchElementException("Progression $this is empty.")
    return this.last
}

/** Returns the last element.
 * @throws NoSuchElementException if the progression is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.7")
public fun LongProgression.last(): Long {
    if (isEmpty()) throw NoSuchElementException("Progression $this is empty.")
    return this.last
}

/** Returns the last element.
 * @throws NoSuchElementException if the progression is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.7")
public fun CharProgression.last(): Char {
    if (isEmpty()) throw NoSuchElementException("Progression $this is empty.")
    return this.last
}

/** Returns the last element, or `null` if the progression is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.7")
public fun IntProgression.lastOrNull(): Int? {
    return if (isEmpty()) null else this.last
}

/** Returns the last element, or `null` if the progression is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.7")
public fun LongProgression.lastOrNull(): Long? {
    return if (isEmpty()) null else this.last
}

/** Returns the last element, or `null` if the progression is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.7")
public fun CharProgression.lastOrNull(): Char? {
    return if (isEmpty()) null else this.last
}

```

```

element from this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun IntRange.random(): Int {\n    return
random(Random)\n}\n\n/**\n * Returns a random element from this range.\n * \n * @throws
IllegalArgumentException if this range is empty.\n * \n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline fun LongRange.random(): Long {\n    return random(Random)\n}\n\n/**\n * Returns a random element from
this range.\n * \n * @throws IllegalArgumentException if this range is empty.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun CharRange.random(): Char {\n    return
random(Random)\n}\n\n/**\n
 * Returns a random element from this range using the specified source of randomness.\n * \n * @throws
IllegalArgumentException if this range is empty.\n * \n@SinceKotlin("1.3")\npublic fun
IntRange.random(random: Random): Int {\n    try {\n        return random.nextInt(this)\n    } catch(e:
IllegalArgumentException) {\n        throw NoSuchElementException(e.message)\n    }\n}\n\n/**\n * Returns a
random element from this range using the specified source of randomness.\n * \n * @throws
IllegalArgumentException if this range is empty.\n * \n@SinceKotlin("1.3")\npublic fun
LongRange.random(random: Random): Long {\n    try {\n        return random.nextLong(this)\n    } catch(e:
IllegalArgumentException) {\n        throw NoSuchElementException(e.message)\n    }\n}\n\n/**\n * Returns a
random element from this range using the specified source of randomness.\n * \n * @throws
IllegalArgumentException if this range is empty.\n * \n@SinceKotlin("1.3")\npublic fun
CharRange.random(random:
Random): Char {\n    try {\n        return random.nextInt(first.code, last.code + 1).toChar()\n    } catch(e:
IllegalArgumentException) {\n        throw NoSuchElementException(e.message)\n    }\n}\n\n/**\n * Returns a
random element from this range, or `null` if this range is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun IntRange.randomOrNull(): Int? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random
element from this range, or `null` if this range is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun LongRange.randomOrNull(): Long? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a
random element from this range, or `null` if this range is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun CharRange.randomOrNull():
Char? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range using the
specified source of randomness, or `null` if this range is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
IntRange.randomOrNull(random: Random): Int? {\n    if (isEmpty())\n        return null\n    return
random.nextInt(this)\n}\n\n/**\n * Returns a random element from this range using the specified source of
randomness, or `null` if this range is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
LongRange.randomOrNull(random: Random): Long? {\n    if (isEmpty())\n        return null\n    return
random.nextLong(this)\n}\n\n/**\n * Returns a random element from this range using the specified source of
randomness, or `null` if this range is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
CharRange.randomOrNull(random: Random): Char? {\n    if
(isEmpty())\n        return null\n    return random.nextInt(first.code, last.code + 1).toChar()\n}\n\n/**\n * Returns
`true` if this range contains the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline operator fun IntRange.contains(element:
Int?): Boolean {\n    return element != null && contains(element)\n}\n\n/**\n * Returns `true` if this range contains
the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline operator fun LongRange.contains(element:

```

Long?): Boolean {  
return element != null && contains(element)}  
Returns `true` if this range contains the specified [element].  
Always returns `false` if the [element] is `null`.

`@SinceKotlin("1.3")`  
`@kotlin.internal.InlineOnly`  
public inline operator fun CharRange.contains(element: Char?): Boolean {  
return element != null && contains(element)}  
Checks if the specified [value] belongs to this range.

`@kotlin.jvm.JvmName("intRangeContains")`  
public operator fun ClosedRange<Int>.contains(value: Byte): Boolean {  
return contains(value.toInt())}  
Checks if the specified [value] belongs to this range.

`@kotlin.jvm.JvmName("longRangeContains")`  
public operator fun ClosedRange<Long>.contains(value: Byte): Boolean {  
return contains(value.toLong())}  
Checks if the specified [value] belongs to this range.

`@kotlin.jvm.JvmName("shortRangeContains")`  
public operator fun ClosedRange<Short>.contains(value: Byte): Boolean {  
return contains(value.toShort())}  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("doubleRangeContains")`  
public operator fun ClosedRange<Double>.contains(value: Byte): Boolean {  
return contains(value.toDouble())}  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("floatRangeContains")`  
public operator fun ClosedRange<Float>.contains(value: Byte): Boolean {  
return contains(value.toFloat())}  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("intRangeContains")`  
public operator fun ClosedRange<Int>.contains(value: Double): Boolean {  
return value.toIntExactOrNull().let { if (it != null) contains(it) else false }  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("longRangeContains")`  
public operator fun ClosedRange<Long>.contains(value: Double): Boolean {  
return value.toLongExactOrNull().let { if (it != null) contains(it) else false }  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("byteRangeContains")`  
public operator fun ClosedRange<Byte>.contains(value: Double): Boolean {  
return value.toByteExactOrNull().let { if (it != null) contains(it) else false }  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("shortRangeContains")`  
public operator fun ClosedRange<Short>.contains(value: Double): Boolean {  
return value.toShortExactOrNull().let { if (it != null) contains(it) else false }  
Checks if the specified [value] belongs to this range.

`@kotlin.jvm.JvmName("floatRangeContains")`  
public operator fun ClosedRange<Float>.contains(value: Double): Boolean {  
return contains(value.toFloat())}  
Checks if the specified [value] belongs to this range.

`@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")`  
`@DeprecatedSinceKotlin(warningSince = "1.3", errorSince = "1.4", hiddenSince = "1.5")`  
`@kotlin.jvm.JvmName("intRangeContains")`  
public operator fun ClosedRange<Int>.contains(value: Float): Boolean {  
return value.toIntExactOrNull().let { if (it != null) contains(it) else false }  
Checks if the specified [value] belongs to this range.

Checks if the specified [value] belongs to this range.  
`*\n@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName("longRangeContains")\npublic operator fun ClosedRange<Long>.contains(value: Float): Boolean {\n return value.toLongExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
to this range.  
*\n@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName("byteRangeContains")\npublic operator fun ClosedRange<Byte>.contains(value: Float): Boolean {\n return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName("shortRangeContains")\npublic operator fun ClosedRange<Short>.contains(value: Float): Boolean {\n return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("doubleRangeContains")\npublic operator fun ClosedRange<Double>.contains(value: Float): Boolean {\n return contains(value.toDouble())\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("longRangeContains")\npublic operator fun ClosedRange<Long>.contains(value: Int): Boolean {\n return contains(value.toLong())\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("byteRangeContains")\npublic operator fun ClosedRange<Byte>.contains(value: Int): Boolean {\n return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("shortRangeContains")\npublic operator fun ClosedRange<Short>.contains(value: Int): Boolean {\n return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName("doubleRangeContains")\npublic operator fun ClosedRange<Double>.contains(value: Int): Boolean {\n return contains(value.toDouble())\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName("floatRangeContains")\npublic operator fun ClosedRange<Float>.contains(value: Int): Boolean {\n return contains(value.toFloat())\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("intRangeContains")\npublic operator fun ClosedRange<Int>.contains(value: Long): Boolean {\n return value.toIntExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("byteRangeContains")\npublic operator fun ClosedRange<Byte>.contains(value: Long): Boolean {\n return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@kotlin.jvm.JvmName("shortRangeContains")\npublic operator fun ClosedRange<Short>.contains(value: Long): Boolean {\n return value.toShortExactOrNull().let { if (it != null) contains(it) else false }\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@Deprecated("This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName("doubleRangeContains")\npublic operator fun ClosedRange<Double>.contains(value: Long): Boolean {\n return contains(value.toDouble())\n}\n/**\n * Checks if the specified [value] belongs to this range.  
*\n@Deprecated("This `contains` operation mixing integer`



and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Long): Boolean {\n return contains(value.toFloat())\n}\n\n/\*\*\n \* Checks if the specified [value] belongs to this range.\n \*/\n@kotlin.jvm.JvmName(\"intRangeContains\")\npublic operator fun ClosedRange<Int>.contains(value: Short): Boolean {\n return contains(value.toInt())\n}\n\n/\*\*\n \* Checks if the specified [value] belongs to this range.\n \*/\n@kotlin.jvm.JvmName(\"longRangeContains\")\npublic operator fun ClosedRange<Long>.contains(value: Short): Boolean {\n return contains(value.toLong())\n}\n\n/\*\*\n \* Checks if the specified [value] belongs to this range.\n \*/\n@kotlin.jvm.JvmName(\"byteRangeContains\")\npublic operator fun ClosedRange<Byte>.contains(value: Short): Boolean {\n return value.toByteExactOrNull().let { if (it != null) contains(it) else false }\n}\n\n/\*\*\n \* Checks if the specified [value] belongs to this range.\n \*/\n@Deprecated(\"This `contains` operation mixing integer and floating point arguments has ambiguous semantics and is going to be removed.\")\n@DeprecatedSinceKotlin(warningSince = \"1.3\", errorSince = \"1.4\", hiddenSince = \"1.5\")\n@kotlin.jvm.JvmName(\"floatRangeContains\")\npublic operator fun ClosedRange<Float>.contains(value: Short): Boolean {\n return contains(value.toFloat())\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"intDownTo\")\npublic infix fun Int.downTo(to: Byte): IntProgression {\n return IntProgression.fromClosedRange(this, to.toInt(), -1)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"longDownTo\")\npublic infix fun Long.downTo(to: Byte): LongProgression {\n return LongProgression.fromClosedRange(this, to.toLong(), -1L)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"byteDownTo\")\npublic infix fun Byte.downTo(to: Byte): IntProgression {\n return IntProgression.fromClosedRange(this.toInt(), to.toInt(), -1)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"shortDownTo\")\npublic infix fun Short.downTo(to: Byte): IntProgression {\n return IntProgression.fromClosedRange(this.toInt(), to.toInt(), -1)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"charDownTo\")\npublic infix fun Char.downTo(to: Char): CharProgression {\n return CharProgression.fromClosedRange(this, to, -1)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"intDownTo\")\npublic infix fun Int.downTo(to: Int): IntProgression {\n return IntProgression.fromClosedRange(this, to, -1)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value the returned progression is empty.\n \*/\n@kotlin.jvm.JvmName(\"longDownTo\")\npublic infix fun Long.downTo(to: Int): LongProgression {\n return LongProgression.fromClosedRange(this, to.toLong(), -1L)\n}\n\n/\*\*\n \* Returns a progression from this value down to the specified [to] value with the step -1.\n \* The [to] value should be less than or equal to `this` value.\n \* If the [to] value is greater than `this` value

the returned progression is empty.

```

public infix fun Byte.downTo(to: Int): IntProgression {
    return IntProgression.fromClosedRange(this.toInt(), to, -1)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Short.downTo(to: Int): IntProgression {
    return IntProgression.fromClosedRange(this.toInt(), to, -1)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Int.downTo(to: Long): LongProgression {
    return LongProgression.fromClosedRange(this.toLong(), to, -1L)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Long.downTo(to: Long): LongProgression {
    return LongProgression.fromClosedRange(this, to, -1L)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Byte.downTo(to: Long): LongProgression {
    return LongProgression.fromClosedRange(this.toLong(), to, -1L)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Short.downTo(to: Long): LongProgression {
    return LongProgression.fromClosedRange(this.toLong(), to, -1L)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Int.downTo(to: Short): IntProgression {
    return IntProgression.fromClosedRange(this, to.toInt(), -1)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Long.downTo(to: Short): LongProgression {
    return LongProgression.fromClosedRange(this, to.toLong(), -1L)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Byte.downTo(to: Short): IntProgression {
    return IntProgression.fromClosedRange(this.toInt(), to.toInt(), -1)
}

```

\* Returns a progression from this value down to the specified [to] value with the step -1. \* The [to] value should be less than or equal to `this` value. \* If the [to] value is greater than `this` value the returned progression is empty.

```

public infix fun Short.downTo(to: Short): IntProgression {
    return IntProgression.fromClosedRange(this.toInt(), to.toInt(), -1)
}

```

\* Returns a progression that goes over the same range in the opposite direction with the same step.

```

public fun IntProgression.reversed(): IntProgression {
    return IntProgression.fromClosedRange(last, first, -step)
}

```

\* Returns a progression that goes over the same range in the opposite direction with the same step.

```

public fun LongProgression.reversed(): LongProgression {
    return LongProgression.fromClosedRange(last, first, -step)
}

```

\* Returns a progression that goes over the same range in the opposite direction with the same step.

```

public fun CharProgression.reversed(): CharProgression {
    return CharProgression.fromClosedRange(last, first, -step)
}

```

\* Returns a progression that goes over the same range with the given step.

```

public infix fun IntProgression.step(step: Int): IntProgression {
    checkStepIsPositive(step > 0, step)
    return IntProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)
}

```

\* Returns a progression that goes over the same range with the given step.

```

public infix fun LongProgression.step(step: Long): LongProgression {
    checkStepIsPositive(step > 0, step)
    return LongProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)
}

```

\* Returns a progression that goes over the same range with the given step.

```

public infix fun CharProgression.step(step: Int): CharProgression {
    checkStepIsPositive(step > 0, step)
    return

```

CharProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\ninternal fun  
Int.toByteExactOrNull(): Byte? {\n return if (this in Byte.MIN\_VALUE.toInt()..Byte.MAX\_VALUE.toInt())  
this.toByte() else null\n}\n\ninternal fun Long.toByteExactOrNull(): Byte? {\n return if (this in  
Byte.MIN\_VALUE.toLong()..Byte.MAX\_VALUE.toLong()) this.toByte() else null\n}\n\ninternal fun  
Short.toByteExactOrNull(): Byte? {\n return if (this in  
Byte.MIN\_VALUE.toShort()..Byte.MAX\_VALUE.toShort()) this.toByte() else null\n}\n\ninternal  
fun Double.toByteExactOrNull(): Byte? {\n return if (this in  
Byte.MIN\_VALUE.toDouble()..Byte.MAX\_VALUE.toDouble()) this.toInt().toByte() else null\n}\n\ninternal fun  
Float.toByteExactOrNull(): Byte? {\n return if (this in  
Byte.MIN\_VALUE.toFloat()..Byte.MAX\_VALUE.toFloat()) this.toInt().toByte() else null\n}\n\ninternal fun  
Long.toIntExactOrNull(): Int? {\n return if (this in Int.MIN\_VALUE.toLong()..Int.MAX\_VALUE.toLong())  
this.toInt() else null\n}\n\ninternal fun Double.toIntExactOrNull(): Int? {\n return if (this in  
Int.MIN\_VALUE.toDouble()..Int.MAX\_VALUE.toDouble()) this.toInt() else null\n}\n\ninternal fun  
Float.toIntExactOrNull(): Int? {\n return if (this in Int.MIN\_VALUE.toFloat()..Int.MAX\_VALUE.toFloat())  
this.toInt() else null\n}\n\ninternal fun Double.toLongExactOrNull(): Long? {\n return if (this in  
Long.MIN\_VALUE.toDouble()..Long.MAX\_VALUE.toDouble()) this.toLong() else null\n}\n\ninternal fun  
Float.toLongExactOrNull(): Long? {\n return if (this  
in Long.MIN\_VALUE.toFloat()..Long.MAX\_VALUE.toFloat()) this.toLong() else null\n}\n\ninternal fun  
Int.toShortExactOrNull(): Short? {\n return if (this in Short.MIN\_VALUE.toInt()..Short.MAX\_VALUE.toInt())  
this.toShort() else null\n}\n\ninternal fun Long.toShortExactOrNull(): Short? {\n return if (this in  
Short.MIN\_VALUE.toLong()..Short.MAX\_VALUE.toLong()) this.toShort() else null\n}\n\ninternal fun  
Double.toShortExactOrNull(): Short? {\n return if (this in  
Short.MIN\_VALUE.toDouble()..Short.MAX\_VALUE.toDouble()) this.toInt().toShort() else null\n}\n\ninternal fun  
Float.toShortExactOrNull(): Short? {\n return if (this in  
Short.MIN\_VALUE.toFloat()..Short.MAX\_VALUE.toFloat()) this.toInt().toShort() else null\n}\n\n\*\*\n \* Returns  
a range from this value up to but excluding the specified [to] value.\n \* \n \* If the [to] value is less than or equal to  
`this` value, then the returned range is empty.\n \*/\npublic infix fun Int.until(to: Byte): IntRange {\n return this ..  
(to.toInt()  
- 1).toInt()\n}\n\n\*\*\n \* Returns a range from this value up to but excluding the specified [to] value.\n \* \n \* If the  
[to] value is less than or equal to `this` value, then the returned range is empty.\n \*/\npublic infix fun Long.until(to:  
Byte): LongRange {\n return this .. (to.toLong() - 1).toLong()\n}\n\n\*\*\n \* Returns a range from this value up to  
but excluding the specified [to] value.\n \* \n \* If the [to] value is less than or equal to `this` value, then the returned  
range is empty.\n \*/\npublic infix fun Byte.until(to: Byte): IntRange {\n return this.toInt() .. (to.toInt() -  
1).toInt()\n}\n\n\*\*\n \* Returns a range from this value up to but excluding the specified [to] value.\n \* \n \* If the  
[to] value is less than or equal to `this` value, then the returned range is empty.\n \*/\npublic infix fun Short.until(to:  
Byte): IntRange {\n return this.toInt() .. (to.toInt() - 1).toInt()\n}\n\n\*\*\n \* Returns a range from this value up to  
but excluding the specified [to]  
value.\n \* \n \* If the [to] value is less than or equal to `this` value, then the returned range is empty.\n \*/\npublic  
infix fun Char.until(to: Char): CharRange {\n if (to <= "\u0000") return CharRange.EMPTY\n return this .. (to -  
1).toChar()\n}\n\n\*\*\n \* Returns a range from this value up to but excluding the specified [to] value.\n \* \n \* If the  
[to] value is less than or equal to `this` value, then the returned range is empty.\n \*/\npublic infix fun Int.until(to:  
Int): IntRange {\n if (to <= Int.MIN\_VALUE) return IntRange.EMPTY\n return this .. (to - 1).toInt()\n}\n\n\*\*\n \*  
Returns a range from this value up to but excluding the specified [to] value.\n \* \n \* If the [to] value is less than or  
equal to `this` value, then the returned range is empty.\n \*/\npublic infix fun Long.until(to: Int): LongRange {\n  
return this .. (to.toLong() - 1).toLong()\n}\n\n\*\*\n \* Returns a range from this value up to but excluding the  
specified [to] value.\n \* \n \* If the [to] value  
is less than or equal to `this` value, then the returned range is empty.\n \*/\npublic infix fun Byte.until(to: Int):  
IntRange {\n if (to <= Int.MIN\_VALUE) return IntRange.EMPTY\n return this.toInt() .. (to -

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1).toInt()\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the
[to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Short.until(to:
Int): IntRange {\n    if (to <= Int.MIN_VALUE) return IntRange.EMPTY\n    return this.toInt() .. (to -
1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the
[to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Int.until(to:
Long): LongRange {\n    if (to <= Long.MIN_VALUE) return LongRange.EMPTY\n    return this.toLong() .. (to -
1).toLong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified
[to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n
*/\npublic infix fun Long.until(to: Long): LongRange {\n    if (to <= Long.MIN_VALUE) return
LongRange.EMPTY\n    return this .. (to - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to but
excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned
range is empty.\n */\npublic infix fun Byte.until(to: Long): LongRange {\n    if (to <= Long.MIN_VALUE) return
LongRange.EMPTY\n    return this.toLong() .. (to - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to
but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned
range is empty.\n */\npublic infix fun Short.until(to: Long): LongRange {\n    if (to <= Long.MIN_VALUE) return
LongRange.EMPTY\n    return this.toLong() .. (to - 1).toLong()\n}\n\n/**\n * Returns a range from this
value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then
the returned range is empty.\n */\npublic infix fun Int.until(to: Short): IntRange {\n    return this .. (to.toInt() -
1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the
[to] value is less than or equal to `this` value, then the returned range is empty.\n */\npublic infix fun Long.until(to:
Short): LongRange {\n    return this .. (to.toLong() - 1).toLong()\n}\n\n/**\n * Returns a range from this value up to
but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned
range is empty.\n */\npublic infix fun Byte.until(to: Short): IntRange {\n    return this.toInt() .. (to.toInt() -
1).toInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to] value.\n * \n * If the
[to] value is less than or equal to
`this` value, then the returned range is empty.\n */\npublic infix fun Short.until(to: Short): IntRange {\n    return
this.toInt() .. (to.toInt() - 1).toInt()\n}\n\n/**\n * Ensures that this value is not less than the specified
[minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the
[minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastComparable\n
*/\npublic fun <T> Comparable<T>> T.coerceAtLeast(minimumValue: T): T {\n    return if (this < minimumValue)
minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n
*/\n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n
*/\n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun
Byte.coerceAtLeast(minimumValue: Byte): Byte {\n    return if (this < minimumValue) minimumValue else
this\n}\n\n/**\n * Ensures that this value is not less
than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue]
or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n
*/\npublic fun Short.coerceAtLeast(minimumValue: Short): Short {\n    return if (this < minimumValue)
minimumValue else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n
*/\n * @return this value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n
*/\n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Int.coerceAtLeast(minimumValue:
Int): Int {\n    return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not
less than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the
[minimumValue] or the [minimumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic
fun Long.coerceAtLeast(minimumValue: Long): Long {\n    return if (this < minimumValue) minimumValue else
this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value
if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample

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samples.comparisons.ComparableOps.coerceAtLeast\n */\npublic fun Float.coerceAtLeast(minimumValue: Float):
Float {\n  return if (this < minimumValue) minimumValue else this\n}\n\n/**\n * Ensures that this value is not less
than the specified [minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue]
or the [minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeast\n
*/\npublic fun Double.coerceAtLeast(minimumValue: Double): Double {\n  return if (this < minimumValue)
minimumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n *
\n * @return
\n * @return
this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMostComparable\n */\npublic fun <T : Comparable<T>>
T.coerceAtMost(maximumValue: T): T {\n  return if (this > maximumValue) maximumValue else this\n}\n\n/**\n
* Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less
than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Byte.coerceAtMost(maximumValue: Byte):
Byte {\n  return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not
greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the
[maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Short.coerceAtMost(maximumValue:
Short): Short {\n  return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value
is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the
[maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun Int.coerceAtMost(maximumValue: Int): Int
{\n  return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater
than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the [maximumValue] or
the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n
*/\npublic fun Long.coerceAtMost(maximumValue: Long): Long {\n  return if (this > maximumValue)
maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n *
\n * @return this value if it's less than or equal to the [maximumValue]
or the [maximumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtMost\n
*/\npublic fun Float.coerceAtMost(maximumValue: Float): Float {\n  return if (this > maximumValue)
maximumValue else this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n *
\n * @return this value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n *
@sample samples.comparisons.ComparableOps.coerceAtMost\n */\npublic fun
Double.coerceAtMost(maximumValue: Double): Double {\n  return if (this > maximumValue) maximumValue
else this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n
* @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or
[maximumValue] if this value is greater than [maximumValue].\n * \n * @sample
samples.comparisons.ComparableOps.coerceInComparable\n */\npublic fun <T : Comparable<T>>
T.coerceIn(minimumValue: T?, maximumValue: T?): T {\n  if (minimumValue !== null && maximumValue !==
null) {\n    if (minimumValue > maximumValue) throw IllegalArgumentException("\u201cCannot coerce value to an
empty range: maximum $maximumValue is less than minimum $minimumValue.\u201c")\n    if (this <
minimumValue) return minimumValue\n    if (this > maximumValue) return maximumValue\n  }\n  else {\n
if (minimumValue !== null && this < minimumValue) return minimumValue\n    if (maximumValue !== null
&& this > maximumValue) return maximumValue\n  }\n  return this\n}\n\n/**\n * Ensures that this value lies in
the specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or
[minimumValue] if this value is less than [minimumValue], or [maximumValue] if this value is greater than
[maximumValue].\n * \n * @sample samples.comparisons.ComparableOps.coerceIn\n */\npublic fun
Byte.coerceIn(minimumValue: Byte, maximumValue: Byte):

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Byte {
    if (minimumValue > maximumValue) throw IllegalArgumentException("Cannot coerce value to an
empty range: maximum $maximumValue is less than minimum $minimumValue.")
    if (this < minimumValue)
return minimumValue
    if (this > maximumValue) return maximumValue
    return this
}

/**
 * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].
 * @return this value if it's in the range, or [minimumValue] if this value is greater
than [maximumValue].
 */
@sample samples.comparisons.ComparableOps.coerceIn

public fun
Short.coerceIn(minimumValue: Short, maximumValue: Short): Short {
    if (minimumValue > maximumValue)
throw IllegalArgumentException("Cannot coerce value to an empty range: maximum $maximumValue is less than
minimum $minimumValue.")
    if (this < minimumValue) return minimumValue
    if (this > maximumValue)
return maximumValue
    return this
}

/**
 * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].
 * @return this value if it's in the range, or [minimumValue] if this value
is greater than [maximumValue].
 */
@sample samples.comparisons.ComparableOps.coerceIn

public fun
Int.coerceIn(minimumValue: Int, maximumValue: Int): Int {
    if (minimumValue > maximumValue) throw
IllegalArgumentException("Cannot coerce value to an empty range: maximum $maximumValue is less than
minimum $minimumValue.")
    if (this < minimumValue) return minimumValue
    if (this > maximumValue)
return maximumValue
    return this
}

/**
 * Ensures that this value lies in the specified range
[minimumValue]..[maximumValue].
 * @return this value if it's in the range, or [minimumValue] if this value
is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].
 */
@sample
samples.comparisons.ComparableOps.coerceIn

public fun
Long.coerceIn(minimumValue: Long, maximumValue: Long): Long {
    if (minimumValue >
maximumValue) throw IllegalArgumentException("Cannot coerce value to an empty range: maximum
$maximumValue is less than minimum $minimumValue.")
    if (this < minimumValue) return minimumValue
    if (this > maximumValue) return maximumValue
    return this
}

/**
 * Ensures that this value lies in the
specified range [minimumValue]..[maximumValue].
 * @return this value if it's in the range, or
[minimumValue] if this value is less than [minimumValue], or
[maximumValue] if this value is greater than
[maximumValue].
 */
@sample samples.comparisons.ComparableOps.coerceIn

public fun
Float.coerceIn(minimumValue: Float, maximumValue: Float): Float {
    if (minimumValue > maximumValue)
throw IllegalArgumentException("Cannot coerce value to an empty range: maximum $maximumValue is less than
minimum $minimumValue.")
    if (this <
minimumValue) return minimumValue
    if (this > maximumValue) return maximumValue
    return
this
}

/**
 * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].
 * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or
[maximumValue] if this value is greater than [maximumValue].
 */
@sample
samples.comparisons.ComparableOps.coerceIn

public fun
Double.coerceIn(minimumValue: Double,
maximumValue: Double): Double {
    if (minimumValue > maximumValue) throw
IllegalArgumentException("Cannot coerce value to an empty range: maximum $maximumValue is less than
minimum $minimumValue.")
    if (this < minimumValue) return minimumValue
    if (this > maximumValue)
return maximumValue
    return this
}

/**
 * Ensures that this value lies in the specified [range].
 * @return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive`
if this value is greater than `range.endInclusive`.
 */
@sample
samples.comparisons.ComparableOps.coerceInFloatingPointRange

public fun <T :
Comparable<T>> T.coerceIn(range: ClosedFloatingPointRange<T>): T {
    if (range.isEmpty()) throw
IllegalArgumentException("Cannot coerce value to an empty range: $range.")
    return when {
        // this <
start equiv to this <= start && !(this >= start)
        range.lessThanOrEqualTo(this, range.start) &&
!range.lessThanOrEqualTo(range.start, this) -> range.start
        // this > end equiv to this >= end && !(this <= end)
        range.lessThanOrEqualTo(range.endInclusive, this) && !range.lessThanOrEqualTo(this, range.endInclusive) ->
range.endInclusive
        else -> this
    }
}

/**
 * Ensures that this value lies in the specified [range].
 */

```

```

@return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive`
if this
    value is greater than `range.endInclusive`. \n * \n * @sample
samples.comparisons.ComparableOps.coerceInComparable \n * \n public fun <T> : Comparable<T>>
T.coerceIn(range: ClosedRange<T>): T { \n    if (range is ClosedFloatingPointRange) { \n        return
this.coerceIn<T>(range) \n    } \n    if (range.isEmpty()) throw IllegalArgumentException("Cannot coerce value to an
empty range: $range.") \n    return when { \n        this < range.start -> range.start \n        this > range.endInclusive ->
range.endInclusive \n        else -> this \n    } \n } \n } \n /** \n * Ensures that this value lies in the specified [range]. \n * \n *
@return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive`
if this value is greater than `range.endInclusive`. \n * \n * @sample samples.comparisons.ComparableOps.coerceIn \n
* \n public fun Int.coerceIn(range: ClosedRange<Int>): Int { \n    if (range is ClosedFloatingPointRange) { \n
return this.coerceIn<Int>(range) \n
    } \n    if (range.isEmpty()) throw IllegalArgumentException("Cannot coerce value to an empty range: $range.") \n
return when { \n        this < range.start -> range.start \n        this > range.endInclusive -> range.endInclusive \n
else -> this \n    } \n } \n } \n /** \n * Ensures that this value lies in the specified [range]. \n * \n * @return this value if it's
in the [range], or `range.start` if this value is less than `range.start`, or `range.endInclusive` if this value is greater
than `range.endInclusive`. \n * \n * @sample samples.comparisons.ComparableOps.coerceIn \n * \n public fun
Long.coerceIn(range: ClosedRange<Long>): Long { \n    if (range is ClosedFloatingPointRange) { \n        return
this.coerceIn<Long>(range) \n    } \n    if (range.isEmpty()) throw IllegalArgumentException("Cannot coerce value
to an empty range: $range.") \n    return when { \n        this < range.start -> range.start \n        this >
range.endInclusive -> range.endInclusive \n        else -> this \n    } \n } \n } \n /** \n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file. \n * \n //
Auto-generated file. DO NOT EDIT! \n \n package kotlin \n \n import kotlin.experimental. \n import
kotlin.jvm. \n \n @SinceKotlin("1.5") \n @WasExperimental(ExperimentalUnsignedTypes::class) \n @JvmInline \n public
value class UByte @PublishedApi internal constructor(@PublishedApi internal val data: Byte) :
Comparable<UByte> { \n    companion object { \n        /** \n         * A constant holding the minimum value an
instance of UByte can have. \n         * \n         * public const val MIN_VALUE: UByte = UByte(0) \n         * \n         *
A constant holding the maximum value an instance of UByte can have. \n         * \n         * public const val
MAX_VALUE: UByte = UByte(-1) \n         * \n         * The number of bytes used to represent an instance of
UByte in a binary form. \n         * \n         * public const val SIZE_BYTES: Int = 1 \n         * \n         * The number of bits used to represent an
instance of UByte in a binary form. \n         * \n         * public const val SIZE_BITS: Int = 8 \n         * \n         *
Compares this value with the specified value for order. \n         * Returns zero if this value is equal to the specified other
value, a negative number if it's less than other, \n         * or a positive number if it's greater than other. \n         * \n
@kotlin.internal.InlineOnly \n         @Suppress("OVERRIDE_BY_INLINE") \n         public override inline operator fun
compareTo(other: UByte): Int = this.toInt().compareTo(other.toInt()) \n         /** \n         * Compares this value with the
specified value for order. \n         * Returns zero if this value is equal to the specified other value, a negative number if
it's less than other, \n         * or a positive number if it's greater than other. \n         * \n         * @kotlin.internal.InlineOnly \n
public inline operator fun compareTo(other:
UShort): Int = this.toInt().compareTo(other.toInt()) \n         /** \n         * Compares this value with the specified value for
order. \n         * Returns zero if this value is equal to the specified other value, a negative number if it's less than other, \n
         * or a positive number if it's greater than other. \n         * \n         * @kotlin.internal.InlineOnly \n         public
inline operator
fun compareTo(other: UInt): Int = this.toUInt().compareTo(other) \n         /** \n         * Compares this value with the
specified value for order. \n         * Returns zero if this value is equal to the specified other value, a negative number if
it's less than other, \n         * or a positive number if it's greater than other. \n         * \n         * @kotlin.internal.InlineOnly \n
public inline operator fun compareTo(other: ULong): Int = this.toULong().compareTo(other) \n         /** \n         * Adds the
other value to this value. \n         * \n         * @kotlin.internal.InlineOnly \n         public inline operator fun plus(other: UByte): UInt =

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this.toUInt().plus(other.toUInt())\n
    /** Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other:
UShort): UInt = this.toUInt().plus(other.toUInt())\n    /** Adds the other value to this value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: UInt): UInt = this.toUInt().plus(other)\n    /**
Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other:
ULong): ULong = this.toULong().plus(other)\n    /** Subtracts the other value from this value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: UByte): UInt =
this.toUInt().minus(other.toUInt())\n    /** Subtracts the other value from this value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: UShort): UInt =
this.toUInt().minus(other.toUInt())\n    /** Subtracts the other value from this value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator
    fun minus(other: UInt): UInt = this.toUInt().minus(other)\n    /** Subtracts the other value from this value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: ULong): ULong =
this.toULong().minus(other)\n    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n
    public inline operator fun times(other: UByte): UInt = this.toUInt().times(other.toUInt())\n    /** Multiplies this
value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UShort): UInt
= this.toUInt().times(other.toUInt())\n    /** Multiplies this value by the other value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UInt): UInt = this.toUInt().times(other)\n
    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun
times(other: ULong): ULong = this.toULong().times(other)\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun div(other: UByte): UInt = this.toUInt().div(other.toUInt())\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun div(other: UShort): UInt = this.toUInt().div(other.toUInt())\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun div(other: UInt): UInt = this.toUInt().div(other)\n    /** Divides this value by the other value, truncating the
result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun div(other:
ULong): ULong = this.toULong().div(other)\n    /**\n    * Calculates the remainder of truncating division of this
value by the other value.\n    * \n
    * The result is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n    public inline operator fun
rem(other: UByte): UInt = this.toUInt().rem(other.toUInt())\n    /**\n    * Calculates the remainder of truncating
division of this value by the other value.\n    * \n
    * The result is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n    public inline operator fun
rem(other: UShort): UInt =
this.toUInt().rem(other.toUInt())\n    /**\n    * Calculates the remainder of truncating division of this value by the
other value.\n    * \n
    * The result is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n    public
inline operator fun rem(other: UInt): UInt = this.toUInt().rem(other)\n    /**\n    * Calculates the remainder of
truncating division of this value by the other value.\n    * \n
    * The result is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n    public inline operator fun
rem(other:
ULong): ULong = this.toULong().rem(other)\n    /**\n    * Divides this value by the other value, flooring the
result to an integer that is closer to negative infinity.\n    * \n
    * For unsigned types, the results of flooring division
and truncating division are the same.\n    */\n    @kotlin.internal.InlineOnly\n    public inline fun floorDiv(other:
UByte): UInt = this.toUInt().floorDiv(other.toUInt())\n    /**\n    * Divides this value by the other value, flooring
the result to an integer that is closer to negative infinity.\n    * \n
    * For unsigned types, the results of flooring
division and truncating division are the same.\n    */\n    @kotlin.internal.InlineOnly\n    public inline fun
floorDiv(other: UShort): UInt = this.toUInt().floorDiv(other.toUInt())\n    /**\n    * Divides this value by the other
value, flooring the result to an integer that is closer to negative infinity.\n    * \n
    * For unsigned types, the results
of flooring division and truncating

```



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division are the same.\n * \n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UInt): UInt =
this.toUInt().floorDiv(other)\n /**\n * Divides this value by the other value, flooring the result to an integer that
is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division and truncating division
are the same.\n * \n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: ULong): ULong =
this.toULong().floorDiv(other)\n\n /**\n * Calculates the remainder of flooring division of this value by the
other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders
of flooring division and truncating division are the same.\n * \n @kotlin.internal.InlineOnly\n public inline
fun mod(other: UByte): UByte = this.toUInt().mod(other.toUInt()).toUByte()\n /**\n * Calculates the remainder
of flooring division of this value by
the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the
remainders of flooring division and truncating division are the same.\n * \n @kotlin.internal.InlineOnly\n
public inline fun mod(other: UShort): UShort = this.toUInt().mod(other.toUInt()).toUShort()\n /**\n *
Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always less
than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are the
same.\n * \n @kotlin.internal.InlineOnly\n public inline fun mod(other: UInt): UInt =
this.toUInt().mod(other)\n /**\n * Calculates the remainder of flooring division of this value by the other
value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of
flooring division and truncating division are the same.\n * \n @kotlin.internal.InlineOnly\n
public inline fun mod(other: ULong): ULong = this.toULong().mod(other)\n\n /**\n * Returns this value
incremented by one.\n * \n * @sample samples.misc.Builtins.inc\n * \n @kotlin.internal.InlineOnly\n
public inline operator fun inc(): UByte = UByte(data.inc())\n\n /**\n * Returns this value decremented by one.\n
*\n * @sample samples.misc.Builtins.dec\n * \n @kotlin.internal.InlineOnly\n public inline operator fun
dec(): UByte = UByte(data.dec())\n\n /** Creates a range from this value to the specified [other] value. *\n
@\n @kotlin.internal.InlineOnly\n public inline operator fun rangeTo(other: UByte): UIntRange =
UIntRange(this.toUInt(), other.toUInt())\n\n /** Performs a bitwise AND operation between the two values. *\n
@\n @kotlin.internal.InlineOnly\n public inline infix fun and(other: UByte): UByte = UByte(this.data and other.data)\n
\n /** Performs a bitwise OR operation between the two values.\n
*\n @kotlin.internal.InlineOnly\n public inline infix fun or(other: UByte): UByte = UByte(this.data or
other.data)\n\n /** Performs a bitwise XOR operation between the two values. *\n @kotlin.internal.InlineOnly\n
public inline infix fun xor(other: UByte): UByte = UByte(this.data xor other.data)\n\n /** Inverts the bits in this
value. *\n @kotlin.internal.InlineOnly\n public inline fun inv(): UByte = UByte(data.inv())\n\n /**\n *
Converts this [UByte] value to [Byte].\n * \n * If this value is less than or equals to [Byte.MAX_VALUE], the
resulting `Byte` value represents\n * the same numerical value as this `UByte`. Otherwise the result is negative.\n
*\n * The resulting `Byte` value has the same binary representation as this `UByte` value.\n * \n @kotlin.internal.InlineOnly\n
public inline fun toByte(): Byte = data\n\n /**\n * Converts this [UByte] value to
[Short].\n * \n * The resulting `Short` value represents
the same numerical value as this `UByte`. \n * \n * The least significant 8 bits of the resulting `Short` value are
the same as the bits of this `UByte` value,\n * whereas the most significant 8 bits are filled with zeros.\n * \n
@\n @kotlin.internal.InlineOnly\n public inline fun toShort(): Short = data.toShort() and 0xFF\n\n /**\n * Converts
this [UByte] value to [Int].\n * \n * The resulting `Int` value represents the same numerical value as this
`UByte`. \n * \n * The least significant 8 bits of the resulting `Int` value are the same as the bits of this `UByte`
value,\n * whereas the most significant 24 bits are filled with zeros.\n * \n @kotlin.internal.InlineOnly\n
public inline fun toInt(): Int = data.toInt() and 0xFF\n\n /**\n * Converts this [UByte] value to [Long].\n * \n
*\n * The resulting `Long` value represents the same numerical value as this `UByte`. \n * \n * The least significant
8 bits of the resulting
`Long` value are the same as the bits of this `UByte` value,\n * whereas the most significant 56 bits are filled
with zeros.\n * \n @kotlin.internal.InlineOnly\n public inline fun toLong(): Long = data.toLong() and
0xFF\n\n /** Returns this value. *\n @kotlin.internal.InlineOnly\n public inline fun toUByte(): UByte = this\n

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/**\n * Converts this [UByte] value to [UShort].\n *\n * The resulting `UShort` value represents the same
numerical value as this `UByte`.\n *\n * The least significant 8 bits of the resulting `UShort` value are the same
as the bits of this `UByte` value,\n * whereas the most significant 8 bits are filled with zeros.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toUShort(): UShort = UShort(data.toShort() and 0xFF)\n /**\n * Converts this [UByte] value to [UInt].\n *\n * The resulting `UInt` value represents the same numerical value
as this `UByte`.\n *\n * The least significant
8 bits of the resulting `UInt` value are the same as the bits of this `UByte` value,\n * whereas the most significant
24 bits are filled with zeros.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toUInt(): UInt =
UInt(data.toInt() and 0xFF)\n /**\n * Converts this [UByte] value to [ULong].\n *\n * The resulting
`ULong` value represents the same numerical value as this `UByte`.\n *\n * The least significant 8 bits of the
resulting `ULong` value are the same as the bits of this `UByte` value,\n * whereas the most significant 56 bits are
filled with zeros.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toULong(): ULong =
ULong(data.toLong() and 0xFF)\n /**\n * Converts this [UByte] value to [Float].\n *\n * The resulting
`Float` value represents the same numerical value as this `UByte`.\n */\n
@kotlin.internal.InlineOnly\n public
inline fun toFloat(): Float = this.toInt().toFloat()\n /**\n * Converts this [UByte] value to [Double].\n *\n * The resulting `Double` value represents the same
numerical value as this `UByte`.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toDouble(): Double =
this.toInt().toDouble()\n\n public override fun toString(): String = toInt().toString()\n\n /**\n * Converts this
[Byte] value to [UByte].\n *\n * If this value is positive, the resulting `UByte` value represents the same numerical
value as this `Byte`.\n *\n * The resulting `UByte` value has the same binary representation as this `Byte` value.\n
*/\n
@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\n
public inline fun Byte.toUByte(): UByte = UByte(this)\n /**\n * Converts this [Short] value to [UByte].\n *\n * If
this value is positive and less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n *
the same numerical value as this `Short`.\n *\n * The resulting `UByte` value
is represented by the least significant 8 bits of this `Short` value.\n
*/\n
@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\n
public inline fun Short.toUByte(): UByte = UByte(this.toByte())\n /**\n * Converts this [Int] value to [UByte].\n
*\n * If this value is positive and less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value
represents\n * the same numerical value as this `Int`.\n *\n * The resulting `UByte` value is represented by the least
significant 8 bits of this `Int` value.\n
*/\n
@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\n
public inline fun Int.toUByte(): UByte = UByte(this.toByte())\n /**\n * Converts this [Long] value to [UByte].\n
*\n * If this value is positive and less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value
represents\n * the same numerical value as this `Long`.\n *\n * The resulting `UByte` value is represented by the
least significant 8 bits of this `Long` value.\n
*/\n
@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\n
public inline fun Long.toUByte(): UByte = UByte(this.toByte())\n", "/*\n * Copyright 2010-2022 JetBrains s.r.o.
and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license
that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage
kotlin\n\nimport kotlin.experimental.*\nimport
kotlin.jvm.*\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npu
blic value class UInt @PublishedApi internal constructor(@PublishedApi internal val data: Int) :
Comparable<UInt> {\n\n companion object {\n\n /**\n * A constant holding the minimum value an
instance of UInt can have.\n *\n public const val MIN_VALUE: UInt = UInt(0)\n\n /**\n * A
constant holding the maximum value
an instance of UInt can have.\n *\n public const val MAX_VALUE: UInt = UInt(-1)\n\n /**\n *
The number of bytes used to represent an instance of UInt in a binary form.\n *\n public const val
SIZE_BYTES: Int = 4\n\n /**\n * The number of bits used to represent an instance of UInt in a binary
*/\n

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form.\n      *\n      public const val SIZE_BITS: Int = 32\n    }\n\n    /**\n     * Compares this value with the
specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative number if
it's less than other,\n     * or a positive number if it's greater than other.\n     *\n     @kotlin.internal.InlineOnly\n
public inline operator fun compareTo(other: UByte): Int = this.compareTo(other.toUInt())\n\n    /**\n     * Compares
this value with the specified value for order.\n     * Returns zero if this value is equal to the specified other value, a
negative number if it's less than
other,\n     * or a positive number if it's greater than other.\n     *\n     @kotlin.internal.InlineOnly\n
public inline
operator fun compareTo(other: UShort): Int = this.compareTo(other.toUInt())\n\n    /**\n     * Compares this value
with the specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative
number if it's less than other,\n     * or a positive number if it's greater than other.\n     *\n
@kotlin.internal.InlineOnly\n     @Suppress("OVERRIDE_BY_INLINE")\n
public override inline operator fun
compareTo(other: UInt): Int = uintCompare(this.data, other.data)\n\n    /**\n     * Compares this value with the
specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative number if
it's less than other,\n     * or a positive number if it's greater than other.\n     *\n     @kotlin.internal.InlineOnly\n
public inline operator fun compareTo(other: ULong): Int = this.toULong().compareTo(other)\n\n
    /** Adds the other value to this value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun plus(other:
UByte): UInt = this.plus(other.toUInt())\n\n    /** Adds the other value to this value. *\n
@kotlin.internal.InlineOnly\n
public inline operator fun plus(other: UShort): UInt = this.plus(other.toUInt())\n\n
    /** Adds the other value to this value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun plus(other:
UInt): UInt = UInt(this.data.plus(other.data))\n\n    /** Adds the other value to this value. *\n
@kotlin.internal.InlineOnly\n
public inline operator fun plus(other: ULong): ULong =
this.toULong().plus(other)\n\n    /** Subtracts the other value from this value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun minus(other: UByte): UInt = this.minus(other.toUInt())\n\n    /** Subtracts the other value
from this value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun minus(other:
UShort): UInt = this.minus(other.toUInt())\n\n    /** Subtracts the other value from this value. *\n
@kotlin.internal.InlineOnly\n
public inline operator fun minus(other: UInt): UInt =
UInt(this.data.minus(other.data))\n\n    /** Subtracts the other value from this value. *\n
@kotlin.internal.InlineOnly\n
public inline operator fun minus(other: ULong): ULong =
this.toULong().minus(other)\n\n    /** Multiplies this value by the other value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun times(other: UByte): UInt = this.times(other.toUInt())\n\n    /** Multiplies this value by the
other value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun times(other: UShort): UInt =
this.times(other.toUInt())\n\n    /** Multiplies this value by the other value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun times(other: UInt): UInt = UInt(this.data.times(other.data))\n\n    /** Multiplies this value
by the other value. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun times(other: ULong): ULong = this.toULong().times(other)\n\n    /** Divides this value
by the other value, truncating the result to an integer that is closer to zero. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun div(other: UByte): UInt = this.div(other.toUInt())\n\n    /** Divides this value by the other
value, truncating the result to an integer that is closer to zero. *\n     @kotlin.internal.InlineOnly\n
public inline
operator fun div(other: UShort): UInt = this.div(other.toUInt())\n\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. *\n     @kotlin.internal.InlineOnly\n
public inline operator
fun div(other: UInt): UInt = uintDivide(this, other)\n\n    /** Divides this value by the other value, truncating the result
to an integer that is closer to zero. *\n     @kotlin.internal.InlineOnly\n
public inline operator fun div(other:
ULong): ULong =
this.toULong().div(other)\n\n    /**\n     * Calculates the remainder of truncating division of this value by the other
value.\n     * \n     * The result is always less than the divisor.\n     *\n     @kotlin.internal.InlineOnly\n
public
inline operator fun rem(other: UByte): UInt = this.rem(other.toUInt())\n\n    /**\n     * Calculates the remainder of
truncating division of this value by the other value.\n     * \n     * The result is always less than the divisor.\n     *\n
@kotlin.internal.InlineOnly\n
public inline operator fun rem(other: UShort): UInt = this.rem(other.toUInt())\n

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/**\n * Calculates the remainder of truncating division of this value by the other value.\n * \n * The result is
always less than the divisor.\n */\n @kotlin.internal.InlineOnly\n public inline operator fun rem(other: UInt):
UInt = uintRemainder(this, other)\n /**\n * Calculates the remainder of truncating division of this value by the
other value.\n * \n
* The result is always less than the divisor.\n */\n @kotlin.internal.InlineOnly\n public inline operator fun
rem(other: ULong): ULong = this.toULong().rem(other)\n\n /**\n * Divides this value by the other value,
flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of
flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun
floorDiv(other: UByte): UInt = this.floorDiv(other.toUInt())\n /**\n * Divides this value by the other value,
flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of
flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun
floorDiv(other: UShort): UInt = this.floorDiv(other.toUInt())\n /**\n * Divides this value by the other value,
flooring the result to an integer that is closer
to negative infinity.\n * \n * For unsigned types, the results of flooring division and truncating division are the
same.\n */\n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: UInt): UInt = div(other)\n /**\n
* Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.\n * \n
* For unsigned types, the results of flooring division and truncating division are the same.\n */\n
@kotlin.internal.InlineOnly\n public inline fun floorDiv(other: ULong): ULong =
this.toULong().floorDiv(other)\n\n /**\n * Calculates the remainder of flooring division of this value by the
other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders
of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline
fun mod(other: UByte): UByte = this.mod(other.toUInt()).toUByte()\n\n /**\n * Calculates the remainder of flooring
division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned
types, the remainders of flooring division and truncating
division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UShort): UShort =
this.mod(other.toUInt()).toUShort()\n /**\n * Calculates the remainder of flooring division of this value by the
other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders
of flooring division and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline
fun mod(other: UInt): UInt = rem(other)\n /**\n * Calculates the remainder of flooring division of this value by
the other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the
remainders of flooring division
and truncating division are the same.\n */\n @kotlin.internal.InlineOnly\n public inline fun mod(other:
ULong): ULong = this.toULong().mod(other)\n\n /**\n * Returns this value incremented by one.\n * \n *
@sample samples.misc.Builtins.inc\n */\n @kotlin.internal.InlineOnly\n public inline operator fun inc(): UInt
= UInt(data.inc())\n\n /**\n * Returns this value decremented by one.\n * \n * @sample
samples.misc.Builtins.dec\n */\n @kotlin.internal.InlineOnly\n public inline operator fun dec(): UInt =
UInt(data.dec())\n\n /**\n * Creates a range from this value to the specified [other] value. */\n
@kotlin.internal.InlineOnly\n public inline operator fun rangeTo(other: UInt): UIntRange = UIntRange(
this, other)\n\n /**\n * Shifts this value left by the [bitCount] number of bits.\n * \n * Note that only the five
lowest-order bits of the [bitCount] are used as the shift distance.\n * \n * The shift distance actually
used is therefore always in the range `0..31`.\n */\n @kotlin.internal.InlineOnly\n public inline infix fun
shl(bitCount: Int): UInt = UInt(data shl bitCount)\n\n /**\n * Shifts this value right by the [bitCount] number of
bits, filling the leftmost bits with zeros.\n * \n * Note that only the five lowest-order bits of the [bitCount] are
used as the shift distance.\n * \n * The shift distance actually used is therefore always in the range `0..31`.\n
*/\n @kotlin.internal.InlineOnly\n public inline infix fun shr(bitCount: Int): UInt = UInt(data ushr bitCount)\n\n
/**\n * Performs a bitwise AND operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix
fun and(other: UInt): UInt = UInt(this.data and other.data)\n\n /**\n * Performs a bitwise OR operation between the two
values. */\n @kotlin.internal.InlineOnly\n public inline infix fun or(other: UInt): UInt = UInt(this.data or

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other.data)\n /** Performs a bitwise
XOR operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun xor(other:
UInt): UInt = UInt(this.data xor other.data)\n /** Inverts the bits in this value. */\n @kotlin.internal.InlineOnly\n
public inline fun inv(): UInt = UInt(data.inv())\n\n /**\n * Converts this [UInt] value to [Byte].\n * If
this value is less than or equals to [Byte.MAX_VALUE], the resulting `Byte` value represents\n * the same
numerical value as this `UInt`.\n * The resulting `Byte` value is represented by the least significant 8 bits of
this `UInt` value.\n * Note that the resulting `Byte` value may be negative.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toByte(): Byte = data.toByte()\n /**\n * Converts this [UInt]
value to [Short].\n * If this value is less than or equals to [Short.MAX_VALUE], the resulting `Short` value
represents\n * the same numerical value as this `UInt`.\n
*\n * The resulting `Short` value is represented by the least significant 16 bits of this `UInt` value.\n * Note
that the resulting `Short` value may be negative.\n */\n @kotlin.internal.InlineOnly\n public inline fun
toShort(): Short = data.toShort()\n /**\n * Converts this [UInt] value to [Int].\n * If this value is less
than or equals to [Int.MAX_VALUE], the resulting `Int` value represents\n * the same numerical value as this
`UInt`. Otherwise the result is negative.\n * The resulting `Int` value has the same binary representation as
this `UInt` value.\n */\n @kotlin.internal.InlineOnly\n public inline fun toInt(): Int = data\n /**\n *
Converts this [UInt] value to [Long].\n * The resulting `Long` value represents the same numerical value as
this `UInt`.\n * The least significant 32 bits of the resulting `Long` value are the same as the bits of this
`UInt` value,\n * whereas the most
significant 32 bits are filled with zeros.\n */\n @kotlin.internal.InlineOnly\n public inline fun toLong(): Long
= data.toLong() and 0xFFFF_FFFF\n /**\n * Converts this [UInt] value to [UByte].\n * If this value
is less than or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n * the same numerical
value as this `UInt`.\n * The resulting `UByte` value is represented by the least significant 8 bits of this
`UInt` value.\n */\n @kotlin.internal.InlineOnly\n public inline fun toUByte(): UByte = data.toUByte()\n
/**\n * Converts this [UInt] value to [UShort].\n * If this value is less than or equals to
[UShort.MAX_VALUE], the resulting `UShort` value represents\n * the same numerical value as this `UInt`.\n
*\n * The resulting `UShort` value is represented by the least significant 16 bits of this `UInt` value.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toUShort():
UShort = data.toUShort()\n /** Returns this value. */\n @kotlin.internal.InlineOnly\n public inline fun
toUInt(): UInt = this\n /**\n * Converts this [UInt] value to [ULong].\n * The resulting `ULong` value
represents the same numerical value as this `UInt`.\n * The least significant 32 bits of the resulting `ULong`
value are the same as the bits of this `UInt` value,\n * whereas the most significant 32 bits are filled with
zeros.\n */\n @kotlin.internal.InlineOnly\n public inline fun toULong(): ULong = ULong(data.toLong() and
0xFFFF_FFFF)\n /**\n * Converts this [UInt] value to [Float].\n * The resulting value is the closest
`Float` to this `UInt` value.\n * In case when this `UInt` value is exactly between two `Float`s,\n * the one with
zero at least significant bit of mantissa is selected.\n */\n @kotlin.internal.InlineOnly\n public inline fun
toFloat(): Float = this.toDouble().toFloat()\n
/**\n * Converts this [UInt] value to [Double].\n * The resulting `Double` value represents the same
numerical value as this `UInt`.\n */\n @kotlin.internal.InlineOnly\n public inline fun toDouble(): Double =
uintToDouble(data)\n\n public override fun toString(): String = toLong().toString()\n\n\n /**\n * Converts this
[Byte] value to [UInt].\n * If this value is positive, the resulting `UInt` value represents the same numerical
value as this `Byte`.\n * The least significant 8 bits of the resulting `UInt` value are the same as the bits of
this `Byte`
value,\n * whereas the most significant 24 bits are filled with the sign bit of this value.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public inline fun Byte.toUInt(): UInt = UInt(this.toInt())\n /**\n * Converts this [Short] value to [UInt].\n * If
this value is positive, the resulting `UInt` value represents the same numerical
value as this `Short`.\n * The least significant 16 bits of the resulting `UInt` value are the same as the bits of
this
`Short` value,\n * whereas the most significant 16 bits are filled with the sign bit of this value.\n
*/

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*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.toUInt(): UInt = UInt(this.toInt())\n/**\n * Converts this [Int] value to [UInt].\n *\n * If this value is positive, the resulting `UInt` value represents the same numerical value as this `Int`. \n *\n * The resulting `UInt` value has the same binary representation as this `Int` value.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Int.toUInt(): UInt = UInt(this)\n/**\n * Converts this [Long] value to [UInt].\n *\n * If this value is positive and less than or equals to [UInt.MAX_VALUE], the resulting `UInt` value represents\n * the same numerical value as this `Long`. \n *\n * The resulting `UInt` value is represented by the least significant 32 bits of this `Long` value.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Long.toUInt(): UInt = UInt(this.toInt())\n/**\n * Converts this [Float] value to [UInt].\n *\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Float` value is negative or `NaN`, [UInt.MAX_VALUE] if it's bigger than `UInt.MAX_VALUE`. \n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Float.toUInt(): UInt = doubleToUInt(this.toDouble())\n/**\n * Converts this [Double] value to [UInt].\n *\n * The fractional part, if any, is rounded down towards zero.\n * Returns zero if this `Double` value is negative or `NaN`, [UInt.MAX_VALUE] if it's bigger than `UInt.MAX_VALUE`. \n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Double.toUInt(): UInt = doubleToUInt(this)\n", "\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n@n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin\n\nimport kotlin.experimental.*\nimport kotlin.jvm.*\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npublic value class UShort @PublishedApi internal constructor(@PublishedApi internal val data: Short) : Comparable<UShort> {\n\n    companion object {\n\n        /**\n         * A constant holding the minimum value an instance of UShort can have.\n         *\n         * public const val MIN_VALUE: UShort = UShort(0)\n         *\n         * A constant holding the maximum value an instance of UShort can have.\n         *\n         * public const val MAX_VALUE: UShort = UShort(-1)\n         *\n         * The number of bytes used to represent an instance of UShort in a binary form.\n         *\n         * public const val SIZE_BYTES: Int = 2\n         *\n         * The number of bits used to represent an instance of UShort in a binary form.\n         *\n         * public const val SIZE_BITS: Int = 16\n         * }\n         *\n         * Compares this value with the specified value for order.\n         * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n         * or a positive number if it's greater than other.\n         *\n         * @kotlin.internal.InlineOnly\n         * public inline operator fun compareTo(other: UByte): Int = this.toInt().compareTo(other.toInt())\n         *\n         * Compares this value with the specified value for order.\n         * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n         * or a positive number if it's greater than other.\n         *\n         * @kotlin.internal.InlineOnly\n         * public inline operator fun compareTo(other: UShort): Int = this.toInt().compareTo(other.toInt())\n         *\n         * Compares this value with the specified value for order.\n         * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n         * or a positive number if it's greater than other.\n         *\n         * @kotlin.internal.InlineOnly\n         * public inline operator fun compareTo(other: UInt): Int = this.toUInt().compareTo(other)\n         *\n         * Compares this value with the specified value for order.\n         * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n         * or a positive number if it's greater than other.\n         *\n         * @kotlin.internal.InlineOnly\n         * public inline operator fun compareTo(other: ULong): Int = this.toULong().compareTo(other)\n         *\n         * Adds the other value to this value.\n         *\n         * @kotlin.internal.InlineOnly\n

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    public inline operator fun plus(other: UByte): UInt = this.toUInt().plus(other.toUInt())\n    /** Adds the other
value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: UShort): UInt =
this.toUInt().plus(other.toUInt())\n    /** Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n
public inline operator fun plus(other: UInt): UInt = this.toUInt().plus(other)\n    /** Adds the other value to this
value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: ULong): ULong =
this.toULong().plus(other)\n\n    /** Subtracts the other value from this value. */\n    @kotlin.internal.InlineOnly\n
public inline operator fun minus(other: UByte): UInt = this.toUInt().minus(other.toUInt())\n    /** Subtracts the
other value from this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: UShort):
UInt = this.toUInt().minus(other.toUInt())\n\n    /** Subtracts the other value from this value. */\n    @kotlin.internal.InlineOnly\n
public inline operator fun minus(other: UInt): UInt = this.toUInt().minus(other)\n    /** Subtracts the other value from this value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: ULong): ULong =
this.toULong().minus(other)\n\n    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n
public inline operator fun times(other: UByte): UInt = this.toUInt().times(other.toUInt())\n    /** Multiplies this
value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UShort): UInt
= this.toUInt().times(other.toUInt())\n    /** Multiplies this value by the other value. */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UInt): UInt = this.toUInt().times(other)\n
    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun times(other: ULong): ULong = this.toULong().times(other)\n\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun div(other: UByte): UInt = this.toUInt().div(other.toUInt())\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun div(other: UShort): UInt = this.toUInt().div(other.toUInt())\n    /** Divides this value by the other value,
truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator
fun div(other: UInt): UInt = this.toUInt().div(other)\n    /** Divides this value by the other value, truncating the
result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun div(other:
ULong): ULong = this.toULong().div(other)\n\n    /**\n    * Calculates the remainder of truncating division of this value by the other value.\n    * \n    * The result
is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n    public inline operator fun rem(other:
UByte): UInt = this.toUInt().rem(other.toUInt())\n    /**\n    * Calculates the remainder of truncating division of
this value by the other value.\n    * \n    * The result is always less than the divisor.\n    */\n
    @kotlin.internal.InlineOnly\n    public inline operator fun rem(other: UShort): UInt =
this.toUInt().rem(other.toUInt())\n    /**\n    * Calculates the remainder of truncating division of this value by the
other value.\n    * \n    * The result is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n
public inline operator fun rem(other: UInt): UInt = this.toUInt().rem(other)\n    /**\n    * Calculates the remainder of
truncating division of this value by the other value.\n    * \n    * The result
is always less than the divisor.\n    */\n    @kotlin.internal.InlineOnly\n    public inline operator fun rem(other:
ULong): ULong = this.toULong().rem(other)\n\n    /**\n    * Divides this value by the other value, flooring the
result to an integer that is closer to negative infinity.\n    * \n    * For unsigned types, the results of flooring division
and truncating division are the same.\n    */\n    @kotlin.internal.InlineOnly\n    public inline fun floorDiv(other:
UByte): UInt = this.toUInt().floorDiv(other.toUInt())\n    /**\n    * Divides this value by the other value, flooring
the result to an integer that is closer to negative infinity.\n    * \n    * For unsigned types, the results of flooring
division and truncating division are the same.\n    */\n    @kotlin.internal.InlineOnly\n    public inline fun
floorDiv(other: UShort): UInt = this.toUInt().floorDiv(other.toUInt())\n    /**\n    * Divides this value by the other
value, flooring the result to an integer that is
closer to negative infinity.\n    * \n    * For unsigned types, the results of flooring division and truncating division
are the same.\n    */\n    @kotlin.internal.InlineOnly\n    public inline fun floorDiv(other: UInt): UInt =
this.toUInt().floorDiv(other)\n    /**\n    * Divides this value by the other value, flooring the result to an integer that

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is closer to negative infinity.\n \* \n \* For unsigned types, the results of flooring division and truncating division are the same.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: ULong): ULong = this.toULong().floorDiv(other)\n\n /\*\*\n \* Calculates the remainder of flooring division of this value by the other value.\n \* \n \* The result is always less than the divisor.\n \* \n \* For unsigned types, the remainders of flooring division and truncating division are the same.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UByte): UByte = this.toUInt().mod(other.toUInt()).toUByte()\n

/\*\*\n \* Calculates the remainder of flooring division of this value by the other value.\n \* \n \* The result is always less than the divisor.\n \* \n \* For unsigned types, the remainders of flooring division and truncating division are the same.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UShort): UShort = this.toUInt().mod(other.toUInt()).toUShort()\n\n /\*\*\n \* Calculates the remainder of flooring division of this value by the other value.\n \* \n \* The result is always less than the divisor.\n \* \n \* For unsigned types, the remainders of flooring division and truncating division are the same.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun mod(other: UInt): UInt = this.toUInt().mod(other)\n\n /\*\*\n \* Calculates the remainder of flooring division of this value by the other value.\n \* \n \* The result is always less than the divisor.\n \* \n \*

\* \n \* For unsigned types, the remainders of flooring division and truncating division are the same.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun mod(other: ULong): ULong = this.toULong().mod(other)\n\n /\*\*\n \* Returns this value incremented by one.\n \* \n \* @sample samples.misc.Builtins.inc\n \*/\n @kotlin.internal.InlineOnly\n public inline operator fun inc(): UShort = UShort(data.inc())\n\n /\*\*\n \* Returns this value decremented by one.\n \* \n \* @sample samples.misc.Builtins.dec\n \*/\n @kotlin.internal.InlineOnly\n public inline operator fun dec(): UShort = UShort(data.dec())\n\n /\*\* Creates a range from this value to the specified [other] value. \*/\n @kotlin.internal.InlineOnly\n public inline operator fun rangeTo(other: UShort): UIntRange = UIntRange(this.toUInt(), other.toUInt())\n\n /\*\* Performs a bitwise AND operation between the two values. \*/\n @kotlin.internal.InlineOnly\n public inline infix fun and(other: UShort): UShort = UShort(this.data and other.data)\n\n /\*\* Performs a bitwise OR operation between the two values. \*/\n @kotlin.internal.InlineOnly\n public inline infix fun or(other: UShort): UShort = UShort(this.data or other.data)\n\n /\*\* Performs a bitwise XOR operation between the two values. \*/\n @kotlin.internal.InlineOnly\n public inline infix fun xor(other: UShort): UShort = UShort(this.data xor other.data)\n\n /\*\* Inverts the bits in this value. \*/\n @kotlin.internal.InlineOnly\n public inline fun inv(): UShort = UShort(data.inv())\n\n /\*\*\n \* Converts this [UShort] value to [Byte].\n \* \n \* If this value is less than or equals to [Byte.MAX\_VALUE], the resulting `Byte` value represents\n \* the same numerical value as this `UShort`.\n \* \n \* The resulting `Byte` value is represented by the least significant 8 bits of this `UShort` value.\n \* \n \* Note that the resulting `Byte` value may be negative.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun toByte(): Byte = data.toByte()\n\n /\*\*\n \* Converts this [UShort] value to [Short].\n \* \n \* If this value is less than or equals to [Short.MAX\_VALUE], the resulting `Short` value represents\n \* the same numerical value as this `UShort`. Otherwise the result is negative.\n \* \n \* The resulting `Short` value has the same binary representation as this `UShort` value.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun toShort(): Short = data\n\n /\*\*\n \* Converts this [UShort] value to [Int].\n \* \n \* The resulting `Int` value represents the same numerical value as this `UShort`.\n \* \n \* The least significant 16 bits of the resulting `Int` value are the same as the bits of this `UShort` value,\n \* whereas the most significant 16 bits are filled with zeros.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun toInt(): Int = data.toInt() and 0xFFFF\n\n /\*\*\n \* Converts this

[UShort] value to [Long].\n \* \n \* The resulting `Long` value represents the same numerical value as this `UShort`.\n \* \n \* The least significant 16 bits of the resulting `Long` value are the same as the bits of this `UShort` value,\n \* whereas the most significant 48 bits are filled with zeros.\n \*/\n @kotlin.internal.InlineOnly\n public inline fun toLong(): Long = data.toLong() and 0xFFFF\n\n /\*\*\n \* Converts this [UShort] value to [UByte].\n \* \n \* If this value is less than or equals to [UByte.MAX\_VALUE], the resulting `UByte` value represents\n \* the same numerical value as this `UShort`.\n \* \n \* The resulting



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`UByte` value is represented by the least significant 8 bits of this `UShort` value.\n    */\n
@kotlin.internal.InlineOnly\n    public inline fun toUByte(): UByte = data.toUByte()\n    /** Returns this value. */\n
    @kotlin.internal.InlineOnly\n    public inline fun toUShort(): UShort = this\n    /**\n    * Converts this [UShort] value to [UInt].\n    * The resulting `UInt` value represents the same numerical value as this `UShort`.\n    * The least significant 16 bits of the resulting `UInt` value are the same as the bits of this `UShort` value,\n    * whereas the most significant 16 bits are filled with zeros.\n    */\n
    @kotlin.internal.InlineOnly\n    public inline fun toUInt(): UInt = UInt(data.toInt() and 0xFFFF)\n    /**\n    * Converts this [UShort] value to [ULong].\n    * The resulting `ULong` value represents the same numerical value as this `UShort`.\n    * The least significant 16 bits of the resulting `ULong` value are the same as the bits of this `UShort` value,\n    * whereas the most significant 48 bits are filled with zeros.\n    */\n
    @kotlin.internal.InlineOnly\n    public inline fun toULong(): ULong = ULong(data.toLong() and 0xFFFF)\n    /**\n    * Converts this [UShort] value to [Float].\n    * The resulting `Float` value represents the same numerical value as this `UShort`.\n    */\n
    @kotlin.internal.InlineOnly\n    public inline fun toFloat(): Float = this.toInt().toFloat()\n    /**\n    * Converts this [UShort] value to [Double].\n    * The resulting `Double` value represents the same numerical value as this `UShort`.\n    */\n
    @kotlin.internal.InlineOnly\n    public inline fun toDouble(): Double = this.toInt().toDouble()\n\n    public override fun toString(): String = toInt().toString()\n\n}
\n\n/**\n * Converts this [Byte] value to [UShort].\n * If this value is positive, the resulting `UShort` value represents the same numerical value as this `Byte`.\n * The least significant 8 bits of the resulting `UShort` value are the same as the bits of this `Byte` value,\n * whereas the most significant 8 bits are filled with the sign bit of this value.\n */\n
\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.toUShort(): UShort = UShort(this.toShort())\n/**\n * Converts this [Short] value to [UShort].\n * If this value is positive, the resulting `UShort` value represents the same numerical value as this `Short`.\n * The resulting `UShort` value has the same binary representation as this `Short` value.\n */\n
\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Short.toUShort(): UShort = UShort(this)\n/**\n * Converts this [Int] value to [UShort].\n * If this value is positive and less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n * the same numerical value as this `Int`.\n * The resulting `UShort` value is represented by the least significant 16 bits of this `Int` value.\n */\n
\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Int.toUShort(): UShort = UShort(this.toShort())\n/**\n * Converts this [Long] value to [UShort].\n * If this value is positive and less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n * the same numerical value as this `Long`.\n * The resulting `UShort` value is represented by the least significant 16 bits of this `Long` value.\n */\n
\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun Long.toUShort(): UShort = UShort(this.toShort())
\n", "*/\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\n/**\n * A range of values of type `Char`.\n */\npublic class CharRange(start: Char, endInclusive: Char) : CharProgression(start, endInclusive, 1), ClosedRange<Char> {\n    override val start: Char get() = first\n    override val endInclusive: Char get() = last\n\n    override fun contains(value: Char): Boolean = first <= value && value <= last\n\n    /**\n    * Checks whether the range is empty.\n    * The range is empty if its start value is greater than the end value.\n    */\n    override fun isEmpty(): Boolean = first > last\n\n    override fun equals(other: Any?): Boolean =\n        other is CharRange && (isEmpty() && other.isEmpty() ||\n            first == other.first && last == other.last)\n\n    override fun hashCode(): Int =\n        if (isEmpty()) -1 else (31 * first.code + last.code)\n\n    override fun toString(): String = "$first..$last"\n\n    companion object {\n        /**\n        * An empty range of values of type Char.
        */\n        public

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val EMPTY: CharRange = CharRange(1.toChar(), 0.toChar())\n } }\n\n/**\n * A range of values of type `Int`.\n */\npublic class IntRange(start: Int, endInclusive: Int) : IntProgression(start, endInclusive, 1), ClosedRange<Int> {\n    override val start: Int get() = first\n        override val endInclusive: Int get() = last\n\n        override fun contains(value: Int): Boolean = first <= value &&\n            value <= last\n\n        /**\n         * Checks whether the range is empty.\n         *\n         * The range is empty if its start value is\n         * greater than the end value.\n         */\n        override fun isEmpty(): Boolean = first > last\n\n        override fun equals(other:\n            Any?): Boolean =\n            other is IntRange && (isEmpty() && other.isEmpty() ||\n                first == other.first && last\n                    == other.last)\n\n        override fun hashCode(): Int =\n            if (isEmpty()) -1 else (31 * first + last)\n\n        override fun\n            toString(): String = \"$first..$last\"\n\n        companion object {\n            /** An empty range of values of type Int. */\n            public val EMPTY: IntRange = IntRange(1, 0)\n        }\n\n        /**\n         * A range of values of type `Long`.\n         */\n        public class LongRange(start: Long, endInclusive: Long) : LongProgression(start, endInclusive, 1), ClosedRange<Long>\n        {\n            override val start: Long get()\n                = first\n            override val endInclusive: Long get() = last\n\n            override fun contains(value: Long): Boolean = first <= value && value <= last\n\n            /**\n             * Checks whether the range is empty.\n             *\n             * The range is empty if its\n             * start value is greater than the end value.\n             */\n            override fun isEmpty(): Boolean = first > last\n\n            override fun\n                equals(other: Any?): Boolean =\n                other is LongRange && (isEmpty() && other.isEmpty() ||\n                    first ==\n                        other.first && last == other.last)\n\n            override fun hashCode(): Int =\n                if (isEmpty()) -1 else (31 * (first xor\n                    (first ushr 32)) + (last xor (last ushr 32))).toInt()\n\n            override fun toString(): String = \"$first..$last\"\n\n            companion object {\n                /** An empty range of values of type Long. */\n                public val EMPTY: LongRange =\n                    LongRange(1, 0)\n            }\n\n            /**\n             * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language\n             * contributors.\n             * Use of this source code is governed by\n             * the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n             */\n            @file:kotlin.jvm.JvmMultifileClass\n            @file:kotlin.jvm.JvmName("CollectionsKt")\n            @file:OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n            @package kotlin.collections\n            @import kotlin.contracts.*\n            @import\n                kotlin.random.Random\n            @internal object EmptyIterator : ListIterator<Nothing> {\n                override fun hasNext():\n                    Boolean = false\n                override fun hasPrevious(): Boolean = false\n                override fun nextIndex(): Int = 0\n                override fun\n                    previousIndex(): Int = -1\n                override fun next(): Nothing = throw NoSuchElementException()\n                override fun\n                    previous(): Nothing = throw NoSuchElementException()\n            }\n            @internal object EmptyList : List<Nothing>,\n                Serializable, RandomAccess {\n                private const val serialVersionUID: Long = -7390468764508069838L\n\n                override fun equals(other: Any?): Boolean = other is List<*> && other.isEmpty()\n                override fun hashCode(): Int\n                    = 1\n                override fun toString(): String\n                    = "[]"\n                override val size: Int get() = 0\n                override fun isEmpty(): Boolean = true\n                override fun\n                    contains(element: Nothing): Boolean = false\n                override fun\n                    containsAll(elements: Collection<Nothing>): Boolean\n                    = elements.isEmpty()\n                override fun get(index: Int): Nothing = throw IndexOutOfBoundsException("Empty list\n                    doesn't contain element at index $index.")\n                override fun\n                    indexOf(element: Nothing): Int = -1\n                override fun\n                    lastIndexOf(element: Nothing): Int = -1\n                override fun iterator(): Iterator<Nothing> = EmptyIterator\n                override fun\n                    listIterator(): ListIterator<Nothing> = EmptyIterator\n                override fun\n                    listIterator(index: Int):\n                    ListIterator<Nothing> {\n                        if (index != 0) throw IndexOutOfBoundsException("Index: $index")\n                        return\n                            EmptyIterator\n                    }\n                override fun\n                    subList(fromIndex: Int, toIndex: Int): List<Nothing> {\n                        if (fromIndex\n                            == 0 && toIndex == 0) return this\n                            throw IndexOutOfBoundsException("fromIndex:\n                                $fromIndex, toIndex: $toIndex")\n                    }\n                private fun readResolve(): Any = EmptyList\n\n                @internal fun <T>\n                    Array<out T>.asCollection(): Collection<T> = ArrayAsCollection(this, isVarargs = false)\n\n                private class\n                    ArrayAsCollection<T>(val values: Array<out T>, val isVarargs: Boolean) : Collection<T> {\n                        override val size:\n                            Int get() = values.size\n                        override fun\n                            isEmpty(): Boolean = values.isEmpty()\n                        override fun\n                            contains(element:\n                                T): Boolean = values.contains(element)\n                        override fun\n                            containsAll(elements: Collection<T>): Boolean =\n                                elements.all { contains(it) }\n                        override fun\n                            iterator(): Iterator<T> = values.iterator()\n                        // override hidden toArray\n                            implementation to prevent copying of values array\n                        public fun toArray(): Array<out Any?> =\n                            values.copyToArrayOfAny(isVarargs)\n                    }\n\n                /**\n                 * Returns an empty read-only list. The returned list is

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serializable (JVM).\n * @sample samples.collections.Collections.Lists.emptyReadOnlyList\n *^\\npublic fun <T>
emptyList(): List<T>
= EmptyList\\n\\n/**\\n * Returns a new read-only list of given elements. The returned list is serializable (JVM).\n *
@sample samples.collections.Collections.Lists.readOnlyList\n *^\\npublic fun <T> listOf(vararg elements: T):
List<T> = if (elements.size > 0) elements.asList() else emptyList()\\n\\n/**\\n * Returns an empty read-only list. The
returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.emptyReadOnlyList\n
*^\\n@kotlin.internal.InlineOnly\\npublic inline fun <T> listOf(): List<T> = emptyList()\\n\\n/**\\n * Returns an empty
new [MutableList].\n * @sample samples.collections.Collections.Lists.emptyMutableList\n
*^\\n@SinceKotlin("1.1")\\n@kotlin.internal.InlineOnly\\npublic inline fun <T> mutableListOf(): MutableList<T> =
ArrayList()\\n\\n/**\\n * Returns an empty new [ArrayList].\n * @sample
samples.collections.Collections.Lists.emptyArrayList\n
*^\\n@SinceKotlin("1.1")\\n@kotlin.internal.InlineOnly\\npublic inline fun <T> arrayListOf(): ArrayList<T>
= ArrayList()\\n\\n/**\\n * Returns a new [MutableList] with the given elements.\n * @sample
samples.collections.Collections.Lists.mutableList\n *^\\npublic fun <T> mutableListOf(vararg elements: T):
MutableList<T> =\n if (elements.size == 0) ArrayList() else ArrayList(ArrayAsCollection(elements, isVarargs =
true))\\n\\n/**\\n * Returns a new [ArrayList] with the given elements.\n * @sample
samples.collections.Collections.Lists.arrayList\n *^\\npublic fun <T> arrayListOf(vararg elements: T): ArrayList<T>
=\\n if (elements.size == 0) ArrayList() else ArrayList(ArrayAsCollection(elements, isVarargs = true))\\n\\n/**\\n *
Returns a new read-only list either of single given element, if it is not null, or empty list if the element is null. The
returned list is serializable (JVM).\n * @sample samples.collections.Collections.Lists.listOfNotNull\n *^\\npublic fun
<T : Any> listOfNotNull(element: T?): List<T> = if (element != null) listOf(element) else emptyList()\\n\\n/**\\n *
Returns a new read-only list
only of those given elements, that are not null. The returned list is serializable (JVM).\n * @sample
samples.collections.Collections.Lists.listOfNotNull\n *^\\npublic fun <T : Any> listOfNotNull(vararg elements: T?):
List<T> = elements.filterNotNull()\\n\\n/**\\n * Creates a new read-only list with the specified [size], where each
element is calculated by calling the specified\n * [init] function.\n * \\n * \\n * The function [init] is called for each list
element sequentially starting from the first one.\n * \\n * It should return the value for a list element given its index.\n * \\n * \\n *
@sample samples.collections.Collections.Lists.readOnlyListFromInitializer\n
*^\\n@SinceKotlin("1.1")\\n@kotlin.internal.InlineOnly\\npublic inline fun <T> List(size: Int, init: (index: Int) -> T):
List<T> = MutableList(size, init)\\n\\n/**\\n * Creates a new mutable list with the specified [size], where each element
is calculated by calling the specified\n * [init] function.\n * \\n * \\n * The function [init] is called for each
list element sequentially starting from the first one.\n * \\n * It should return the value for a list element given its index.\n * \\n * \\n *
@sample samples.collections.Collections.Lists.mutableListFromInitializer\n
*^\\n@SinceKotlin("1.1")\\n@kotlin.internal.InlineOnly\\npublic inline fun <T> MutableList(size: Int, init: (index:
Int) -> T): MutableList<T> {\n val list = ArrayList<T>(size)\n repeat(size) { index -> list.add(init(index)) }\n
return list\n}\\n\\n/**\\n * Builds a new read-only [List] by populating a [MutableList] using the given
[builderAction]\n * \\n * \\n * and returning a read-only list with the same elements.\n * \\n * \\n * The list passed as a receiver to the
[builderAction] is valid only inside that function.\n * \\n * Using it outside of the function produces an unspecified
behavior.\n * \\n * \\n * The returned list is serializable (JVM).\n * \\n * \\n * @sample
samples.collections.Builders.Lists.buildListSample\n
*^\\n@SinceKotlin("1.6")\\n@WasExperimental(ExperimentalStdlibApi::class)\\n@kotlin.internal.InlineOnly\\npublic
inline fun <E> buildList(@BuilderInference builderAction: MutableList<E>().() -> Unit): List<E> {\n contract {
callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n return
buildListInternal(builderAction)\n}\\n\\n@PublishedApi\n@SinceKotlin("1.3")\\n@kotlin.internal.InlineOnly\\ninternal
expect inline fun <E> buildListInternal(builderAction: MutableList<E>().() -> Unit): List<E>\\n\\n/**\\n * Builds a
new read-only [List] by populating a [MutableList] using the given [builderAction]\n * \\n * \\n * and returning a read-only list
with the same elements.\n * \\n * \\n * The list passed as a receiver to the [builderAction] is valid only inside that

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function.  
 \* Using it outside of the function produces an unspecified behavior.  
 \* The returned list is serializable (JVM).  
 \* [capacity] is used to hint the expected number of elements added in the [builderAction].  
 \* @throws IllegalArgumentException if the given [capacity] is negative.  
 \* @sample samples.collections.Builders.Lists.buildListSampleWithCapacity

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*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <E> buildList(capacity: Int, @BuilderInference builderAction: MutableList<E>().->Unit): List<E> {\n    contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n    return buildListInternal(capacity, builderAction)\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninternal expect inline fun <E> buildListInternal(capacity: Int, builderAction: MutableList<E>().->Unit): List<E>\n\n/**\n * Returns an [IntRange] of the valid indices for this collection.\n * @sample samples.collections.Collections.Collections.indicesOfCollection\n */\npublic val Collection<*>.indices: IntRange\n    get() = 0..size - 1\n\n/**\n * Returns the index of the last item in the list or -1 if the list is empty.\n * @sample samples.collections.Collections.Lists.lastIndexOfList\n */\npublic val <T> List<T>.lastIndex: Int\n    get() = this.size - 1\n\n/**\n * Returns `true` if the collection is not empty.\n * @sample samples.collections.Collections.Collections.collectionIsNotEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.isNotEmpty(): Boolean = !isEmpty()\n\n/**\n * Returns `true` if this nullable collection is either null or empty.\n * @sample samples.collections.Collections.Collections.collectionIsNullOrEmpty\n */\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>?.isNullOrEmpty(): Boolean {\n    contract {\n        returns(false) implies (this@isNullOrEmpty != null)\n    }\n    return this == null || this.isEmpty()\n}\n\n/**\n * Returns this Collection if it's not `null` and the empty list otherwise.\n * @sample samples.collections.Collections.Collections.collectionOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>?.orElse(): Collection<T> = this ?: emptyList()\n\n/**\n * Returns this List if it's not `null` and the empty list otherwise.\n * @sample samples.collections.Collections.Lists.listOrElse\n */\n@kotlin.internal.InlineOnly\npublic inline fun <T> List<T>?.orElse(): List<T> = this ?: emptyList()\n\n/**\n * Returns this collection if it's not empty\n * or the result of calling [defaultValue] function if the collection is empty.\n * @sample samples.collections.Collections.Collections.collectionIfEmpty\n */\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun <C, R> C.ifEmpty(defaultValue: () -> R): R where C : Collection<*>, C : R =\n    if (isEmpty()) defaultValue() else this\n\n/**\n * Checks if all elements in the specified collection are contained in this collection.\n * @sample samples.collections.Collections.Collections.collectionContainsAll\n */\n * Allows to overcome type-safety restriction of `containsAll` that requires to pass a collection of type `Collection<E>`.\n * @sample samples.collections.Collections.Collections.collectionContainsAll\n */\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER") // false warning, extension takes precedence in some cases\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes T> Collection<T>.containsAll(elements: Collection<T>): Boolean = this.containsAll(elements)\n\n/**\n * Returns a new list with the elements of this list randomly shuffled\n * using the specified [random] instance as the source of randomness.\n * @sample samples.collections.Collections.Collections.collectionShuffled\n */\n@SinceKotlin("1.3")\npublic fun <T> Iterable<T>.shuffled(random: Random): List<T> = toMutableList().apply { shuffle(random) }\n\ninternal fun <T> List<T>.optimizeReadOnlyList() = when (size) {\n    0 -> emptyList()\n    1 -> listOf(this[0])\n    else -> this\n}\n\n/**\n * Searches this list or its range for the provided [element] using the binary search algorithm.\n * The list is expected to be sorted into ascending order according to the Comparable natural ordering of its elements,\n * otherwise the result is undefined.\n * If the list contains multiple elements equal to the specified [element], there is no guarantee which one will be found.\n * `null` value is considered to be less than any non-null value.\n * @return the index of the element, if it is contained in the list within the specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined as the index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still remains sorted.\n * @sample samples.collections.Collections.Lists.binarySearchOnComparable\n * @sample samples.collections.Collections.Lists.binarySearchWithBoundaries\n */\npublic fun <T : Comparable<T>> List<T?>.binarySearch(element: T?, fromIndex: Int = 0, toIndex: Int = size): Int {\n    rangeCheck(size, fromIndex,
```

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toIndex)\n\n    var low = fromIndex\n    var high = toIndex - 1\n\n    while (low <= high) {\n        val mid = (low +
high).ushr(1) // safe from overflows\n        val midVal = get(mid)\n        val cmp = compareValues(midVal,
element)\n\n        if (cmp < 0)\n            low = mid + 1\n        else if (cmp > 0)\n            high = mid - 1\n        else\n            return mid // key found\n    }\n    return -(low + 1) // key not found\n}\n\n/**\n * Searches this list or its range for the provided [element] using
the binary search algorithm.\n * The list is expected to be sorted into ascending order according to the specified
[comparator],\n * otherwise the result is undefined.\n * If the list contains multiple elements equal to the
specified [element], there is no guarantee which one will be found.\n * `null` value is considered to be less than
any non-null value.\n * @return the index of the element, if it is contained in the list within the specified
range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined as the
index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still remains
sorted according to the specified [comparator].\n
 * @sample samples.collections.Collections.Lists.binarySearchWithComparator\n */\npublic fun <T>
List<T>.binarySearch(element: T, comparator: Comparator<in T>, fromIndex: Int = 0, toIndex: Int = size): Int {\n
    rangeCheck(size, fromIndex, toIndex)\n\n    var low = fromIndex\n    var high = toIndex - 1\n\n    while (low <=
high) {\n        val mid = (low + high).ushr(1) // safe from overflows\n        val midVal = get(mid)\n        val cmp =
comparator.compare(midVal, element)\n\n        if (cmp < 0)\n            low = mid + 1\n        else if (cmp > 0)\n
            high = mid - 1\n        else\n            return mid // key found\n    }\n    return -(low + 1) // key not found\n}\n\n/**\n * Searches this list or its range for an element having the key returned by the specified [selector] function\n * equal to
the provided [key] value using the binary search algorithm.\n * The list is expected to be sorted into ascending order
according to the Comparable natural ordering of keys
of its elements.\n * otherwise the result is undefined.\n * If the list contains multiple elements with the specified
[key], there is no guarantee which one will be found.\n * `null` value is considered to be less than any non-null
value.\n * @return the index of the element with the specified [key], if it is contained in the list within the
specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The insertion point is defined
as the index at which the element should be inserted,\n * so that the list (or the specified subrange of list) still
remains sorted.\n * @sample samples.collections.Collections.Lists.binarySearchByKey\n */\npublic inline fun <T,
K : Comparable<K>> List<T>.binarySearchBy(\n    key: K?,\n    fromIndex: Int = 0,\n    toIndex: Int = size,\n    crossinline selector: (T) -> K?): Int =\n    binarySearch(fromIndex, toIndex) { compareValues(selector(it), key)
}\n\n// do not introduce this overload --- too rare\npublic fun
<T, K> List<T>.binarySearchBy(key: K, comparator: Comparator<K>, fromIndex: Int = 0, toIndex: Int = size(),
selector: (T) -> K): Int =\n    binarySearch(fromIndex, toIndex) { comparator.compare(selector(it), key)
}\n\n/**\n * Searches this list or its range for an element for which the given [comparison] function returns zero
using the binary search algorithm.\n * The list is expected to be sorted so that the signs of the [comparison]
function's return values ascend on the list elements,\n * i.e. negative values come before zero and zeroes come
before positive values.\n * Otherwise, the result is undefined.\n * If the list contains multiple elements for which
[comparison] returns zero, there is no guarantee which one will be found.\n * @param comparison function that
returns zero when called on the list element being searched.\n * On the elements coming before the target element,
the function must return negative values;\n * on the elements coming after the target
element, the function must return positive values.\n * @return the index of the found element, if it is contained
in the list within the specified range;\n * otherwise, the inverted insertion point `(-insertion point - 1)`.\n * The
insertion point is defined as the index at which the element should be inserted,\n * so that the list (or the specified
subrange of list) still remains sorted.\n * @sample
samples.collections.Collections.Lists.binarySearchWithComparisonFunction\n */\npublic fun <T>
List<T>.binarySearch(fromIndex: Int = 0, toIndex: Int = size, comparison: (T) -> Int): Int {\n    rangeCheck(size,
fromIndex, toIndex)\n\n    var low = fromIndex\n    var high = toIndex - 1\n\n    while (low <= high) {\n        val mid
= (low + high).ushr(1) // safe from overflows\n        val midVal = get(mid)\n        val cmp = comparison(midVal)\n\n
        if (cmp < 0)\n            low = mid + 1\n        else if (cmp > 0)\n            high = mid - 1\n        else\n
            return

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mid //
key found\n } \n return -(low + 1) // key not found\n}\n\n/**\n * Checks that `from` and `to` are in\n * the range
of [0..size] and throws an appropriate exception, if they aren't.\n */\nprivate fun rangeCheck(size: Int, fromIndex:
Int, toIndex: Int) {\n when {\n fromIndex > toIndex -> throw IllegalArgumentException("\nfromIndex
($fromIndex) is greater than toIndex ($toIndex).")\n fromIndex < 0 -> throw
IndexOutOfBoundsException("\nfromIndex ($fromIndex) is less than zero.")\n toIndex > size -> throw
IndexOutOfBoundsException("\ntoIndex ($toIndex) is greater than size ($size).")\n
}\n}\n\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal expect fun checkIndexOverflow(index: Int):
Int\n\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal expect fun checkCountOverflow(count: Int):
Int\n\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal fun throwIndexOverflow() { throw
ArithmeticException("\nIndex overflow has happened.") }\n\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal
fun throwCountOverflow() { throw ArithmeticException("\nCount overflow has happened.") }\n\n\n"/*\n *
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governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("\nMapsKt")\n@file:OptIn(kotlin.experiment
al.ExperimentalTypeInference::class)\n\npackage kotlin.collections\n\nimport kotlin.contracts.*\n\nprivate object
EmptyMap : Map<Any?, Nothing>, Serializable {\n private const val serialVersionUID: Long =
8246714829545688274\n\n override fun equals(other: Any?): Boolean = other is Map<*, *> &&
other.isEmpty()\n\n override fun hashCode(): Int = 0\n\n override fun toString(): String = "{}"\n\n\n override val
size: Int get() = 0\n\n override fun isEmpty(): Boolean = true\n\n\n override fun containsKey(key: Any?): Boolean =
false\n\n\n override fun containsValue(value:
Nothing): Boolean = false\n\n\n override fun get(key: Any?): Nothing? = null\n\n\n override val entries:
Set<Map.Entry<Any?, Nothing>> get() = EmptySet\n\n\n override val keys: Set<Any?> get() = EmptySet\n\n
override val values: Collection<Nothing> get() = EmptyList\n\n\n private fun readResolve(): Any =
EmptyMap\n}\n\n\n/**\n * Returns an empty read-only map of specified type.\n */\n * The returned map is serializable
(JVM).\n * @sample samples.collections.Maps.Instantiation.emptyReadOnlyMap\n */\n\npublic fun <K, V>
emptyMap(): Map<K, V> = @Suppress("\nUNCHECKED_CAST") (EmptyMap as Map<K, V>)\n\n\n\n/**\n * Returns
a new read-only map with the specified contents, given as a list of pairs\n * where the first value is the key and the
second is the value.\n */\n * If multiple pairs have the same key, the resulting map will contain the value from the
last of those pairs.\n */\n * Entries of the map are iterated in the order they were specified.\n */\n * The returned map
is serializable (JVM).\n\n\n */\n * @sample samples.collections.Maps.Instantiation.mapFromPairs\n */\n\npublic fun <K, V> mapOf(vararg pairs:
Pair<K, V>): Map<K, V> =\n\n if (pairs.size > 0) pairs.toMap(LinkedHashMap(mapCapacity(pairs.size))) else
emptyMap()\n\n\n\n/**\n * Returns an empty read-only map.\n */\n * The returned map is serializable (JVM).\n *
@sample samples.collections.Maps.Instantiation.emptyReadOnlyMap\n */\n\n@kotl
in.internal.InlineOnly\n\npublic inline fun <K, V> mapOf(): Map<K, V> = emptyMap()\n\n\n\n/**\n * Returns an empty new [MutableMap].\n */\n *
The returned map preserves the entry iteration order.\n * @sample
samples.collections.Maps.Instantiation.emptyMutableMap\n\n\n */\n\n@kotl
in("1.1")\n\n@kotl
in.internal.InlineOnly\n\npublic inline fun <K, V> mutableMapOf():
MutableMap<K, V> = LinkedHashMap()\n\n\n\n/**\n * Returns a new [MutableMap] with the specified contents, given
as a list of pairs\n * where the first component is the key and the second is the value.\n */\n * If multiple pairs have
the same key,
the resulting map will contain the value from the last of those pairs.\n */\n * Entries of the map are iterated in the
order they were specified.\n */\n * @sample samples.collections.Maps.Instantiation.mutableMapFromPairs\n *
@sample samples.collections.Maps.Instantiation.emptyMutableMap\n */\n\npublic fun <K, V> mutableMapOf(vararg
pairs: Pair<K, V>): MutableMap<K, V> =\n\n LinkedHashMap<K, V>(mapCapacity(pairs.size)).apply {
putAll(pairs) }\n\n\n\n/**\n * Returns an empty new [HashMap].\n */\n * @sample
samples.collections.Maps.Instantiation.emptyHashMap\n

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*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> hashMapOf(): HashMap<K, V>
= HashMap<K, V>()\n/**\n * Returns a new [HashMap] with the specified contents, given as a list of pairs\n *
where the first component is the key and the second is the value.\n *\n * @sample
samples.collections.Maps.Instantiation.hashMapFromPairs\n */\npublic fun <K, V> hashMapOf(vararg pairs:
Pair<K, V>): HashMap<K, V> = HashMap<K,
V>(mapCapacity(pairs.size)).apply { putAll(pairs) }\n/**\n * Returns an empty new [LinkedHashMap].\n
*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> linkedMapOf():
LinkedHashMap<K, V> = LinkedHashMap<K, V>()\n/**\n * Returns a new [LinkedHashMap] with the specified
contents, given as a list of pairs\n * where the first component is the key and the second is the value.\n *\n * If
multiple pairs have the same key, the resulting map will contain the value from the last of those pairs.\n *\n *
Entries of the map are iterated in the order they were specified.\n *\n * @sample
samples.collections.Maps.Instantiation.linkedMapFromPairs\n */\npublic fun <K, V> linkedMapOf(vararg pairs:
Pair<K, V>): LinkedHashMap<K, V> = pairs.toMap(LinkedHashMap(mapCapacity(pairs.size)))\n/**\n * Builds
a new read-only [Map] by populating a [MutableMap] using the given [builderAction]\n * and returning a read-only
map with the same key-value pairs.\n *\n * The map passed
as a receiver to the [builderAction] is valid only inside that function.\n * Using it outside of the function produces
an unspecified behavior.\n *\n * Entries of the map are iterated in the order they were added by the
[builderAction].\n *\n * The returned map is serializable (JVM).\n *\n * @sample
samples.collections.Builders.Maps.buildMapSample\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun <K, V> buildMap(@BuilderInference builderAction: MutableMap<K, V>().->Unit): Map<K, V> {\n
contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n return
buildMapInternal(builderAction)\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninter
nal expect inline fun <K, V> buildMapInternal(builderAction: MutableMap<K, V>().->Unit): Map<K,
V>\n/**\n * Builds a new read-only [Map] by populating a [MutableMap] using the given [builderAction]\n * and
returning a read-only map with
the same key-value pairs.\n *\n * The map passed as a receiver to the [builderAction] is valid only inside that
function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * [capacity] is used to hint the
expected number of pairs added in the [builderAction].\n *\n * Entries of the map are iterated in the order they were
added by the [builderAction].\n *\n * The returned map is serializable (JVM).\n *\n * @throws
IllegalArgumentException if the given [capacity] is negative.\n *\n * @sample
samples.collections.Builders.Maps.buildMapSample\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun <K, V> buildMap(capacity: Int, @BuilderInference builderAction: MutableMap<K, V>().->Unit):
Map<K, V> {\n contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n return
buildMapInternal(capacity,
builderAction)\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninternal
expect inline fun <K, V> buildMapInternal(capacity: Int, builderAction: MutableMap<K, V>().->Unit): Map<K,
V>\n/**\n * Calculate the initial capacity of a map.\n *\n@PublishedApi\ninternal expect fun
mapCapacity(expectedSize: Int): Int\n/**\n * Returns `true` if this map is not empty.\n *\n * @sample
samples.collections.Maps.Usage.mapIsNotEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun <K, V>
Map<out K, V>.isNotEmpty(): Boolean = !isEmpty()\n/**\n * Returns `true` if this nullable map is either null or
empty.\n *\n * @sample samples.collections.Maps.Usage.mapIsNullOrEmpty\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K,
V>?.isNullOrEmpty(): Boolean {\n contract {\n returns(false) implies (this@isNullOrEmpty != null)\n }\n\n
return this == null || isEmpty()\n}\n/**\n * Returns the [Map] if its not `null`, or the empty [Map] otherwise.\n
*\n * @sample samples.collections.Maps.Usage.mapOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic

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inline fun <K, V> Map<K, V>?.orEmpty(): Map<K, V> = this ?: emptyMap()\n\n/**\n * Returns this map if it's not
empty\n * or the result of calling [defaultValue] function if the map is empty.\n * \n * @sample
samples.collections.Maps.Usage.mapIfEmpty\n * \n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline fun <M, R> M.ifEmpty(defaultValue: () -> R): R where M : Map<*, *>, M : R =\n if (isEmpty())
defaultValue() else this\n\n/**\n * Checks if the map contains the given key.\n * \n * This method allows to use the
`x in map` syntax for checking whether an object is contained in the map.\n * \n * @sample
samples.collections.Maps.Usage.containsKey\n * \n\n@kotlin.internal.InlineOnly\npublic inline operator fun
<@kotlin.internal.OnlyInputTypes K, V> Map<out K, V>.contains(key: K): Boolean = containsKey(key)\n\n/**\n *
Returns the value corresponding to the given [key], or `null` if such a key is not present in the map.\n
*\n\n@kotlin.internal.InlineOnly\npublic
inline operator fun <@kotlin.internal.OnlyInputTypes K, V> Map<out K, V>.get(key: K): V? =\n
@Suppress("UNCHECKED_CAST") (this as Map<K, V>).get(key)\n\n/**\n * Allows to use the index operator
for storing values in a mutable map.\n * \n\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V>
MutableMap<K, V>.set(key: K, value: V): Unit {\n put(key, value)\n}\n\n/**\n * Returns `true` if the map
contains the specified [key].\n * \n * Allows to overcome type-safety restriction of `containsKey` that requires to
pass a key of type `K`.\n * \n\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes K>
Map<out K, *>.containsKey(key: K): Boolean =\n @Suppress("UNCHECKED_CAST") (this as Map<K,
*>).containsKey(key)\n\n/**\n * Returns `true` if the map maps one or more keys to the specified [value].\n
*\n * Allows to overcome type-safety restriction of `containsValue` that requires to pass a value of type `V`.\n
*\n * @sample samples.collections.Maps.Usage.containsValue\n
*\n\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER") // false warning, extension takes precedence in
some cases\n@kotlin.internal.InlineOnly\npublic inline fun <K, @kotlin.internal.OnlyInputTypes V> Map<K,
V>.containsValue(value: V): Boolean = this.containsValue(value)\n\n/**\n * Removes the specified key and its
corresponding value from this map.\n * \n * @return the previous value associated with the key, or `null` if the key
was not present in the map.\n * \n * Allows to overcome type-safety restriction of `remove` that requires to pass a key
of type `K`.\n * \n\n@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes K, V>
MutableMap<out K, V>.remove(key: K): V? =\n @Suppress("UNCHECKED_CAST") (this as MutableMap<K,
V>).remove(key)\n\n/**\n * Returns the key component of the map entry.\n * \n * This method allows to use
destructuring declarations when working with maps, for example:\n * \n\n```\n * for ((key, value) in map) {\n *
// do something with the key and the value\n * }\n * \n\n```\n * \n\n@kotlin.internal.InlineOnly\npublic inline operator
fun <K, V> Map.Entry<K, V>.component1(): K = key\n\n/**\n * Returns the value component of the map entry.\n
*\n * This method allows to use destructuring declarations when working with maps, for example:\n * \n\n```\n *
for ((key, value) in map) {\n * // do something with the key and the value\n * }\n * \n\n```\n
*\n\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> Map.Entry<K, V>.component2(): V =
value\n\n/**\n * Converts entry to [Pair] with key being first component and value being second.\n
*\n\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map.Entry<K, V>.toPair(): Pair<K, V> = Pair(key,
value)\n\n/**\n * Returns the value for the given key, or the result of the [defaultValue] function if there was no
entry for the given key.\n * \n * @sample samples.collections.Maps.Usage.getOrElse\n
*\n\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<K,
V>.getOrElse(key: K, defaultValue: () -> V): V = get(key) ?: defaultValue()\n\n\ninternal inline fun <K, V>
Map<K, V>.getOrElseNullable(key: K, defaultValue: () -> V): V {\n val value = get(key)\n if (value == null
&& !containsKey(key)) {\n return defaultValue()\n } else {\n @Suppress("UNCHECKED_CAST")\n
return value as V\n }\n}\n\n/**\n * Returns the value for the given [key] or throws an exception if there is no
such key in the map.\n * \n * If the map was created by [withDefault], resorts to its `defaultValue` provider
function\n * instead of throwing an exception.\n * \n * @throws NoSuchElementException when the map doesn't
contain a value for the specified key and\n * no implicit default value was provided for that map.\n
*\n\n@SinceKotlin("1.1")\npublic fun <K, V> Map<K, V>.getValue(key: K): V =
getOrNull(key)\n\n/**\n * Returns the value for the given key. If the key is not found in the map, calls

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the [defaultValue] function, \n \* puts

its result into the map under the given key and returns it. \n \* \n \* Note that the operation is not guaranteed to be atomic if the map is being modified concurrently. \n \* \n \* @sample samples.collections.Maps.Usage.getOrPut \n \* \n public inline fun <K, V> MutableMap<K, V>.getOrPut(key: K, defaultValue: () -> V): V { \n val value = get(key) \n return if (value == null) { \n val answer = defaultValue() \n put(key, answer) \n answer \n } \n else { \n value \n } \n } \n \* \n \* Returns an [Iterator] over the entries in the [Map]. \n \* \n \* @sample samples.collections.Maps.Usage.forOverEntries \n \* \n @kotlin.internal.InlineOnly \n public inline operator fun <K, V> Map<out K, V>.iterator(): Iterator<Map.Entry<K, V>> = entries.iterator() \n \* \n \* Returns a [MutableIterator] over the mutable entries in the [MutableMap]. \n \* \n \* \n \* @kotlin.jvm.JvmName("\n mutableIterator") \n \* \n @kotlin.internal.InlineOnly \n public inline operator fun <K, V> MutableMap<K, V>.iterator(): MutableIterator<MutableMap.MutableEntry<K, V>> = entries.iterator() \n \* \n \* \n \* Populates the given [destination] map with entries having the keys of this map and the values obtained \n \* by applying the [transform] function to each entry in this [Map]. \n \* \n \* \n public inline fun <K, V, R, M : MutableMap<in K, in R>> Map<out K, V>.mapValuesTo(destination: M, transform: (Map.Entry<K, V>) -> R): M { \n return entries.associateByTo(destination, { it.key }, transform) \n } \n \* \n \* \n \* Populates the given [destination] map with entries having the keys obtained \n \* by applying the [transform] function to each entry in this [Map] and the values of this map. \n \* \n \* In case if any two entries are mapped to the equal keys, the value of the latter one will overwrite \n \* the value associated with the former one. \n \* \n \* \n public inline fun <K, V, R, M : MutableMap<in R, in V>> Map<out K, V>.mapKeysTo(destination: M, transform: (Map.Entry<K, V>) -> R): M { \n return entries.associateByTo(destination, transform, { it.value }) \n } \n \* \n \* \n \* Puts all the given [pairs] into this [MutableMap] with the first component in the pair being the key and the second the value. \n \* \n \* \n public fun <K, V> MutableMap<in K, in V>.putAll(pairs: Array<out Pair<K, V>>): Unit { \n for ((key, value) in pairs) { \n put(key, value) \n } \n } \n \* \n \* \n \* Puts all the elements of the given collection into this [MutableMap] with the first component in the pair being the key and the second the value. \n \* \n \* \n public fun <K, V> MutableMap<in K, in V>.putAll(pairs: Iterable<Pair<K, V>>): Unit { \n for ((key, value) in pairs) { \n put(key, value) \n } \n } \n \* \n \* \n \* Puts all the elements of the given sequence into this [MutableMap] with the first component in the pair being the key and the second the value. \n \* \n \* \n public fun <K, V> MutableMap<in K, in V>.putAll(pairs: Sequence<Pair<K, V>>): Unit { \n for ((key, value) in pairs) { \n put(key, value) \n } \n } \n \* \n \* \n \* Returns a new map with entries having the keys of this map and the values obtained by applying the [transform] \n \* function to each entry in this [Map]. \n \* \n \* \n \* The returned map preserves the entry iteration order of the original map. \n \* \n \* \n \* @sample samples.collections.Maps.Transformations.mapValues \n \* \n public inline fun <K, V, R> Map<out K, V>.mapValues(transform: (Map.Entry<K, V>) -> R): Map<K, R> { \n return mapValuesTo(LinkedHashMap<K, R>(mapCapacity(size)), transform) // .optimizeReadOnlyMap() \n } \n \* \n \* \n \* Returns a new Map with entries having the keys obtained by applying the [transform] function to each entry in this \n \* [Map] and the values of this map. \n \* \n \* In case if any two entries are mapped to the equal keys, the value of the latter one will overwrite \n \* the value associated with the former one. \n \* \n \* The returned map preserves the entry iteration order of the original map. \n \* \n \* \n \* @sample samples.collections.Maps.Transformations.mapKeys \n \* \n public inline fun <K, V, R> Map<out K, V>.mapKeys(transform: (Map.Entry<K, V>) -> R): Map<R, V> { \n return mapKeysTo(LinkedHashMap<R, V>(mapCapacity(size)), transform) // .optimizeReadOnlyMap() \n } \n \* \n \* \n \* Returns a map containing all key-value pairs with keys matching the given [predicate]. \n \* \n \* The returned map preserves the entry iteration order of the original map. \n \* \n \* \n \* @sample samples.collections.Maps.Filtering.filterKeys \n \* \n public inline fun <K, V> Map<out K, V>.filterKeys(predicate: (K) -> Boolean): Map<K, V> { \n val result = LinkedHashMap<K, V>() \n for (entry in this) { \n if (predicate(entry.key)) { \n result.put(entry.key, entry.value) \n } \n } \n return result \n } \n \* \n \* \n \* Returns a map containing all key-value pairs with values matching the given [predicate]. \n \* \n \* The returned map preserves the entry iteration order of the original map. \n \* \n \* \n \* @sample samples.collections.Maps.Filtering.filterValues \n \* \n public inline fun <K, V> Map<out K,

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V>.filterValues(predicate: (V) -> Boolean): Map<K,
V> {\n val result = LinkedHashMap<K, V>()\n for (entry in this) {\n if (predicate(entry.value)) {\n
result.put(entry.key, entry.value)\n } }\n return result}\n\n/**\n * Appends all entries matching the
given [predicate] into the mutable map given as [destination] parameter.\n *\n * @return the destination map.\n *
@sample samples.collections.Maps.Filtering.filterTo\n *\npublic inline fun <K, V, M : MutableMap<in K, in V>>
Map<out K, V>.filterTo(destination: M, predicate: (Map.Entry<K, V>) -> Boolean): M {\n for (element in this)
{\n if (predicate(element)) {\n destination.put(element.key, element.value)\n } }\n return
destination}\n\n/**\n * Returns a new map containing all key-value pairs matching the given [predicate].\n *\n *
The returned map preserves the entry iteration order of the original map.\n * @sample
samples.collections.Maps.Filtering.filter\n *\npublic inline fun <K, V> Map<out K, V>.filter(predicate:
(Map.Entry<K, V>) -> Boolean): Map<K, V> {\n return filterTo(LinkedHashMap<K, V>(),
predicate)\n}\n\n/**\n * Appends all entries not matching the given [predicate] into the given [destination].\n *\n *
@return the destination map.\n * @sample samples.collections.Maps.Filtering.filterNotTo\n *\npublic inline fun
<K, V, M : MutableMap<in K, in V>> Map<out K, V>.filterNotTo(destination: M, predicate: (Map.Entry<K, V>) -
> Boolean): M {\n for (element in this) {\n if (!predicate(element)) {\n destination.put(element.key,
element.value)\n } }\n return destination}\n\n/**\n * Returns a new map containing all key-value pairs
not matching the given [predicate].\n *\n * The returned map preserves the entry iteration order of the original
map.\n * @sample samples.collections.Maps.Filtering.filterNot\n *\npublic inline fun <K, V> Map<out K,
V>.filterNot(predicate: (Map.Entry<K, V>) -> Boolean): Map<K, V> {\n return filterNotTo(LinkedHashMap<K,
V>(), predicate)\n}\n\n/**\n * Returns a new map containing all key-value pairs from the given collection of
pairs.\n *\n * The returned map preserves the entry iteration order of the original collection.\n * If any of two pairs
would have the same key the last one gets added to the map.\n *\npublic fun <K, V> Iterable<Pair<K,
V>>.toMap(): Map<K, V> {\n if (this is Collection) {\n return when (size) {\n 0 -> emptyMap()\n 1 -> mapOf(if (this is List) this[0] else iterator().next())\n else -> toMap(LinkedHashMap<K,
V>(mapCapacity(size)))\n }\n }\n return toMap(LinkedHashMap<K,
V>()).optimizeReadOnlyMap()\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value
pairs from the given collection of pairs.\n *\npublic fun <K, V, M : MutableMap<in K, in V>> Iterable<Pair<K,
V>>.toMap(destination: M): M =\n destination.apply { putAll(this@toMap) }\n}\n\n/**\n * Returns a new map
containing all key-value
pairs from the given array of pairs.\n *\n * The returned map preserves the entry iteration order of the original
array.\n * If any of two pairs would have the same key the last one gets added to the map.\n *\npublic fun <K, V>
Array<out Pair<K, V>>.toMap(): Map<K, V> = when (size) {\n 0 -> emptyMap()\n 1 -> mapOf(this[0])\n else
-> toMap(LinkedHashMap<K, V>(mapCapacity(size)))\n}\n\n/**\n * Populates and returns the [destination]
mutable map with key-value pairs from the given array of pairs.\n *\npublic fun <K, V, M : MutableMap<in K, in
V>> Array<out Pair<K, V>>.toMap(destination: M): M =\n destination.apply { putAll(this@toMap) }\n}\n\n/**\n *
Returns a new map containing all key-value pairs from the given sequence of pairs.\n *\n * The returned map
preserves the entry iteration order of the original sequence.\n * If any of two pairs would have the same key the last
one gets added to the map.\n *\npublic fun <K, V> Sequence<Pair<K, V>>.toMap(): Map<K, V> =
toMap(LinkedHashMap<K,
V>()).optimizeReadOnlyMap()\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs
from the given sequence of pairs.\n *\npublic fun <K, V, M : MutableMap<in K, in V>> Sequence<Pair<K,
V>>.toMap(destination: M): M =\n destination.apply { putAll(this@toMap) }\n}\n\n/**\n * Returns a new read-only
map containing all key-value pairs from the original map.\n *\n * The returned map preserves the entry iteration
order of the original map.\n *\n@SinceKotlin("1.1")\npublic fun <K, V> Map<out K, V>.toMap(): Map<K, V> =
when (size) {\n 0 -> emptyMap()\n 1 -> toSingletonMap()\n else -> toMutableMap()\n}\n\n/**\n * Returns a
new mutable map containing all key-value pairs from the original map.\n *\n * The returned map preserves the entry
iteration order of the original map.\n *\n@SinceKotlin("1.1")\npublic fun <K, V> Map<out K,
V>.toMutableMap(): MutableMap<K, V> = LinkedHashMap(this)\n}\n\n/**\n * Populates and returns the

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[destination] mutable

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map with key-value pairs from the given map.\n *^@SinceKotlin("1.1")\npublic fun <K, V, M : MutableMap<in K, in V>> Map<out K, V>.toMap(destination: M): M =\n    destination.apply { putAll(this@toMap) }\n\n/**\n * Creates a new read-only map by replacing or adding an entry to this map from a given key-value [pair].\n * The returned map preserves the entry iteration order of the original map.\n * The [pair] is iterated in the end if it has a unique key.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pair: Pair<K, V>): Map<K, V> =\n    if (this.isEmpty()) mapOf(pair) else LinkedHashMap(this).apply { put(pair.first, pair.second) }\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from a given collection of key-value [pairs].\n * The returned map preserves the entry iteration order of the original map.\n * Those [pairs] with unique keys are iterated in the end in the order of [pairs] collection.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pairs: Iterable<Pair<K, V>>): Map<K, V> =\n    if (this.isEmpty()) pairs.toMap() else LinkedHashMap(this).apply { putAll(pairs) }\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from a given array of key-value [pairs].\n * The returned map preserves the entry iteration order of the original map.\n * Those [pairs] with unique keys are iterated in the end in the order of [pairs] array.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pairs: Array<out Pair<K, V>>): Map<K, V> =\n    if (this.isEmpty()) pairs.toMap() else LinkedHashMap(this).apply { putAll(pairs) }\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from a given sequence of key-value [pairs].\n * The returned map preserves the entry iteration order of the original map.\n * Those [pairs] with unique keys are iterated in the end in the order of [pairs] sequence.\n */\npublic operator fun <K, V> Map<out K, V>.plus(pairs: Sequence<Pair<K, V>>): Map<K, V> =\n    LinkedHashMap(this).apply { putAll(pairs) }.optimizeReadOnlyMap()\n\n/**\n * Creates a new read-only map by replacing or adding entries to this map from another [map].\n * The returned map preserves the entry iteration order of the original map.\n * Those entries of another [map] that are missing in this map are iterated in the end in the order of that [map].\n */\npublic operator fun <K, V> Map<out K, V>.plus(map: Map<out K, V>): Map<K, V> =\n    LinkedHashMap(this).apply { putAll(map) }\n\n/**\n * Appends or replaces the given [pair] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pair: Pair<K, V>) {\n    put(pair.first, pair.second)\n}\n\n/**\n * Appends or replaces all pairs from the given collection of [pairs] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pairs: Iterable<Pair<K, V>>) {\n    putAll(pairs)\n}\n\n/**\n * Appends or replaces all pairs from the given array of [pairs] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pairs: Array<out Pair<K, V>>) {\n    putAll(pairs)\n}\n\n/**\n * Appends or replaces all pairs from the given sequence of [pairs] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(pairs: Sequence<Pair<K, V>>) {\n    putAll(pairs)\n}\n\n/**\n * Appends or replaces all entries from the given [map] in this mutable map.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <K, V> MutableMap<in K, in V>.plusAssign(map: Map<K, V>) {\n    putAll(map)\n}\n\n/**\n * Returns a map containing all entries of the original map except the entry with the given [key].\n */\n * The returned map preserves the entry iteration order of the original map.\n *^@SinceKotlin("1.1")\npublic operator fun <K, V> Map<out K, V>.minus(key: K): Map<K, V> =\n    this.toMutableMap().apply { minusAssign(key) }.optimizeReadOnlyMap()\n\n/**\n * Returns a map containing all entries of the original map except those entries\n * the keys of which are contained in the given [keys] collection.\n * The returned map preserves the entry iteration order of the original map.\n */\n *^@SinceKotlin("1.1")\npublic operator fun <K, V> Map<out K, V>.minus(keys: Iterable<K>): Map<K, V> =\n    this.toMutableMap().apply { minusAssign(keys) }.optimizeReadOnlyMap()\n\n/**\n * Returns a map containing all entries of the original map except those entries\n * the keys of which are contained in the given [keys] array.\n * The returned map preserves the entry iteration order of the original map.\n */\n *^@SinceKotlin("1.1")\npublic operator fun <K, V> Map<out K, V>.minus(keys: Array<out K>): Map<K, V> =\n    this.toMutableMap().apply { minusAssign(keys) }.optimizeReadOnlyMap()\n\n/**\n * Returns a map containing all entries of the original map except
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those entries\n \* the keys of which are contained in the given [keys] sequence.\n \*\n \* The returned map preserves the entry iteration order of the original map.\n \*/\n @SinceKotlin("1.1")\n public operator fun <K, V> Map<out K, V>.minus(keys: Sequence<K>): Map<K, V> =\n this.toMutableMap().apply { minusAssign(keys) }.optimizeReadOnlyMap()\n \*/\n \* Removes the entry with the given [key] from this mutable map.\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline operator fun <K, V> MutableMap<K, V>.minusAssign(key: K) {\n remove(key)\n }\n \*/\n \* Removes all entries the keys of which are contained in the given [keys] collection from this mutable map.\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline operator fun <K, V> MutableMap<K, V>.minusAssign(keys: Iterable<K>) {\n this.keys.removeAll(keys)\n }\n \*/\n \* Removes all entries the keys of which are contained in the given [keys] array from this mutable map.\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline operator fun <K, V> MutableMap<K, V>.minusAssign(keys: Array<out K>) {\n this.keys.removeAll(keys)\n }\n \*/\n \* Removes all entries from the keys of which are contained in the given [keys] sequence from this mutable map.\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline operator fun <K, V> MutableMap<K, V>.minusAssign(keys: Sequence<K>) {\n this.keys.removeAll(keys)\n }\n \*/\n // do not expose for now @PublishedApi\n internal fun <K, V> Map<K, V>.optimizeReadOnlyMap() = when (size) {\n 0 -> emptyMap()\n 1 -> toSingletonMapOrSelf()\n else -> this\n }\n \*/\n \* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n \*/\n @file:kotlin.jvm.JvmMultifileClass\n @file:kotlin.jvm.JvmName("SetsKit")\n @file:OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n package\n kotlin.collections\n \n import kotlin.contracts.\*\n \n internal object EmptySet : Set<Nothing>, Serializable {\n private const val serialVersionUID: Long = 3406603774387020532\n \n override fun equals(other: Any?): Boolean =\n other is Set<\*> && other.isEmpty()\n \n override fun hashCode(): Int = 0\n \n override fun toString(): String =\n \"[]\"\n \n override val size: Int get() = 0\n \n override fun isEmpty(): Boolean = true\n \n override fun contains(element: Nothing): Boolean = false\n \n override fun containsAll(elements: Collection<Nothing>): Boolean =\n elements.isEmpty()\n \n override fun iterator(): Iterator<Nothing> = EmptyIterator\n \n private fun readResolve(): Any = EmptySet\n }\n \*/\n \* Returns an empty read-only set. The returned set is serializable (JVM).\n \* @sample samples.collections.Collections.Sets.emptyReadOnlySet\n \*/\n public fun <T> emptySet(): Set<T> = EmptySet\n \*/\n \* Returns a new read-only set with the given elements.\n \* Elements of the set are iterated in the order they were specified.\n \* The returned set is serializable (JVM).\n \* @sample samples.collections.Collections.Sets.readOnlySet\n \*/\n public fun <T> setOf(vararg elements: T): Set<T> = if (elements.size > 0) elements.toSet() else emptySet()\n \*/\n \* Returns an empty read-only set. The returned set is serializable (JVM).\n \* @sample samples.collections.Collections.Sets.emptyReadOnlySet\n \*/\n @kotlin.internal.InlineOnly\n public inline fun <T> setOf(): Set<T> = emptySet()\n \*/\n \* Returns an empty new [MutableSet].\n \* The returned set preserves the element iteration order.\n \* @sample samples.collections.Collections.Sets.emptyMutableSet\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline fun <T> mutableSetOf(): MutableSet<T> = LinkedHashSet()\n \*/\n \* Returns a new [MutableSet] with the given elements.\n \* Elements of the set are iterated in the order they were specified.\n \* @sample samples.collections.Collections.Sets.mutableSet\n \*/\n public fun <T> mutableSetOf(vararg elements: T): MutableSet<T> = elements.toCollection(LinkedHashSet(mapCapacity(elements.size)))\n \*/\n \* Returns an empty new [HashSet].\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline fun <T> hashSetOf(): HashSet<T> = HashSet()\n \*/\n \* Returns a new [HashSet] with the given elements.\n \*/\n public fun <T> hashSetOf(vararg elements: T): HashSet<T> = elements.toCollection(HashSet(mapCapacity(elements.size)))\n \*/\n \* Returns an empty new [LinkedHashSet].\n \* @sample samples.collections.Collections.Sets.emptyLinkedHashSet\n \*/\n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\n public inline fun <T> linkedSetOf(): LinkedHashSet<T> = LinkedHashSet()\n \*/\n \* Returns a new [LinkedHashSet] with the given elements.\n \* Elements of the set are

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iterated in the order they were specified.\n * @sample samples.collections.Collections.Sets.linkedHashSet\n
*\npublic fun <T> linkedSetOf(vararg elements: T): LinkedHashSet<T> =
elements.toCollection(LinkedHashSet(mapCapacity(elements.size)))\n\n/**\n
 * Returns a new read-only set either with single given element, if it is not null, or empty set if the element is null.\n
 * The returned set is serializable (JVM).\n * @sample samples.collections.Collections.Sets.setOfNotNull\n
*\n@SinceKotlin("1.4")\npublic fun <T : Any> setOfNotNull(element: T?): Set<T> = if (element != null)
setOf(element) else emptySet()\n\n/**\n
 * Returns a new read-only set only with those given elements, that are not
null.\n * Elements of the set are iterated in the order they were specified.\n * The returned set is serializable
(JVM).\n * @sample samples.collections.Collections.Sets.setOfNotNull\n *\n@SinceKotlin("1.4")\npublic fun <T
: Any> setOfNotNull(vararg elements: T?): Set<T> {\n    return
elements.filterNotNullTo(LinkedHashSet())\n}\n\n/**\n
 * Builds a new read-only [Set] by populating a
[MutableSet] using the given [builderAction]\n * and returning a read-only set with the same elements.\n
*\n * The set passed as a receiver to the [builderAction] is valid only inside that function.\n * Using it outside of the
function produces an unspecified behavior.\n *\n * Elements of the set are iterated in the order they were added by
the [builderAction].\n *\n * The returned set is serializable (JVM).\n *\n * @sample
samples.collections.Builders.Sets.buildSetSample\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun <E> buildSet(@BuilderInference builderAction: MutableSet<E>().() -> Unit): Set<E> {\n    contract {
callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n    return
buildSetInternal(builderAction)\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\nintern
al expect inline fun <E> buildSetInternal(builderAction: MutableSet<E>().() -> Unit): Set<E>\n\n/**\n
 * Builds a
new read-only [Set] by populating a [MutableSet] using the given [builderAction]\n * and returning a read-only
set with the same elements.\n *\n * The set passed as a receiver to the [builderAction] is valid only inside that
function.\n * Using it outside of the function produces an unspecified behavior.\n *\n * [capacity] is used to hint the
expected number of elements added in the [builderAction].\n *\n * Elements of the set are iterated in the order they
were added by the [builderAction].\n *\n * The returned set is serializable (JVM).\n *\n * @throws
IllegalArgumentExcepion if the given [capacity] is negative.\n *\n * @sample
samples.collections.Builders.Sets.buildSetSample\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c inline fun <E> buildSet(capacity: Int, @BuilderInference builderAction: MutableSet<E>().() -> Unit): Set<E> {\n
contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n    return buildSetInternal(capacity,
builderAction)\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\nninternal
expect inline fun <E> buildSetInternal(capacity: Int, builderAction: MutableSet<E>().() -> Unit): Set<E>\n\n\n/**
Returns this Set if it's not `null` and the empty set otherwise. *\n@kotlin.internal.InlineOnly\npublic inline fun <T>
Set<T>?.orEmpty(): Set<T> = this ?: emptySet()\n\ninternal fun <T> Set<T>.optimizeReadOnlySet() = when (size)
{\n    0 -> emptySet()\n    1 -> setOf(iterator().next())\n    else -> this\n}\n\n"/*\n
 * Copyright 2010-2018 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n
*\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("StringsKt")\n@file:Suppress("PLATFOR
M_CLASS_MAPPED_TO_KOTLIN")\n\npackage kotlin.text\n\n/**\n
 * Parses the string as a signed [Byte]
number and returns the result\n * or `null` if the string is not a valid representation of a number.\n
*\n@SinceKotlin("1.1")\npublic fun String.toByteOrNull():
Byte? = toByteOrNull(radix = 10)\n\n/**\n
 * Parses the string as a signed [Byte] number and returns the result\n *
or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when
[radix] is not a valid radix for string to number conversion.\n *\n@SinceKotlin("1.1")\npublic fun
String.toByteOrNull(radix: Int): Byte? {\n    val int = this.toIntOrNull(radix) ?: return null\n    if (int <
Byte.MIN_VALUE || int > Byte.MAX_VALUE) return null\n    return int.toByte()\n}\n\n/**\n
 * Parses the string as
a [Short] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n

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*\/n@SinceKotlin("1.1")\npublic fun String.toShortOrNull(): Short? = toShortOrNull(radix = 10)\n\n/**\n * Parses the string as a [Short] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.1")\npublic fun String.toShortOrNull(radix: Int): Short? {\n    val int = this.toIntOrNull(radix) ?: return null\n    if (int < Short.MIN_VALUE || int > Short.MAX_VALUE) return null\n    return int.toShort()\n}\n\n/**\n * Parses the string as an [Int] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin("1.1")\npublic fun String.toIntOrNull(): Int? = toIntOrNull(radix = 10)\n\n/**\n * Parses the string as an [Int] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.1")\npublic fun String.toIntOrNull(radix: Int): Int? {\n    checkRadix(radix)\n\n    val length = this.length\n    if (length == 0) return null\n\n    val start: Int\n    val isNegative: Boolean\n    val limit: Int\n\n    val firstChar = this[0]\n    if (firstChar < '0') { // Possible leading sign\n        if (length == 1) return null // non-digit (possible sign) only, no digits after\n\n        start = 1\n        if (firstChar == '-') {\n            isNegative = true\n            limit = Int.MIN_VALUE\n        } else if (firstChar == '+') {\n            isNegative = false\n            limit = Int.MAX_VALUE\n        } else\n            return null\n    } else {\n        start = 0\n        isNegative = false\n        limit = -Int.MAX_VALUE\n    }\n\n    val limitForMaxRadix = (-Int.MAX_VALUE) / 36\n    var limitBeforeMul = limitForMaxRadix\n    var result = 0\n    for (i in start until length) {\n        val digit = digitOf(this[i], radix)\n\n        if (digit < 0) return null\n        if (result < limitBeforeMul) {\n            if (limitBeforeMul == limitForMaxRadix) {\n                limitBeforeMul = limit / radix\n\n                if (result < limitBeforeMul) {\n                    return null\n                }\n            } else {\n                return null\n            }\n        }\n\n        result *= radix\n\n        if (result < limit + digit) return null\n        result -= digit\n    }\n\n    return if (isNegative) result else -result\n}\n\n/**\n * Parses the string as a [Long] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin("1.1")\npublic fun String.toLongOrNull(): Long? = toLongOrNull(radix = 10)\n\n/**\n * Parses the string as a [Long] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.1")\npublic fun String.toLongOrNull(radix: Int): Long? {\n    checkRadix(radix)\n\n    val length = this.length\n    if (length == 0) return null\n\n    val start: Int\n    val isNegative: Boolean\n    val limit: Long\n\n    val firstChar = this[0]\n    if (firstChar < '0') { // Possible leading sign\n        if (length == 1) return null // non-digit (possible sign) only, no digits after\n\n        start = 1\n        if (firstChar == '-') {\n            isNegative = true\n            limit = Long.MIN_VALUE\n        } else if (firstChar == '+') {\n            isNegative = false\n            limit = Long.MAX_VALUE\n        } else\n            return null\n    } else {\n        start = 0\n        isNegative = false\n        limit = -Long.MAX_VALUE\n    }\n\n    val limitForMaxRadix = (-Long.MAX_VALUE) / 36\n    var limitBeforeMul = limitForMaxRadix\n    var result = 0L\n    for (i in start until length) {\n        val digit = digitOf(this[i], radix)\n\n        if (digit < 0) return null\n        if (result < limitBeforeMul) {\n            if (limitBeforeMul == limitForMaxRadix) {\n                limitBeforeMul = limit / radix\n\n                if (result < limitBeforeMul) {\n                    return null\n                }\n            } else {\n                return null\n            }\n        }\n\n        result *= radix\n\n        if (result < limit + digit) return null\n        result -= digit\n    }\n\n    return if (isNegative) result else -result\n}\n\ninternal fun numberFormatError(input: String): Nothing = throw NumberFormatException("Invalid number format: '$input')\n\n"/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\nimport kotlin.contracts.*\nimport kotlin.jvm.JvmInline\nimport kotlin.math.*\n\n/**\n * Represents the amount of time one instant of time is away from another instant.\n *\n * A negative duration is possible in a situation when the second instant is earlier than the first one.\n *\n * The type can store duration values up to 1146 years with nanosecond precision,\n */

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* and up to 1146 million years with millisecond precision.
* If a duration-returning operation provided in
`kotlin.time` produces a duration value that doesn't fit into the above range,
* the returned `Duration` is infinite.
* An infinite duration value [Duration.INFINITE] can be used to represent infinite timeouts.
* To
construct a duration use either the extension function [toDuration],
* or the extension properties [hours],
[minutes], [seconds], and so on,
* available on [Int], [Long], and [Double] numeric types.
* To get the value
of this duration expressed in a particular [duration units][DurationUnit]
* use the functions [toInt], [toLong], and
[toDouble]
* or the properties [inWholeHours], [inWholeMinutes], [inWholeSeconds], [inWholeNanoseconds],
and so on.
* Since Kotlin(1.6)
* WasExperimental(ExperimentalTime::class)
* JvmInline
public value
class Duration internal constructor(private val rawValue: Long) : Comparable<Duration> {
    private val value: Long get() = rawValue shr 1
    private inline val unitDiscriminator: Int get() =
rawValue.toInt() and 1
    private fun isInNanos() = unitDiscriminator == 0
    private fun isInMillis() =
unitDiscriminator == 1
    private val storageUnit get() = if (isInNanos()) DurationUnit.NANOSECONDS else
DurationUnit.MILLISECONDS
    init {
        if (durationAssertionsEnabled) {
            if (isInNanos()) {
                if (value !in -MAX_NANOS..MAX_NANOS) throw AssertionError("$value ns is out of nanoseconds
range")
            } else {
                if (value !in -MAX_MILLIS..MAX_MILLIS) throw AssertionError("$value
ms is out of milliseconds range")
            }
            if (value in -
MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) throw AssertionError("$value ms is denormalized")
        }
    }
    companion object {
        /** The duration equal to exactly 0 seconds. */
        public
val ZERO: Duration = Duration(0L)

        /** The duration whose value is positive infinity. It is useful for representing timeouts that should never expire.
*/
        public val INFINITE: Duration = durationOfMillis(MAX_MILLIS)
        internal val NEG_INFINITE:
Duration = durationOfMillis(-MAX_MILLIS)
        /** Converts the given time duration [value] expressed in the
specified [sourceUnit] into the specified [targetUnit].
*/
        @ExperimentalTime
        public fun convert(value:
Double, sourceUnit: DurationUnit, targetUnit: DurationUnit): Double =
convertDurationUnit(value,
sourceUnit, targetUnit)
        // Duration construction extension properties in Duration companion scope
        /** Returns a [Duration] equal to this [Int] number of nanoseconds.
*/
        @kotlin.internal.InlineOnly
        public inline val Int.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)
        /** Returns a
[Duration] equal to this [Long] number of nanoseconds.
*/
        @kotlin.internal.InlineOnly
        public inline val Long.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)
        /**
Returns a [Duration] equal to this [Double] number of nanoseconds.
*/
        * Depending on its magnitude,
the value is rounded to an integer number of nanoseconds or milliseconds.
*/
        @throws
IllegalArgumentException if this [Double] value is `NaN`.
        @kotlin.internal.InlineOnly
        public
inline val Double.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)
        /** Returns a
[Duration] equal to this [Int] number of microseconds.
*/
        @kotlin.internal.InlineOnly
        public inline val
Int.microseconds get() = toDuration(DurationUnit.MICROSECONDS)
        /** Returns a [Duration] equal to
this [Long] number of microseconds.
*/
        @kotlin.internal.InlineOnly
        public inline val
Long.microseconds get() = toDuration(DurationUnit.MICROSECONDS)
        /**
Returns
a [Duration] equal to this [Double] number of microseconds.
*/
        * Depending on its magnitude, the
value is rounded to an integer number of nanoseconds or milliseconds.
*/
        * @throws
IllegalArgumentException if this [Double] value is `NaN`.
        @kotlin.internal.InlineOnly
        public
inline val Double.microseconds get() = toDuration(DurationUnit.MICROSECONDS)
        /** Returns a
[Duration] equal to this [Int] number of milliseconds.
*/
        @kotlin.internal.InlineOnly
        public inline val
Int.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)
        /** Returns a [Duration] equal to this
[Long] number of milliseconds.
*/
        @kotlin.internal.InlineOnly
        public inline val Long.milliseconds get()
= toDuration(DurationUnit.MILLISECONDS)
        /**
Returns a [Duration] equal to this [Double]
number of milliseconds.
*/
        * Depending on its magnitude, the
value is rounded to an integer number of nanoseconds or milliseconds.
*/
        * @throws
IllegalArgumentException if this [Double] value is `NaN`.
        @kotlin.internal.InlineOnly
        public

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inline val Double.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n\n    /** Returns a
[Duration] equal to this [Int] number of seconds. */\n    @kotlin.internal.InlineOnly\n    public inline val
Int.seconds get() = toDuration(DurationUnit.SECONDS)\n\n    /** Returns a [Duration] equal to this [Long]
number of seconds. */\n    @kotlin.internal.InlineOnly\n    public inline val Long.seconds get() =
toDuration(DurationUnit.SECONDS)\n\n    /**\n    * Returns a [Duration] equal to this [Double] number of
seconds.\n    *\n    * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or
milliseconds.\n    *\n    * @throws IllegalArgumentException if this [Double] value is `NaN`.\n    */\n    @kotlin.internal.InlineOnly\n    public inline val Double.seconds get() =
toDuration(DurationUnit.SECONDS)\n\n\n    /** Returns a [Duration] equal to this [Int] number of minutes. */\n    @kotlin.internal.InlineOnly\n    public inline val Int.minutes get() = toDuration(DurationUnit.MINUTES)\n\n\n    /** Returns a [Duration] equal to this [Long] number of minutes. */\n    @kotlin.internal.InlineOnly\n    public inline val Long.minutes get() = toDuration(DurationUnit.MINUTES)\n\n\n    /**\n    * Returns a
[Duration] equal to this [Double] number of minutes.\n    *\n    * Depending on its magnitude, the value is
rounded to an integer number of nanoseconds or milliseconds.\n    *\n    * @throws IllegalArgumentException
if this [Double] value is `NaN`.\n    */\n    @kotlin.internal.InlineOnly\n    public inline val Double.minutes
get() = toDuration(DurationUnit.MINUTES)\n\n\n    /** Returns a [Duration]
equal to this [Int] number of hours. */\n    @kotlin.internal.InlineOnly\n    public inline val Int.hours get() =
toDuration(DurationUnit.HOURS)\n\n\n    /** Returns a [Duration] equal to this [Long] number of hours. */\n    @kotlin.internal.InlineOnly\n    public inline val Long.hours get() = toDuration(DurationUnit.HOURS)\n\n\n    /**\n    * Returns a [Duration] equal to this [Double] number of hours.\n    *\n    * Depending on its
magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n    *\n    * @throws
IllegalArgumentException if this [Double] value is `NaN`.\n    */\n    @kotlin.internal.InlineOnly\n    public
inline val Double.hours get() = toDuration(DurationUnit.HOURS)\n\n\n    /** Returns a [Duration] equal to this
[Int] number of days. */\n    @kotlin.internal.InlineOnly\n    public inline val Int.days get() =
toDuration(DurationUnit.DAYS)\n\n\n    /** Returns a [Duration]
equal to this [Long] number of days. */\n    @kotlin.internal.InlineOnly\n    public inline val Long.days get() =
toDuration(DurationUnit.DAYS)\n\n\n    /**\n    * Returns a [Duration] equal to this [Double] number of days.\n    *\n    * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or
milliseconds.\n    *\n    * @throws IllegalArgumentException if this [Double] value is `NaN`.\n    */\n    @kotlin.internal.InlineOnly\n    public inline val Double.days get() = toDuration(DurationUnit.DAYS)\n\n\n\n    // deprecated static factory functions\n\n    /** Returns a [Duration] representing the specified [value] number of
nanoseconds. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use
'Int.nanoseconds' extension property from Duration.Companion instead.", ReplaceWith("value.nanoseconds",
"\"kotlin.time.Duration.Companion.nanoseconds\""))\n    @DeprecatedSinceKotlin(warningSince
= "1.6")\n    public fun nanoseconds(value: Int): Duration =
value.toDuration(DurationUnit.NANOSECONDS)\n\n\n    /** Returns a [Duration] representing the specified
[value] number of nanoseconds. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Long.nanoseconds' extension property from Duration.Companion instead.",
ReplaceWith("value.nanoseconds", "kotlin.time.Duration.Companion.nanoseconds"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun nanoseconds(value: Long): Duration =
value.toDuration(DurationUnit.NANOSECONDS)\n\n\n    /**\n    * Returns a [Duration] representing the
specified [value] number of nanoseconds.\n    *\n    * @throws IllegalArgumentException if the provided
`Double` [value] is `NaN`.\n    */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Double.nanoseconds' extension property from Duration.Companion
instead.", ReplaceWith("value.nanoseconds", "kotlin.time.Duration.Companion.nanoseconds"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun nanoseconds(value: Double): Duration =
value.toDuration(DurationUnit.NANOSECONDS)\n\n\n    /** Returns a [Duration] representing the specified
[value] number of microseconds. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime

```



```

@Deprecated("Use 'Int.microseconds' extension property from Duration.Companion instead.",
ReplaceWith("value.microseconds", "kotlin.time.Duration.Companion.microseconds"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun microseconds(value: Int): Duration =
value.toDuration(DurationUnit.MICROSECONDS)\n\n    /** Returns a [Duration] representing the specified
[value] number of microseconds. *\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n
@Deprecated("Use 'Long.microseconds' extension property from Duration.Companion
instead.", ReplaceWith("value.microseconds", "kotlin.time.Duration.Companion.microseconds"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun microseconds(value: Long): Duration =
value.toDuration(DurationUnit.MICROSECONDS)\n\n    /**\n    * Returns a [Duration] representing the
specified [value] number of microseconds.\n    *\n    * @throws IllegalArgumentException if the provided
`Double` [value] is `NaN`.\n    *\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n
@Deprecated("Use 'Double.microseconds' extension property from Duration.Companion instead.",
ReplaceWith("value.microseconds", "kotlin.time.Duration.Companion.microseconds"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun microseconds(value: Double): Duration =
value.toDuration(DurationUnit.MICROSECONDS)\n\n    /** Returns a [Duration] representing the specified
[value] number of milliseconds. *\n    @SinceKotlin("1.5")\n
    @ExperimentalTime\n    @Deprecated("Use 'Int.milliseconds' extension property from
Duration.Companion instead.", ReplaceWith("value.milliseconds",
"kotlin.time.Duration.Companion.milliseconds"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n
public fun milliseconds(value: Int): Duration = value.toDuration(DurationUnit.MILLISECONDS)\n\n    /**
Returns a [Duration] representing the specified [value] number of milliseconds. *\n    @SinceKotlin("1.5")\n
    @ExperimentalTime\n    @Deprecated("Use 'Long.milliseconds' extension property from Duration.Companion
instead.", ReplaceWith("value.milliseconds", "kotlin.time.Duration.Companion.milliseconds"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun milliseconds(value: Long): Duration =
value.toDuration(DurationUnit.MILLISECONDS)\n\n    /**\n    * Returns a [Duration] representing the
specified [value] number of milliseconds.\n    *\n    * @throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n    *\n
@SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Double.milliseconds' extension
property from Duration.Companion instead.", ReplaceWith("value.milliseconds",
"kotlin.time.Duration.Companion.milliseconds"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n
public fun milliseconds(value: Double): Duration = value.toDuration(DurationUnit.MILLISECONDS)\n\n    /**
Returns a [Duration] representing the specified [value] number of seconds. *\n    @SinceKotlin("1.5")\n
    @ExperimentalTime\n    @Deprecated("Use 'Int.seconds' extension property from Duration.Companion
instead.", ReplaceWith("value.seconds", "kotlin.time.Duration.Companion.seconds"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun seconds(value: Int): Duration =
value.toDuration(DurationUnit.SECONDS)\n\n    /** Returns a [Duration] representing the specified [value] number of seconds. *\n    @SinceKotlin("1.5")\n
    @ExperimentalTime\n    @Deprecated("Use 'Long.seconds' extension property from Duration.Companion
instead.", ReplaceWith("value.seconds", "kotlin.time.Duration.Companion.seconds"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun seconds(value: Long): Duration =
value.toDuration(DurationUnit.SECONDS)\n\n    /**\n    * Returns a [Duration] representing the specified
[value] number of seconds.\n    *\n    * @throws IllegalArgumentException if the provided `Double` [value] is
`NaN`.\n    *\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use
'Double.seconds' extension property from Duration.Companion instead.", ReplaceWith("value.seconds",
"kotlin.time.Duration.Companion.seconds"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public
fun seconds(value:
Double): Duration = value.toDuration(DurationUnit.SECONDS)\n\n    /** Returns a [Duration] representing
the specified [value] number of minutes. *\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n

```

```

@Deprecated("Use 'Int.minutes' extension property from Duration.Companion instead.",
ReplaceWith("value.minutes", "kotlin.time.Duration.Companion.minutes"))\n
@DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun minutes(value: Int): Duration =
value.toDuration(DurationUnit.MINUTES)\n\n    /** Returns a [Duration] representing the specified [value]
number of minutes. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use
'Long.minutes' extension property from Duration.Companion instead.", ReplaceWith("value.minutes",
"kotlin.time.Duration.Companion.minutes"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public
fun minutes(value: Long): Duration = value.toDuration(DurationUnit.MINUTES)\n\n    /**\n    * Returns a [Duration] representing the specified [value] number of minutes.\n    *\n    *
@throws IllegalArgumentException if the provided `Double` [value] is `NaN`.\n    */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Double.minutes' extension property
from Duration.Companion instead.", ReplaceWith("value.minutes",
"kotlin.time.Duration.Companion.minutes"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public
fun minutes(value: Double): Duration = value.toDuration(DurationUnit.MINUTES)\n\n    /** Returns a
[Duration] representing the specified [value] number of hours. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Int.hours' extension property from Duration.Companion
instead.", ReplaceWith("value.hours", "kotlin.time.Duration.Companion.hours"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun hours(value:
Int): Duration = value.toDuration(DurationUnit.HOURS)\n\n    /** Returns a [Duration] representing the
specified [value] number of hours. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Long.hours' extension property from Duration.Companion
instead.", ReplaceWith("value.hours", "kotlin.time.Duration.Companion.hours"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun hours(value: Long): Duration =
value.toDuration(DurationUnit.HOURS)\n\n    /**\n    * Returns a [Duration] representing the specified
[value] number of hours.\n    *\n    * @throws IllegalArgumentException if the provided `Double` [value] is
`NaN`.\n    */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Double.hours'
extension property from Duration.Companion instead.", ReplaceWith("value.hours",
"kotlin.time.Duration.Companion.hours"))\n    @DeprecatedSinceKotlin(warningSince
= "1.6")\n    public fun hours(value: Double): Duration = value.toDuration(DurationUnit.HOURS)\n\n\n    /** Returns a [Duration] representing the specified [value] number of days. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Int.days' extension property from Duration.Companion
instead.", ReplaceWith("value.days", "kotlin.time.Duration.Companion.days"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun days(value: Int): Duration =
value.toDuration(DurationUnit.DAYS)\n\n    /** Returns a [Duration] representing the specified [value] number
of days. */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Long.days'
extension property from Duration.Companion instead.", ReplaceWith("value.days",
"kotlin.time.Duration.Companion.days"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public
fun days(value: Long): Duration = value.toDuration(DurationUnit.DAYS)\n\n    /**\n    * Returns a [Duration] representing the specified [value] number of days.\n    *\n    * @throws
IllegalArgumentException if the provided `Double` [value] is `NaN`.\n    */\n    @SinceKotlin("1.5")\n    @ExperimentalTime\n    @Deprecated("Use 'Double.days' extension property from Duration.Companion
instead.", ReplaceWith("value.days", "kotlin.time.Duration.Companion.days"))\n    @DeprecatedSinceKotlin(warningSince = "1.6")\n    public fun days(value: Double): Duration =
value.toDuration(DurationUnit.DAYS)\n\n    /**\n    * Parses a string that represents a duration and returns the
parsed [Duration] value.\n    *\n    * The following formats are accepted:\n    *\n    * - ISO-8601
Duration format, e.g. `P1DT2H3M4.058S`, see [toIsoString] and [parseIsoString].\n    * - The format of string
returned by the default [Duration.toString] and `toString` in a specific unit,\n

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```

    * e.g. `10s`, `1h 30m` or `-(1h 30m)`.\n
    * @throws IllegalArgumentException if the string
    doesn't represent a duration in any of the supported formats.\n
    * @sample samples.time.Durations.parse\n
    */\n
    public fun parse(value: String): Duration = try {\n
        parseDuration(value, strictIso = false)\n
    }
    catch (e: IllegalArgumentException) {\n
        throw IllegalArgumentException("Invalid duration string format:
    '$value'.", e)\n
    }\n
    /**\n
    * Parses a string that represents a duration in ISO-8601 format and returns
    the parsed [Duration] value.\n
    * @throws IllegalArgumentException if the string doesn't represent a
    duration in ISO-8601 format.\n
    * @sample samples.time.Durations.parseIsoString\n
    */\n
    public fun
    parseIsoString(value: String): Duration = try {\n
        parseDuration(value, strictIso = true)\n
    } catch (e:
    IllegalArgumentException) {\n
        throw IllegalArgumentException("Invalid ISO duration string format: '$value'.", e)\n
    }\n
    /**\n
    * Parses a string that represents a duration and returns the parsed [Duration] value,\n
    * or `null` if the string
    doesn't represent a duration in any of the supported formats.\n
    * The following formats are accepted:\n
    * - ISO-8601 Duration format, e.g. `P1DT2H3M4.058S`, see [toIsoString] and [parseIsoString].\n
    * - The format of string returned by the default [Duration.toString] and `toString` in a specific unit,\n
    * e.g.
    `10s`, `1h 30m` or `-(1h 30m)`.\n
    * @sample samples.time.Durations.parse\n
    */\n
    public fun
    parseOrNull(value: String): Duration? = try {\n
        parseDuration(value, strictIso = false)\n
    } catch (e:
    IllegalArgumentException) {\n
        null\n
    }\n
    /**\n
    * Parses a string that represents a duration in
    ISO-8601
    format and returns the parsed [Duration] value,\n
    * or `null` if the string doesn't represent a duration in ISO-
    8601 format.\n
    * @sample samples.time.Durations.parseIsoString\n
    */\n
    public fun
    parseIsoStringOrNull(value: String): Duration? = try {\n
        parseDuration(value, strictIso = true)\n
    } catch
    (e: IllegalArgumentException) {\n
        null\n
    }\n
    // arithmetic operators\n
    /** Returns the
    negative of this value. */\n
    public operator fun unaryMinus(): Duration = durationOf(-value,
    unitDiscriminator)\n
    /**\n
    * Returns a duration whose value is the sum of this and [other] duration values.\n
    *\n
    * @throws IllegalArgumentException if the operation results in an undefined value for the given arguments,\n
    * e.g. when adding infinite durations of different sign.\n
    */\n
    public operator fun plus(other: Duration):
    Duration {\n
        when {\n
            this.isInfinite() -> {\n
                if (other.isFinite() || (this.rawValue xor other.rawValue >= 0))\n
                    return this\n
                else\n
                    throw IllegalArgumentException("Summing infinite durations of different signs yields an undefined result.")\n
            }\n
            other.isInfinite() -> return other\n
        }\n
        return when {\n
            this.unitDiscriminator ==
            other.unitDiscriminator -> {\n
                val result = this.value + other.value // never overflows long, but can
                overflow long63\n
                when {\n
                    isInNanos() ->\n
                    durationOfNanosNormalized(result)\n
                    else ->\n
                    durationOfMillisNormalized(result)\n
                }\n
            }\n
            this.isInMillis() ->\n
                addValuesMixedRanges(this.value, other.value)\n
            else ->\n
                addValuesMixedRanges(other.value, this.value)\n
        }\n
    }\n
    private fun
    addValuesMixedRanges(thisMillis:
    Long, otherNanos: Long): Duration {\n
        val otherMillis = nanosToMillis(otherNanos)\n
        val resultMillis =
        thisMillis + otherMillis\n
        return if (resultMillis in -MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS)\n
        {\n
            val otherNanoRemainder = otherNanos - millisToNanos(otherMillis)\n
            durationOfNanos(millisToNanos(resultMillis) + otherNanoRemainder)\n
        } else {\n
            durationOfMillis(resultMillis.coerceIn(-MAX_MILLIS, MAX_MILLIS))\n
        }\n
    }\n
    /**\n
    * Returns a
    duration whose value is the difference between this and [other] duration values.\n
    *\n
    * @throws
    IllegalArgumentException if the operation results in an undefined value for the given arguments,\n
    * e.g. when
    subtracting infinite durations of the same sign.\n
    */\n
    public operator fun minus(other: Duration): Duration =
    this + (-other)\n
    /**\n
    * Returns a duration whose value is this duration value multiplied by the given [scale]
    number.\n
    *\n
    * @throws IllegalArgumentException if the operation results in an undefined value for the
    given arguments,\n
    * e.g. when multiplying an infinite duration by zero.\n
    */\n
    public operator fun
    times(scale: Int): Duration {\n
        if (isInfinite()) {\n
            return when {\n
                scale == 0 -> throw

```

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IllegalArgumentException("Multiplying infinite duration by zero yields an undefined result.")\n
-> this\n      else -> -this\n    }\n    if (scale == 0) return ZERO\n    val value = value\n    val result = value * scale\n    return if (isInNanos()) {\n      if (value in (MAX_NANOS / Int.MIN_VALUE)..(-MAX_NANOS / Int.MIN_VALUE)) {\n        // can't overflow nanos range for any\n        scale\n        durationOfNanos(result)\n      } else {\n        if (result / scale == value) {\n          durationOfNanosNormalized(result)\n        } else {\n          val millis = nanosToMillis(value)\n          val remNanos = value -\n            millisToNanos(millis)\n          val resultMillis = millis * scale\n          val totalMillis = resultMillis +\n            nanosToMillis(remNanos * scale)\n          if (resultMillis / scale == millis && totalMillis xor resultMillis >=\n            0) {\n            durationOfMillis(totalMillis.coerceIn(-MAX_MILLIS..MAX_MILLIS))\n          } else\n            {\n              if (value.sign * scale.sign > 0) INFINITE else NEG_INFINITE\n            }\n          }\n        } else {\n          if (result / scale == value) {\n            durationOfMillis(result.coerceIn(-\n              MAX_MILLIS..MAX_MILLIS))\n          } else {\n            if (value.sign * scale.sign > 0) INFINITE else\n              NEG_INFINITE\n          }\n        }\n      }\n    } else {\n      if (result / scale == value) {\n        durationOfMillis(result.coerceIn(-\n          MAX_MILLIS..MAX_MILLIS))\n      } else {\n        if (value.sign * scale.sign > 0) INFINITE else\n          NEG_INFINITE\n      }\n    }\n  } // Returns a duration whose value is this duration value\n  multiplied by the given [scale]\n  number.\n  *\n  * The operation may involve rounding when the result cannot be represented exactly with a\n  [Double] number.\n  *\n  * @throws IllegalArgumentException if the operation results in an undefined value for\n  the given arguments,\n  * e.g. when multiplying an infinite duration by zero.\n  */\n  public operator fun\n  times(scale: Double): Duration {\n    val intScale = scale.roundToInt()\n    if (intScale.toDouble() == scale) {\n      return times(intScale)\n    }\n    val unit = storageUnit\n    val result = toDouble(unit) * scale\n    return result.toDuration(unit)\n  }\n  /**\n   * Returns a duration whose value is this duration value divided by\n   the given [scale] number.\n   *\n   * @throws IllegalArgumentException if the operation results in an undefined\n   value for the given arguments,\n   * e.g. when dividing zero duration by zero.\n   */\n  public operator fun\n  div(scale: Int): Duration {\n    if (scale\n    == 0) {\n      return when {\n        isPositive() -> INFINITE\n        isNegative() -> NEG_INFINITE\n      }\n    } else -> throw IllegalArgumentException("Dividing zero duration by zero yields an undefined result.")\n    }\n    if (isInNanos()) {\n      return durationOfNanos(value / scale)\n    } else {\n      if\n      (isInfinite())\n      return this * scale.sign\n    }\n    val result = value / scale\n    if (result in -\n      MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) {\n      val rem = millisToNanos(value - (result *\n        scale)) / scale\n      return durationOfNanos(millisToNanos(result) + rem)\n    }\n    return\n    durationOfMillis(result)\n  }\n  /**\n   * Returns a duration whose value is this duration value divided\n   by the given [scale] number.\n   *\n   * @throws IllegalArgumentException if the operation results in an\n   undefined value for the given\n   arguments,\n   * e.g. when dividing an infinite duration by infinity or zero duration by zero.\n   */\n  public\n  operator fun div(scale: Double): Duration {\n    val intScale = scale.roundToInt()\n    if (intScale.toDouble() ==\n    scale && intScale != 0) {\n      return div(intScale)\n    }\n    val unit = storageUnit\n    val result =\n    toDouble(unit) / scale\n    return result.toDuration(unit)\n  }\n  /** Returns a number that is the ratio of this\n  and [other] duration values. */\n  public operator fun div(other: Duration): Double {\n    val coarserUnit =\n    maxOf(this.storageUnit, other.storageUnit)\n    return this.toDouble(coarserUnit) / other.toDouble(coarserUnit)\n  }\n  /** Returns true, if the duration value is less than zero. */\n  public fun isNegative(): Boolean = rawValue\n  < 0\n  /** Returns true, if the duration value is greater than zero. */\n  public fun isPositive(): Boolean =\n  rawValue > 0\n  /** Returns true,\n  if the duration value is infinite. */\n  public fun isInfinite(): Boolean = rawValue == INFINITE.rawValue ||\n  rawValue == NEG_INFINITE.rawValue\n  /** Returns true, if the duration value is finite. */\n  public fun\n  isFinite(): Boolean = !isInfinite()\n  /** Returns the absolute value of this value. The returned value is always\n  non-negative. */\n  public val absoluteValue: Duration get() = if (isNegative()) -this else this\n  override fun\n  compareTo(other: Duration): Int {\n    val compareBits = this.rawValue xor other.rawValue\n    if (compareBits\n    < 0 || compareBits.toInt() and 1 == 0) // different signs or same sign/same range\n    return

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this.rawValue.compareTo(other.rawValue)\n    // same sign/different ranges\n    val r = this.unitDiscriminator -
other.unitDiscriminator // compare ranges\n    return if (isNegative()) -r else r\n } \n \n // splitting to
components\n\n /**\n * Splits this duration into days, hours, minutes,
seconds, and nanoseconds and executes the given [action] with these components.\n * The result of [action] is
returned as the result of this function.\n * \n * - `nanoseconds` represents the whole number of nanoseconds in
this duration, and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the whole number of
seconds in this duration, and its absolute value is less than 60;\n * - `minutes` represents the whole number of
minutes in this duration, and its absolute value is less than 60;\n * - `hours` represents the whole number of hours
in this duration, and its absolute value is less than 24;\n * - `days` represents the whole number of days in this
duration.\n * \n * Infinite durations are represented as either [Long.MAX_VALUE] days, or
[Long.MIN_VALUE] days (depending on the sign of infinity),\n * and zeroes in the lower components.\n * \n
public inline fun <T> toComponents(action: (days: Long, hours: Int, minutes:
Int, seconds: Int, nanoseconds: Int) -> T): T {\n    contract { callsInPlace(action,
InvocationKind.EXACTLY_ONCE) }\n    return action(inWholeDays, hoursComponent, minutesComponent,
secondsComponent, nanosecondsComponent)\n } \n \n /**\n * Splits this duration into hours, minutes, seconds,
and nanoseconds and executes the given [action] with these components.\n * The result of [action] is returned as
the result of this function.\n * \n * - `nanoseconds` represents the whole number of nanoseconds in this duration,
and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the whole number of seconds in this
duration, and its absolute value is less than 60;\n * - `minutes` represents the whole number of minutes in this
duration, and its absolute value is less than 60;\n * - `hours` represents the whole number of hours in this
duration.\n * \n * Infinite durations are represented as either [Long.MAX_VALUE] hours, or
[Long.MIN_VALUE]
hours (depending on the sign of infinity),\n * and zeroes in the lower components.\n * \n
public inline fun
<T> toComponents(action: (hours: Long, minutes: Int, seconds: Int, nanoseconds: Int) -> T): T {\n    contract {
callsInPlace(action, InvocationKind.EXACTLY_ONCE) }\n    return action(inWholeHours, minutesComponent,
secondsComponent, nanosecondsComponent)\n } \n \n /**\n * Splits this duration into minutes, seconds, and
nanoseconds and executes the given [action] with these components.\n * The result of [action] is returned as the
result of this function.\n * \n * - `nanoseconds` represents the whole number of nanoseconds in this duration,
and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the whole number of seconds in this
duration, and its absolute value is less than 60;\n * - `minutes` represents the whole number of minutes in this
duration.\n * \n * Infinite durations are represented
as either [Long.MAX_VALUE] minutes, or [Long.MIN_VALUE] minutes (depending on the sign of infinity),\n
* and zeroes in the lower components.\n * \n
public inline fun <T> toComponents(action: (minutes: Long,
seconds: Int, nanoseconds: Int) -> T): T {\n    contract { callsInPlace(action, InvocationKind.EXACTLY_ONCE)
}\n    return action(inWholeMinutes, secondsComponent, nanosecondsComponent)\n } \n \n /**\n * Splits
this duration into seconds, and nanoseconds and executes the given [action] with these components.\n * The result
of [action] is returned as the result of this function.\n * \n * - `nanoseconds` represents the whole number of
nanoseconds in this duration, and its absolute value is less than 1_000_000_000;\n * - `seconds` represents the
whole number of seconds in this duration.\n * \n * Infinite durations are represented as either
[Long.MAX_VALUE] seconds, or [Long.MIN_VALUE] seconds (depending on the sign of infinity),\n
* and zero nanoseconds.\n * \n
public inline fun <T> toComponents(action: (seconds: Long, nanoseconds:
Int) -> T): T {\n    contract { callsInPlace(action, InvocationKind.EXACTLY_ONCE) }\n    return
action(inWholeSeconds, nanosecondsComponent)\n } \n \n @PublishedApi\n internal val hoursComponent:
Int\n    get() = if (isInfinite()) 0 else (inWholeHours % 24).toInt()\n \n @PublishedApi\n internal val
minutesComponent: Int\n    get() = if (isInfinite()) 0 else (inWholeMinutes % 60).toInt()\n \n @PublishedApi\n
internal val secondsComponent: Int\n    get() = if (isInfinite()) 0 else (inWholeSeconds % 60).toInt()\n \n
@PublishedApi\n internal val nanosecondsComponent: Int\n    get() = when {\n        isInfinite() -> 0\n
isInMillis() -> millisToNanos(value % 1_000).toInt()\n        else -> (value % 1_000_000_000).toInt()\n

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}\n\n // conversion to units\n\n /**\n * Returns the value of this duration
expressed as a [Double] number of the specified [unit].\n * The operation may involve rounding when the
result cannot be represented exactly with a [Double] number.\n * An infinite duration value is converted
either to [Double.POSITIVE_INFINITY] or [Double.NEGATIVE_INFINITY] depending on its sign.\n */\n
public fun toDouble(unit: DurationUnit): Double {\n    return when (rawValue) {\n        INFINITE.rawValue ->
Double.POSITIVE_INFINITY\n        NEG_INFINITE.rawValue -> Double.NEGATIVE_INFINITY\n
    else -> {\n        // TODO: whether it's ok to convert to Double before scaling\n
convertDurationUnit(value.toDouble(), storageUnit, unit)\n    }\n }\n\n /**\n * Returns the value
of this duration expressed as a [Long] number of the specified [unit].\n * If the result doesn't fit in the range
of [Long] type, it is coerced into that range:\n * - [Long.MIN_VALUE] is returned
if it's less than `Long.MIN_VALUE`,\n * - [Long.MAX_VALUE] is returned if it's greater than
`Long.MAX_VALUE`.\n * An infinite duration value is converted either to [Long.MAX_VALUE] or
[Long.MIN_VALUE] depending on its sign.\n */\n public fun toLong(unit: DurationUnit): Long {\n    return
when (rawValue) {\n        INFINITE.rawValue -> Long.MAX_VALUE\n        NEG_INFINITE.rawValue ->
Long.MIN_VALUE\n        else -> convertDurationUnit(value, storageUnit, unit)\n    }\n }\n\n /**\n *
Returns the value of this duration expressed as an [Int] number of the specified [unit].\n * If the result
doesn't fit in the range of [Int] type, it is coerced into that range:\n * - [Int.MIN_VALUE] is returned if it's less
than `Int.MIN_VALUE`,\n * - [Int.MAX_VALUE] is returned if it's greater than `Int.MAX_VALUE`.\n * An
infinite duration value is converted either to [Int.MAX_VALUE] or [Int.MIN_VALUE] depending on
its sign.\n */\n public fun toInt(unit: DurationUnit): Int =\n
toLong(unit).coerceIn(Int.MIN_VALUE.toLong(), Int.MAX_VALUE.toLong()).toInt()\n\n /** The value of this
duration expressed as a [Double] number of days. *\n @ExperimentalTime\n @Deprecated("Use inWholeDays
property instead or convert toDouble(DAYS) if a double value is required."),
ReplaceWith("toDouble(DurationUnit.DAYS)")\n public val inDays: Double get() =
toDouble(DurationUnit.DAYS)\n\n /** The value of this duration expressed as a [Double] number of hours. *\n
@ExperimentalTime\n @Deprecated("Use inWholeHours property instead or convert toDouble(HOURS) if a
double value is required.", ReplaceWith("toDouble(DurationUnit.HOURS)")\n public val inHours: Double
get() = toDouble(DurationUnit.HOURS)\n\n /** The value of this duration expressed as a [Double] number of
minutes. *\n @ExperimentalTime\n @Deprecated("Use inWholeMinutes property instead or convert
toDouble(MINUTES)
if a double value is required.", ReplaceWith("toDouble(DurationUnit.MINUTES)")\n public val inMinutes:
Double get() = toDouble(DurationUnit.MINUTES)\n\n /** The value of this duration expressed as a [Double]
number of seconds. *\n @ExperimentalTime\n @Deprecated("Use inWholeSeconds property instead or
convert toDouble(SECONDS) if a double value is required."),
ReplaceWith("toDouble(DurationUnit.SECONDS)")\n public val inSeconds: Double get() =
toDouble(DurationUnit.SECONDS)\n\n /** The value of this duration expressed as a [Double] number of
milliseconds. *\n @ExperimentalTime\n @Deprecated("Use inWholeMilliseconds property instead or convert
toDouble(MILLISECONDS) if a double value is required."),
ReplaceWith("toDouble(DurationUnit.MILLISECONDS)")\n public val inMilliseconds: Double get() =
toDouble(DurationUnit.MILLISECONDS)\n\n /** The value of this duration expressed as a [Double] number of
microseconds. *\n @ExperimentalTime\n
@Deprecated("Use inWholeMicroseconds property instead or convert toDouble(MICROSECONDS) if a double
value is required.", ReplaceWith("toDouble(DurationUnit.MICROSECONDS)")\n public val inMicroseconds:
Double get() = toDouble(DurationUnit.MICROSECONDS)\n\n /** The value of this duration expressed as a
[Double] number of nanoseconds. *\n @ExperimentalTime\n @Deprecated("Use inWholeNanoseconds
property instead or convert toDouble(NANOSECONDS) if a double value is required."),
ReplaceWith("toDouble(DurationUnit.NANOSECONDS)")\n public val inNanoseconds: Double get() =
toDouble(DurationUnit.NANOSECONDS)\n\n\n /**\n * The value of this duration expressed as a [Long]

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number of days.\n * An infinite duration value is converted either to [Long.MAX_VALUE] or
[Long.MIN_VALUE] depending on its sign.\n */\n public val inWholeDays: Long\n    get() =
toLong(DurationUnit.DAYS)\n\n /**\n * The value of this duration expressed as a [Long]
number of hours.\n * An infinite duration value is converted either to [Long.MAX_VALUE] or
[Long.MIN_VALUE] depending on its sign.\n */\n public val inWholeHours: Long\n    get() =
toLong(DurationUnit.HOURS)\n\n /**\n * The value of this duration expressed as a [Long] number of
minutes.\n * An infinite duration value is converted either to [Long.MAX_VALUE] or
[Long.MIN_VALUE] depending on its sign.\n */\n public val inWholeMinutes: Long\n    get() =
toLong(DurationUnit.MINUTES)\n\n /**\n * The value of this duration expressed as a [Long] number of
seconds.\n * An infinite duration value is converted either to [Long.MAX_VALUE] or
[Long.MIN_VALUE] depending on its sign.\n */\n public val inWholeSeconds: Long\n    get() =
toLong(DurationUnit.SECONDS)\n\n /**\n * The value of this duration expressed as a [Long] number of
milliseconds.\n * An infinite duration value is converted either
to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n */\n public val
inWholeMilliseconds: Long\n    get() {\n        return if (isInMillis() && isFinite()) value else
toLong(DurationUnit.MILLISECONDS)\n    }\n\n /**\n * The value of this duration expressed as a [Long]
number of microseconds.\n * If the result doesn't fit in the range of [Long] type, it is coerced into that
range:\n * - [Long.MIN_VALUE] is returned if it's less than `Long.MIN_VALUE`,\n * -
[Long.MAX_VALUE] is returned if it's greater than `Long.MAX_VALUE`.\n * An infinite duration value
is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n */\n public val
inWholeMicroseconds: Long\n    get() = toLong(DurationUnit.MICROSECONDS)\n\n /**\n * The value of
this duration expressed as a [Long] number of nanoseconds.\n * If the result doesn't fit in the range of
[Long] type, it is coerced into that
range:\n * - [Long.MIN_VALUE] is returned if it's less than `Long.MIN_VALUE`,\n * -
[Long.MAX_VALUE] is returned if it's greater than `Long.MAX_VALUE`.\n * An infinite duration value
is converted either to [Long.MAX_VALUE] or [Long.MIN_VALUE] depending on its sign.\n */\n public val
inWholeNanoseconds: Long\n    get() {\n        val value = value\n        return when {\n            isInNanos()
-> value\n            value > Long.MAX_VALUE / NANOS_IN_MILLIS -> Long.MAX_VALUE\n            value
< Long.MIN_VALUE / NANOS_IN_MILLIS -> Long.MIN_VALUE\n            else -> millisToNanos(value)\n        }\n    }\n\n // shortcuts\n\n /**\n * Returns the value of this duration expressed as a [Long] number of
nanoseconds.\n * If the value doesn't fit in the range of [Long] type, it is coerced into that range, see the
conversion [Double.toLong] for details.\n * The range of durations that can be expressed
as a `Long` number of nanoseconds is approximately \u00b1292 years.\n */\n @ExperimentalTime\n @Deprecated("Use inWholeNanoseconds property instead.", ReplaceWith("this.inWholeNanoseconds"))\n\n public fun toLongNanoseconds(): Long = inWholeNanoseconds\n\n /**\n * Returns the value of this duration
expressed as a [Long] number of milliseconds.\n * The value is coerced to the range of [Long] type, if it
doesn't fit in that range, see the conversion [Double.toLong] for details.\n * The range of durations that can
be expressed as a `Long` number of milliseconds is approximately \u00b1292 million years.\n */\n @ExperimentalTime\n @Deprecated("Use inWholeMilliseconds property instead.",
ReplaceWith("this.inWholeMilliseconds"))\n\n public fun toLongMilliseconds(): Long = inWholeMilliseconds\n\n\n /**\n * Returns a string representation of this duration value\n * expressed as a combination of numeric
components, each in its
own unit.\n * Each component is a number followed by the unit abbreviated name: `d`, `h`, `m`, `s`,\n *
`5h`, `1d 12h`, `1h 0m 30.340s`.\n * The last component, usually seconds, can be a number with a fractional
part.\n * If the duration is less than a second, it is represented as a single number\n * with one of sub-
second units: `ms` (milliseconds), `us` (microseconds), or `ns` (nanoseconds):\n * `140.884ms`, `500us`, `24ns`.\n
* A negative duration is prefixed with `-` sign and, if it consists of multiple components, surrounded with
parentheses:\n * `-12m` and `-(1h 30m)`.\n * Special cases:\n * - an infinite duration is formatted as

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`"Infinity"` or `" -Infinity"` without a unit.\n * It's recommended to use [toIsoString] that uses more strict
ISO-8601 format instead of this `toString`\n * when you want to convert a duration to a string in cases of
serialization, interchange, etc.\n
* @sample samples.time.Durations.toStringDefault\n */ override fun toString(): String = when (rawValue)
{\n    OL -> "\"0s\"\n    INFINITE.rawValue -> "Infinity"\n    NEG_INFINITE.rawValue -> " -Infinity"\n
else -> {\n        val isNegative = isNegative()\n        buildString {\n            if (isNegative) append('-')\n
            absoluteValue.toComponents { days, hours, minutes, seconds, nanoseconds ->\n                val hasDays = days
!= 0L\n                val hasHours = hours != 0\n                val hasMinutes = minutes != 0\n                val
hasSeconds = seconds != 0 || nanoseconds != 0\n                var components = 0\n                if (hasDays) {\n
                    append(days).append('d')\n                    components++\n                }\n                if (hasHours ||
(hasDays && (hasMinutes || hasSeconds))) {\n                    if (components++ > 0) append(' ')
                    append(hours).append('h')\n                    }\n                if (hasMinutes || (hasSeconds && (hasHours
|| hasDays))) {\n                    if (components++ > 0) append(' ')
                    append(minutes).append('m')\n                    }\n                if (hasSeconds) {\n                    if (components++ > 0) append(' ')
                    when
{\n                        seconds != 0 || hasDays || hasHours || hasMinutes ->\n
appendFractional(seconds, nanoseconds, 9, "s", isoZeroes = false)\n                            nanoseconds >= 1_000_000 -
>\n                            appendFractional(nanoseconds / 1_000_000, nanoseconds % 1_000_000, 6, "ms",
isoZeroes = false)\n                            nanoseconds >= 1_000 ->\n                            appendFractional(nanoseconds
/ 1_000, nanoseconds % 1_000, 3, "us", isoZeroes = false)\n                            else ->\n
                                append(nanoseconds).append("ns")\n                            }\n                            }\n                            if
(isNegative && components > 1) insert(1, ' ').append('')\n                            }\n                            }\n                            }\n                            }\n\n                            private fun
StringBuilder.appendFractional(whole: Int, fractional: Int, fractionalSize: Int, unit: String, isoZeroes: Boolean) {\n
    append(whole)\n    if (fractional != 0) {\n        append('.')\n        val fracString =
fractional.toString().padStart(fractionalSize, '0')\n        val nonZeroDigits = fracString.indexOfLast { it != '0' } +
1\n        when {\n            !isoZeroes && nonZeroDigits < 3 -> appendRange(fracString, 0, nonZeroDigits)\n
            else -> appendRange(fracString, 0, ((nonZeroDigits + 2) / 3) * 3)\n        }\n        }\n        append(unit)\n
}\n\n    /**\n     * Returns a string representation of this duration value expressed in the given [unit]\n     * and
formatted
with the specified [decimals] number of digits after decimal point.\n     * Special cases:\n     * - an infinite
duration is formatted as `"Infinity"` or `" -Infinity"` without a unit.\n     * @param decimals the number of
digits after decimal point to show. The value must be non-negative.\n     * No more than 12 decimals will be shown,
even if a larger number is requested.\n     * @return the value of duration in the specified [unit] followed by
that unit abbreviated name: `d`, `h`, `m`, `s`, `ms`, `us`, or `ns`.\n     * @throws IllegalArgumentException if
[decimals] is less than zero.\n     * @sample samples.time.Durations.toStringDecimals\n     */ public fun
toString(unit: DurationUnit, decimals: Int = 0): String {\n    require(decimals >= 0) { "decimals must be not
negative, but was $decimals" }\n    val number = toDouble(unit)\n    if (number.isInfinite()) return
number.toString()\n    return formatToExactDecimals(number,
decimals.coerceAtMost(12)) + unit.shortName()\n }\n\n /**\n     * Returns an ISO-8601 based string
representation of this duration.\n     * The returned value is presented in the format `PTm>s.fS`, where `h`,
`m`, `s` are the integer components of this duration (see [toComponents])\n     * and `f` is a fractional part of second.
Depending on the roundness of the value the fractional part can be formatted with either\n     * 0, 3, 6, or 9 decimal
digits.\n     * The infinite duration is represented as `"PT9999999999999999H"` which is larger than any
possible finite duration in Kotlin.\n     * Negative durations are indicated with the sign `-` in the beginning of
the returned string, for example, `" -PT5M30S"`.\n     * @sample samples.time.Durations.toIsoString\n     */ public fun toIsoString(): String = buildString {\n    if (isNegative()) append('-')
append("PT")\n    this@Duration.absoluteValue.toComponents {
hours, minutes, seconds, nanoseconds ->\n        @Suppress("NAME_SHADOWING")\n        var hours =
hours\n        if (isInfinite()) {\n            // use large enough value instead of Long.MAX_VALUE\n

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hours = 9_999_999_999_999\n        }\n        val hasHours = hours != 0L\n        val hasSeconds = seconds !=
0 || nanoseconds != 0\n        val hasMinutes = minutes != 0 || (hasSeconds && hasHours)\n        if (hasHours)
{\n        append(hours).append('H')\n        }\n        if (hasMinutes) {\n
append(minutes).append('M')\n        }\n        if (hasSeconds || (!hasHours && !hasMinutes)) {\n
appendFractional(seconds, nanoseconds, 9, 'S', isoZeroes = true)\n        }\n        }\n        }\n\n// constructing
from number of units\n// extension functions\n\n/** Returns a [Duration] equal to this [Int] number of the specified
[unit]. */\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalTime::class)\npublic
fun Int.toDuration(unit: DurationUnit): Duration {\n    return if (unit <= DurationUnit.SECONDS) {\n
durationOfNanos(convertDurationUnitOverflow(this.toLong(), unit, DurationUnit.NANOSECONDS))\n    } else\n
toLong().toDuration(unit)\n}\n\n/** Returns a [Duration] equal to this [Long] number of the specified [unit].
*/\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalTime::class)\npublic fun Long.toDuration(unit:
DurationUnit): Duration {\n    val maxNsInUnit = convertDurationUnitOverflow(MAX_NANOS,
DurationUnit.NANOSECONDS, unit)\n    if (this in -maxNsInUnit..maxNsInUnit) {\n        return
durationOfNanos(convertDurationUnitOverflow(this, unit, DurationUnit.NANOSECONDS))\n    } else {\n        val
millis = convertDurationUnit(this, unit, DurationUnit.MILLISECONDS)\n        return
durationOfMillis(millis.coerceIn(-MAX_MILLIS, MAX_MILLIS))\n    }\n}\n\n/**\n * Returns a [Duration] equal
to this [Double] number of the specified [unit].\n */\n * Depending on its magnitude, the value is rounded to an integer number of nanoseconds or milliseconds.\n */\n * @throws IllegalArgumentException if this `Double` value is `NaN`.\n
*/\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalTime::class)\npublic fun Double.toDuration(unit:
DurationUnit): Duration {\n    val valueInNs = convertDurationUnit(this, unit, DurationUnit.NANOSECONDS)\n
require(!valueInNs.isNaN()) { "Duration value cannot be NaN." }\n    val nanos = valueInNs.roundToLong()\n
return if (nanos in -MAX_NANOS..MAX_NANOS) {\n        durationOfNanos(nanos)\n    } else {\n        val millis =
convertDurationUnit(this, unit, DurationUnit.MILLISECONDS).roundToLong()\n        durationOfMillisNormalized(millis)\n    }\n}\n\n// constructing from number of units\n// deprecated extension
properties\n\n/** Returns a [Duration] equal to this [Int] number of nanoseconds.
*/\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Int.nanoseconds' extension property from
Duration.Companion instead.", ReplaceWith("this.nanoseconds",
"\"kotlin.time.Duration.Companion.nanoseconds\""))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Int.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n/** Returns a [Duration] equal to this
[Long] number of nanoseconds. */\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use
'Long.nanoseconds' extension property from Duration.Companion instead.", ReplaceWith("this.nanoseconds",
"\"kotlin.time.Duration.Companion.nanoseconds\""))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Long.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n/**\n * Returns a [Duration] equal to this
[Double] number of nanoseconds.\n */\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Double.nanoseconds' extension property
from Duration.Companion instead.", ReplaceWith("this.nanoseconds",
"\"kotlin.time.Duration.Companion.nanoseconds\""))\n@DeprecatedSinceKotlin(warningSince
= "1.5")\npublic val Double.nanoseconds get() = toDuration(DurationUnit.NANOSECONDS)\n\n/** Returns a
[Duration] equal to this [Int] number of microseconds.
*/\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Int.microseconds' extension property from
Duration.Companion instead.", ReplaceWith("this.microseconds",
"\"kotlin.time.Duration.Companion.microseconds\""))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Int.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n/** Returns a [Duration] equal to this
[Long] number of microseconds. */\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use
'Long.microseconds' extension property from Duration.Companion instead.", ReplaceWith("this.microseconds",
"\"kotlin.time.Duration.Companion.microseconds\""))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Long.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n\n/**\n

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* Returns a [Duration] equal to this [Double] number of microseconds.\n * \n * @throws IllegalArgumentException
if this [Double] value is `NaN`.\n * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use
'Double.microseconds' extension property from Duration.Companion instead.\n , ReplaceWith(\n "this.microseconds"\n ,
\n "kotlin.time.Duration.Companion.microseconds"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Double.microseconds get() = toDuration(DurationUnit.MICROSECONDS)\n \n \n /** Returns a [Duration] equal to
this [Int] number of milliseconds. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use
'Int.milliseconds' extension property from Duration.Companion instead.\n , ReplaceWith(\n "this.milliseconds"\n ,
\n "kotlin.time.Duration.Companion.milliseconds"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Int.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n \n \n /** Returns a [Duration] equal to this
[Long] number of milliseconds. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use
'Long.milliseconds' extension property from Duration.Companion instead.\n , ReplaceWith(\n "this.milliseconds"\n ,
\n "kotlin.time.Duration.Companion.milliseconds"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Long.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n \n \n /** \n * Returns a [Duration] equal to this
[Double] number of milliseconds.\n * \n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n
* \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use 'Double.milliseconds' extension property
from Duration.Companion instead.\n , ReplaceWith(\n "this.milliseconds"\n ,
\n "kotlin.time.Duration.Companion.milliseconds"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Double.milliseconds get() = toDuration(DurationUnit.MILLISECONDS)\n \n \n /** Returns a [Duration] equal to this
[Int] number of seconds. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use 'Int.seconds'
extension
extension
property from Duration.Companion instead.\n , ReplaceWith(\n "this.seconds"\n ,
\n "kotlin.time.Duration.Companion.seconds"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Int.seconds get() = toDuration(DurationUnit.SECONDS)\n \n /** Returns a [Duration] equal to this [Long] number of
seconds. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use 'Long.seconds' extension property
from Duration.Companion instead.\n , ReplaceWith(\n "this.seconds"\n ,
\n "kotlin.time.Duration.Companion.seconds"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Long.seconds get() = toDuration(DurationUnit.SECONDS)\n \n \n /** \n * Returns a [Duration] equal to this [Double]
number of seconds.\n * \n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n
* \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use 'Double.seconds' extension property from
Duration.Companion instead.\n , ReplaceWith(\n "this.seconds"\n ,
\n "kotlin.time.Duration.Companion.seconds"\n ))\n @DeprecatedSinceKotlin(warningSince
= \n "1.5")\n public val Double.seconds get() = toDuration(DurationUnit.SECONDS)\n \n \n /** Returns a [Duration]
equal to this [Int] number of minutes. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use
'Int.minutes' extension property from Duration.Companion instead.\n , ReplaceWith(\n "this.minutes"\n ,
\n "kotlin.time.Duration.Companion.minutes"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Int.minutes get() = toDuration(DurationUnit.MINUTES)\n \n \n /** Returns a [Duration] equal to this [Long] number of
minutes. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use 'Long.minutes' extension property
from Duration.Companion instead.\n , ReplaceWith(\n "this.minutes"\n ,
\n "kotlin.time.Duration.Companion.minutes"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Long.minutes get() = toDuration(DurationUnit.MINUTES)\n \n \n /** \n * Returns a [Duration] equal to this [Double]
number of minutes.\n * \n * @throws IllegalArgumentException
if this [Double] value is `NaN`.\n * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use
'Double.minutes' extension property from Duration.Companion instead.\n , ReplaceWith(\n "this.minutes"\n ,
\n "kotlin.time.Duration.Companion.minutes"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val
Double.minutes get() = toDuration(DurationUnit.MINUTES)\n \n \n /** Returns a [Duration] equal to this [Int]
number of hours. * \n @SinceKotlin("1.3")\n @ExperimentalTime\n @Deprecated(\n Use 'Int.hours' extension
property from Duration.Companion instead.\n , ReplaceWith(\n "this.hours"\n ,
\n "kotlin.time.Duration.Companion.hours"\n ))\n @DeprecatedSinceKotlin(warningSince = \n "1.5")\n public val

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Int.hours get() = toDuration(DurationUnit.HOURS)\n\n/** Returns a [Duration] equal to this [Long] number of
hours. *\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Long.hours' extension property from
Duration.Companion instead.", ReplaceWith("this.hours",
"kotlin.time.Duration.Companion.hours"))\n@DeprecatedSinceKotlin(warningSince
= "1.5")\npublic val Long.hours get() = toDuration(DurationUnit.HOURS)\n\n/**\n * Returns a [Duration] equal
to this [Double] number of hours.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n
*\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Double.hours' extension property from
Duration.Companion instead.", ReplaceWith("this.hours",
"kotlin.time.Duration.Companion.hours"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Double.hours get() = toDuration(DurationUnit.HOURS)\n\n/** Returns a [Duration] equal to this [Int] number of
days. *\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Int.days' extension property from
Duration.Companion instead.", ReplaceWith("this.days",
"kotlin.time.Duration.Companion.days"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val Int.days
get() = toDuration(DurationUnit.DAYS)\n\n/** Returns a [Duration] equal to this
[Long] number of days. *\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Long.days'
extension property from Duration.Companion instead.", ReplaceWith("this.days",
"kotlin.time.Duration.Companion.days"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Long.days get() = toDuration(DurationUnit.DAYS)\n\n/**\n * Returns a [Duration] equal to this [Double] number
of days.\n *\n * @throws IllegalArgumentException if this [Double] value is `NaN`.\n
*\n@SinceKotlin("1.3")\n@ExperimentalTime\n@Deprecated("Use 'Double.days' extension property from
Duration.Companion instead.", ReplaceWith("this.days",
"kotlin.time.Duration.Companion.days"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic val
Double.days get() = toDuration(DurationUnit.DAYS)\n\n/** Returns a duration whose value is the specified
[duration] value multiplied by this number.
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalTime::class)\n@kotlin.internal.InlineOnly\npublic
inline
operator fun Int.times(duration: Duration): Duration = duration * this\n\n/**\n * Returns a duration whose value is
the specified [duration] value multiplied by this number.\n *\n * The operation may involve rounding when the
result cannot be represented exactly with a [Double] number.\n *\n * @throws IllegalArgumentException if the
operation results in a `NaN` value.\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalTime::class)\n@kotlin.internal.InlineOnly\npublic
inline operator fun Double.times(duration: Duration): Duration = duration * this\n\n\nprivate fun
parseDuration(value: String, strictIso: Boolean): Duration {\n    var length = value.length\n    if (length == 0) throw
IllegalArgumentException("The string is empty")\n    var index = 0\n    var result = Duration.ZERO\n    val
infinityString = "Infinity"\n    when (value[index]) {\n        '+', '-' -> index++\n    }\n    val hasSign = index > 0\n
val isNegative = hasSign && value.startsWith('-')\n    when
{\n        length <= index ->\n            throw IllegalArgumentException("No components")\n        value[index] == 'P'
-> {\n            if (++index == length) throw IllegalArgumentException()\n            val nonDigitSymbols = "+-."
\n            var isTimeComponent = false\n            var prevUnit: DurationUnit? = null\n            while (index < length) {\n
                if (value[index] == 'T') {\n                    if (isTimeComponent || ++index == length) throw
IllegalArgumentException()\n                    isTimeComponent = true\n                    continue\n                }\n
                val component = value.substringWhile(index) { it in '0'..'9' || it in nonDigitSymbols }\n                if
(component.isEmpty()) throw IllegalArgumentException()\n                index += component.length\n                val
unitChar = value.getOrElse(index) { throw IllegalArgumentException("Missing unit for value $component") }\n
                index++\n                val unit
= durationUnitByIsoChar(unitChar, isTimeComponent)\n                if (prevUnit != null && prevUnit <= unit)
throw IllegalArgumentException("Unexpected order of duration components")\n                prevUnit = unit\n
                val dotIndex = component.indexOf('.')\n                if (unit == DurationUnit.SECONDS && dotIndex > 0) {\n

```

```

    val whole = component.substring(0, dotIndex)\n
    parseOverLongIsoComponent(whole).toDuration(unit)\n
    component.substring(dotIndex).toDouble().toDuration(unit)\n
    parseOverLongIsoComponent(component).toDuration(unit)\n
    throw IllegalArgumentException()\n
    value.regionMatches(index, infinityString, 0, length = maxOf(length -\n
    index, infinityString.length), ignoreCase = true) -> {\n
    result = Duration.INFINITE\n
    }\n
    else -> {\n
    // parse default string format\n
    var prevUnit: DurationUnit? = null\n
    var afterFirst =\n
    false\n
    var allowSpaces = !hasSign\n
    if (hasSign && value[index] == '(' && value.last() == ')') {\n
    allowSpaces = true\n
    if (++index == --length) throw IllegalArgumentException("\n
    No components\n
    ") \n
    }\n
    while (index < length) {\n
    if (afterFirst && allowSpaces) {\n
    index =\n
    value.skipWhile(index) { it == ' ' }\n
    }\n
    afterFirst = true\n
    val component =\n
    value.substringWhile(index) { it in '0'..'9' || it == '.' }\n
    if (component.isEmpty()) throw\n
    IllegalArgumentException()\n
    index += component.length\n
    val unitName =\n
    value.substringWhile(index) { it in 'a'..'z' }\n
    index += unitName.length\n
    val unit =\n
    durationUnitByShortName(unitName)\n
    if (prevUnit != null && prevUnit <= unit) throw IllegalArgumentException("\n
    Unexpected order of\n
    duration components\n
    ") \n
    prevUnit = unit\n
    val dotIndex = component.indexOf('.')\n
    if\n
    (dotIndex > 0) {\n
    val whole = component.substring(0, dotIndex)\n
    result +=\n
    whole.toLong().toDuration(unit)\n
    result +=\n
    component.substring(dotIndex).toDouble().toDuration(unit)\n
    if (index < length) throw\n
    IllegalArgumentException("\n
    Fractional component must be last\n
    ") \n
    } else {\n
    result +=\n
    component.toLong().toDuration(unit)\n
    }\n
    }\n
    }\n
    return if (isNegative) -result else\n
    result\n
    }\n
    }\n
    private fun parseOverLongIsoComponent(value: String): Long {\n
    val length = value.length\n
    var\n
    startIndex = 0\n
    if (length > 0 && value[0] in '+-') startIndex++\n
    if ((length - startIndex) > 16 &&\n
    (startIndex..value.lastIndex).all\n
    { value[it] in '0'..'9' }) {\n
    // all chars are digits, but more than ceiling(log10(MAX_MILLIS / 1000)) of them\n
    return if (value[0] == '-') Long.MIN_VALUE else Long.MAX_VALUE\n
    }\n
    // TODO: replace with just\n
    toLong after min JDK becomes 8\n
    return if (value.startsWith("+")) value.drop(1).toLong() else\n
    value.toLong()\n
    }\n
    private inline fun String.substringWhile(startIndex: Int, predicate: (Char) -> Boolean):\n
    String =\n
    substring(startIndex, skipWhile(startIndex, predicate))\n
    private inline fun\n
    String.skipWhile(startIndex: Int, predicate: (Char) -> Boolean): Int {\n
    var i = startIndex\n
    while (i < length &&\n
    predicate(this[i])) i++\n
    return i\n
    }\n
    // The ranges are chosen so that they are:\n
    // - symmetric relative to\n
    zero: this greatly simplifies operations with sign, e.g. unaryMinus and minus.\n
    // - non-overlapping, but adjacent:\n
    the first value that doesn't fit in nanos range, can be exactly represented\n
    in millis.\n
    internal const val NANOS_IN_MILLIS = 1_000_000\n
    // maximum number duration can store in\n
    nanosecond range\n
    internal const val MAX_NANOS = Long.MAX_VALUE / 2 / NANOS_IN_MILLIS *\n
    NANOS_IN_MILLIS - 1 // ends in ..._999_999\n
    // maximum number duration can store in millisecond range, also\n
    encodes an infinite value\n
    internal const val MAX_MILLIS = Long.MAX_VALUE / 2\n
    // MAX_NANOS\n
    expressed in milliseconds\n
    private const val MAX_NANOS_IN_MILLIS = MAX_NANOS /\n
    NANOS_IN_MILLIS\n
    private fun nanosToMillis(nanos: Long): Long = nanos / NANOS_IN_MILLIS\n
    private\n
    fun millisToNanos(millis: Long): Long = millis * NANOS_IN_MILLIS\n
    private fun\n
    durationOfNanos(normalNanos: Long) = Duration(normalNanos shl 1)\n
    private fun durationOfMillis(normalMillis:\n
    Long) = Duration((normalMillis shl 1) + 1)\n
    private fun durationOf(normalValue: Long, unitDiscriminator: Int) =\n
    Duration((normalValue shl 1) + unitDiscriminator)\n
    private fun durationOfNanosNormalized(nanos: Long) =\n
    if\n
    (nanos in -MAX_NANOS..MAX_NANOS)\n
    {\n
    durationOfNanos(nanos)\n
    } else {\n
    durationOfMillis(nanosToMillis(nanos))\n
    }\n
    private fun\n
    durationOfMillisNormalized(millis: Long) =\n
    if (millis in -\n
    MAX_NANOS_IN_MILLIS..MAX_NANOS_IN_MILLIS) {\n
    durationOfNanos(millisToNanos(millis))\n
    }

```

```

else {\n    durationOfMillis(millis.coerceIn(-MAX_MILLIS, MAX_MILLIS))\n } \n\ninternal expect val
durationAssertionsEnabled: Boolean\n\ninternal expect fun formatToExactDecimals(value: Double, decimals: Int):
String\n\ninternal expect fun formatUpToDecimals(value: Double, decimals: Int): String", "/*\n * Copyright 2010-
2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n@file:kotlin.jvm.JvmName("UnsignedKt")\n\npackage kotlin\n\n\n@PublishedApi\n\ninternal fun uintCompare(v1:
Int, v2: Int): Int = (v1 xor Int.MIN_VALUE).compareTo(v2 xor Int.MIN_VALUE)\n\n@PublishedApi\n\ninternal
fun ulongCompare(v1: Long, v2: Long): Int = (v1 xor Long.MIN_VALUE).compareTo(v2 xor
Long.MIN_VALUE)\n\n@PublishedApi\n\ninternal fun uintDivide(v1: UInt, v2: UInt): UInt = (v1.toLong() /
v2.toLong()).toUInt()\n\n@PublishedApi\n\ninternal fun uintRemainder(v1: UInt, v2: UInt): UInt = (v1.toLong() %
v2.toLong()).toUInt()\n\n// Division and remainder are based on Guava's UnsignedLongs implementation\n\n//
Copyright 2011 The Guava Authors\n\n@PublishedApi\n\ninternal fun ulongDivide(v1: ULong, v2: ULong): ULong
{\n    val dividend = v1.toLong()\n    val divisor = v2.toLong()\n    if (divisor < 0) { // i.e., divisor >= 2^63:\n
return if (v1 < v2) ULong(0) else ULong(1)\n    }\n\n    // Optimization - use signed division if both dividend and
divisor < 2^63\n    if (dividend >= 0) {\n        return ULong(dividend / divisor)\n    }\n\n    // Otherwise, approximate
the quotient, check, and correct if necessary.\n    val quotient = ((dividend ushr 1) / divisor) shl 1\n    val rem
= dividend - quotient * divisor\n    return ULong(quotient + if (ULong(rem) >= ULong(divisor)) 1 else
0)\n}\n\n@PublishedApi\n\ninternal fun ulongRemainder(v1: ULong, v2: ULong): ULong {\n    val dividend =
v1.toLong()\n    val divisor = v2.toLong()\n    if (divisor < 0) { // i.e., divisor >= 2^63:\n        return if (v1 < v2) {\n
v1 // dividend < divisor\n        } else {\n            v1 - v2 // dividend >= divisor\n        }\n    }\n\n    // Optimization
- use signed modulus if both dividend and divisor < 2^63\n    if (dividend >= 0) {\n        return ULong(dividend %
divisor)\n    }\n\n    // Otherwise, approximate the quotient, check, and correct if necessary.\n    val quotient =
((dividend ushr 1) / divisor) shl 1\n    val rem = dividend - quotient * divisor\n    return ULong(rem - if (ULong(rem)
>= ULong(divisor)) divisor else 0)\n}\n\n@PublishedApi\n\ninternal fun doubleToUInt(v: Double): UInt = when {\n
v.isNaN() -> 0u\n    v <= UInt.MIN_VALUE.toDouble() -> UInt.MIN_VALUE\n
    v >= UInt.MAX_VALUE.toDouble() -> UInt.MAX_VALUE\n    v <= Int.MAX_VALUE -> v.toInt().toUInt()\n
else -> (v - Int.MAX_VALUE).toInt().toUInt() + Int.MAX_VALUE.toUInt() // Int.MAX_VALUE < v <
UInt.MAX_VALUE\n}\n\n@PublishedApi\n\ninternal fun doubleToULong(v: Double): ULong = when {\n
v.isNaN() -> 0u\n    v <= ULong.MIN_VALUE.toDouble() -> ULong.MIN_VALUE\n    v >=
ULong.MAX_VALUE.toDouble() -> ULong.MAX_VALUE\n    v < Long.MAX_VALUE ->
v.toLong().toULong()\n\n    // Real values from Long.MAX_VALUE to (Long.MAX_VALUE + 1) are not
representable in Double, so don't handle them.\n    else -> (v - 9223372036854775808.0).toLong().toULong() +
9223372036854775808uL // Long.MAX_VALUE + 1 < v <
ULong.MAX_VALUE\n}\n\n\n@PublishedApi\n\ninternal fun uintToDouble(v: Int): Double = (v and
Int.MAX_VALUE).toDouble() + (v ushr 31 shl 30).toDouble() * 2\n\n@PublishedApi\n\ninternal fun
ulongToDouble(v: Long): Double = (v ushr 11).toDouble() * 2048 + (v and 2047)\n\n\ninternal fun
ulongToString(v: Long): String = ulongToString(v, 10)\n\n\ninternal fun ulongToString(v: Long, base: Int): String
{\n    if (v >= 0) return v.toString(base)\n\n    var quotient = ((v ushr 1) / base) shl 1\n    var rem = v - quotient *
base\n    if (rem >= base) {\n        rem -= base\n        quotient += 1\n    }\n    return quotient.toString(base) +
rem.toString(base)\n}\n\n", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("CollectionsKt")\n\npackage
kotlin.collections\n\n\n/**\n * Given an [iterator] function constructs an [Iterable] instance that returns values through
the [Iterator]\n * provided by that function.\n * @sample samples.collections.Iterables.Building.iterable\n
*\n@kotlin.internal.InlineOnly\n\npublic inline fun <T> Iterable(crossinline iterator: ()
-> Iterator<T>): Iterable<T> = object : Iterable<T> {\n    override fun iterator(): Iterator<T> = iterator()\n}\n\n\n/**\n
* A wrapper over another [Iterable] (or any other object that can produce an [Iterator]) that returns\n * an indexing

```

```

iterator.\n *\ninternal class IndexingIterable<out T>(private val iteratorFactory: () -> Iterator<T>) :
Iterable<IndexedValue<T>> {\n  override fun iterator(): Iterator<IndexedValue<T>> =
IndexingIterator(iteratorFactory())\n}\n\n/**\n * Returns the size of this iterable if it is known, or `null`
otherwise.\n *\n@PublishedApi\ninternal fun <T> Iterable<T>.collectionSizeOrNull(): Int? = if (this is
Collection<*>) this.size else null\n\n/**\n * Returns the size of this iterable if it is known, or the specified [default]
value otherwise.\n *\n@PublishedApi\ninternal fun <T> Iterable<T>.collectionSizeOrDefault(default: Int): Int = if
(this is Collection<*>) this.size else default\n\n\n/**\n * Returns a single list of all elements from all collections
in the given collection.\n * @sample samples.collections.Iterables.Operations.flattenIterable\n *\npublic fun <T>
Iterable<Iterable<T>>.flatten(): List<T> {\n  val result = ArrayList<T>()\n  for (element in this) {\n
result.addAll(element)\n  }\n  return result\n}\n\n\n/**\n * Returns a pair of lists, where\n * *first* list is built from
the first values of each pair from this collection,\n * *second* list is built from the second values of each pair from
this collection.\n * @sample samples.collections.Iterables.Operations.unzipIterable\n *\npublic fun <T, R>
Iterable<Pair<T, R>>.unzip(): Pair<List<T>, List<R>> {\n  val expectedSize = collectionSizeOrDefault(10)\n
val listT = ArrayList<T>(expectedSize)\n  val listR = ArrayList<R>(expectedSize)\n  for (pair in this) {\n
listT.add(pair.first)\n  listR.add(pair.second)\n  }\n  return listT to listR\n}\n\n"/*\n * Copyright 2010-2020
JetBrains s.r.o. and Kotlin Programming Language contributors.\n
* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("SequencesKt")\n\npackage
kotlin.sequences\n\nimport kotlin.random.Random\n\n\n/**\n * Given an [iterator] function constructs a [Sequence]
that returns values through the [Iterator]\n * provided by that function.\n * The values are evaluated lazily, and the
sequence is potentially infinite.\n * \n *\n * @sample samples.collections.Sequences.Building.sequenceFromIterator\n
*\n\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence(crossinline iterator: () -> Iterator<T>):
Sequence<T> = object : Sequence<T> {\n  override fun iterator(): Iterator<T> = iterator()\n}\n\n\n/**\n * Creates a
sequence that returns all elements from this iterator. The sequence is constrained to be iterated only once.\n * \n *\n
* @sample samples.collections.Sequences.Building.sequenceFromIterator\n *\n\npublic fun <T>
Iterator<T>.asSequence():
Sequence<T> = Sequence { this }.constrainOnce()\n\n\n/**\n * Creates a sequence that returns the specified values.\n
*\n * @sample samples.collections.Sequences.Building.sequenceOfValues\n *\n\npublic fun <T> sequenceOf(vararg
elements: T): Sequence<T> = if (elements.isEmpty()) emptySequence() else elements.asSequence()\n\n\n\n/**\n *
Returns an empty sequence.\n *\n\npublic fun <T> emptySequence(): Sequence<T> = EmptySequence\n\n\nprivate
object EmptySequence : Sequence<Nothing>, DropTakeSequence<Nothing> {\n  override fun iterator():
Iterator<Nothing> = EmptyIterator\n  override fun drop(n: Int) = EmptySequence\n  override fun take(n: Int) =
EmptySequence\n}\n\n\n\n/**\n * Returns this sequence if it's not `null` and the empty sequence otherwise.\n * \n
*\n * @sample samples.collections.Sequences.Usage.sequenceOrEmpty\n
*\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>?.orEmpty():
Sequence<T> = this ?: emptySequence()\n\n\n\n/**\n * Returns a sequence
that iterates through the elements either of this sequence\n * or, if this sequence turns out to be empty, of the
sequence returned by [defaultValue] function.\n * \n *\n * @sample
samples.collections.Sequences.Usage.sequenceIfEmpty\n *\n\n@SinceKotlin("1.3")\npublic fun <T>
Sequence<T>.ifEmpty(defaultValue: () -> Sequence<T>): Sequence<T> = sequence {\n  val iterator =
this@ifEmpty.iterator()\n  if (iterator.hasNext()) {\n    yieldAll(iterator)\n  } else {\n
yieldAll(defaultValue())\n  }\n}\n\n\n\n/**\n * Returns a sequence of all elements from all sequences in this
sequence.\n * \n *\n * The operation is _intermediate_ and _stateless_.\n * \n *\n * @sample
samples.collections.Sequences.Transformations.flattenSequenceOfSequences\n *\n\npublic fun <T>
Sequence<Sequence<T>>.flatten(): Sequence<T> = flatten { it.iterator() }\n\n\n\n/**\n * Returns a sequence of all
elements from all iterables in this sequence.\n * \n *\n * The operation is _intermediate_ and _stateless_.\n * \n
*\n * @sample samples.collections.Sequences.Transformations.flattenSequenceOfLists\n

```

```

*^@kotlin.jvm.JvmName("flattenSequenceOfIterable")\npublic fun <T> Sequence<Iterable<T>>.flatten():
Sequence<T> = flatten { it.iterator() }\n\nprivate fun <T, R> Sequence<T>.flatten(iterator: (T) -> Iterator<R>):
Sequence<R> {\n    if (this is TransformingSequence<*, *>) {\n        return (this as TransformingSequence<*,
T>).flatten(iterator)\n    }\n    return FlatteningSequence(this, { it }, iterator)\n}\n\n/**\n * Returns a pair of lists,
where\n * *first* list is built from the first values of each pair from this sequence,\n * *second* list is built from the
second values of each pair from this sequence.\n * \n * The operation is _terminal_.\n * \n * @sample
samples.collections.Sequences.Transformations.unzip\n */\npublic fun <T, R> Sequence<Pair<T, R>>.unzip():
Pair<List<T>, List<R>> {\n    val listT = ArrayList<T>()\n    val listR = ArrayList<R>()\n    for (pair in this) {\n
listT.add(pair.first)\n        listR.add(pair.second)\n    }\n    return listT to listR\n}\n\n/**\n * Returns a sequence that yields elements of this sequence randomly
shuffled.\n * \n * Note that every iteration of the sequence returns elements in a different order.\n * \n * The operation
is _intermediate_ and _stateful_.\n */\n@SinceKotlin("1.4")\npublic fun <T> Sequence<T>.shuffled():
Sequence<T> = shuffled(Random)\n\n/**\n * Returns a sequence that yields elements of this sequence randomly
shuffled\n * using the specified [random] instance as the source of randomness.\n * \n * Note that every iteration of
the sequence returns elements in a different order.\n * \n * The operation is _intermediate_ and _stateful_.\n */\n@SinceKotlin("1.4")\npublic fun <T> Sequence<T>.shuffled(random: Random): Sequence<T> =
sequence<T> {\n    val buffer = toMutableList()\n    while (buffer.isNotEmpty()) {\n        val j =
random.nextInt(buffer.size)\n        val last = buffer.removeLast()\n        val value = if (j < buffer.size) buffer.set(j,
last) else last\n        yield(value)\n    }\n}\n\n/**\n * A sequence that returns the values from the underlying
[sequence] that either match or do not match\n * the specified [predicate].\n * \n * @param sendWhen If `true`,
values for which the predicate returns `true` are returned. Otherwise,\n * values for which the predicate returns
`false` are returned\n */\ninternal class FilteringSequence<T>(\n    private val sequence: Sequence<T>,\n    private
val sendWhen: Boolean = true,\n    private val predicate: (T) -> Boolean\n) : Sequence<T> {\n    override fun
iterator(): Iterator<T> = object : Iterator<T> {\n        val iterator = sequence.iterator()\n        var nextState: Int = -1 //
-1 for unknown, 0 for done, 1 for continue\n        var nextItem: T? = null\n        private fun calcNext() {\n
while (iterator.hasNext()) {\n            val item = iterator.next()\n            if (predicate(item) == sendWhen) {\n
nextItem = item\n                nextState = 1\n                return\n            }\n            nextState = 0\n        }\n        override
fun next(): T {\n            if (nextState == -1)\n                calcNext()\n            if (nextState == 0)\n                throw
NoSuchElementException()\n            val result = nextItem\n            nextItem = null\n            nextState = -1\n
@Suppress("UNCHECKED_CAST")\n            return result as T\n        }\n        override fun hasNext(): Boolean
{\n            if (nextState == -1)\n                calcNext()\n            return nextState == 1\n        }\n    }\n\n/**\n * A
sequence which returns the results of applying the given [transformer] function to the values\n * in the underlying
[sequence].\n */\ninternal class TransformingSequence<T, R>(\n    constructor(private val sequence: Sequence<T>,\n    private val transformer: (T) -> R) : Sequence<R> {\n    override fun iterator(): Iterator<R> = object : Iterator<R>
{\n        val iterator = sequence.iterator()\n        override fun next(): R {\n            return transformer(iterator.next())\n        }\n        override fun hasNext(): Boolean {\n            return iterator.hasNext()\n        }\n    }\n\n    internal fun
<E> flatten(iterator: (R) -> Iterator<E>): Sequence<E> {\n        return FlatteningSequence<T, R, E>(sequence,
transformer, iterator)\n    }\n}\n\n/**\n * A sequence which returns the results of applying the given [transformer]
function to the values\n * in the underlying [sequence], where the transformer function takes the index of the value
in the underlying\n * sequence along with the value itself.\n */\ninternal class TransformingIndexedSequence<T,
R>(\n    constructor(private val sequence: Sequence<T>, private val transformer: (Int, T) -> R) : Sequence<R> {\n    override fun iterator(): Iterator<R> = object : Iterator<R> {\n        val iterator = sequence.iterator()\n        var index =
0\n        override fun next(): R {\n            return transformer(checkIndexOverflow(index++), iterator.next())\n        }\n        override fun hasNext():
Boolean {\n            return iterator.hasNext()\n        }\n    }\n}\n\n/**\n * A sequence which combines values from
the underlying [sequence] with their indices and returns them as\n * [IndexedValue] objects.\n */\ninternal class
IndexingSequence<T>(\n    constructor(private val sequence: Sequence<T>) : Sequence<IndexedValue<T>> {\n

```

```

override fun iterator(): Iterator<IndexedValue<T>> = object : Iterator<IndexedValue<T>> {
    val iterator = sequence.iterator()
    var index = 0
    override fun next(): IndexedValue<T> {
        return IndexedValue(checkIndexOverflow(index++), iterator.next())
    }
    override fun hasNext(): Boolean {
        return iterator.hasNext()
    }
}

```

\* A sequence which takes the values from two parallel underlying sequences, passes them to the given [transform] function and returns the values returned by that function. The sequence stops returning values as soon as one of the underlying sequences stops returning values.

```

internal class MergingSequence<T1, T2, V> {
    constructor(
        private val sequence1: Sequence<T1>,
        private val sequence2: Sequence<T2>,
        private val transform: (T1, T2) -> V
    ): Sequence<V> {
        override fun iterator(): Iterator<V> = object : Iterator<V> {
            val iterator1 = sequence1.iterator()
            val iterator2 = sequence2.iterator()
            override fun next(): V {
                return transform(iterator1.next(), iterator2.next())
            }
            override fun hasNext(): Boolean {
                return iterator1.hasNext() && iterator2.hasNext()
            }
        }
    }
}

```

internal class FlatteningSequence<T, R, E> {
 constructor(
 private val sequence: Sequence<T>,
 private val transformer: (T) -> R,
 private val iterator: (R) -> Iterator<E>
 ): Sequence<E> {
 override fun iterator(): Iterator<E> = object : Iterator<E> {
 val iterator = sequence.iterator()
 var itemIterator: Iterator<E>? = null
 override fun next(): E {
 if (!ensureItemIterator())
 throw NoSuchElementException()
 return itemIterator!!.next()
 }
 override fun hasNext(): Boolean {
 return ensureItemIterator()
 }
 private fun ensureItemIterator(): Boolean {
 if (itemIterator?.hasNext() == false)
 itemIterator = null
 while (itemIterator == null) {
 if (!iterator.hasNext())
 return false
 } else {
 val element = iterator.next()
 val nextItemIterator = iterator(transformer(element))
 if (nextItemIterator.hasNext())
 itemIterator = nextItemIterator
 return true
 }
 }
 }
 }
}

internal fun <T, C, R> flatMapIndexed(source: Sequence<T>, transform: (Int, T) -> C, iterator: (C) -> Iterator<R>): Sequence<R> =
sequence {
 var index = 0
 for (element in source) {
 val result = transform(checkIndexOverflow(index++), element)
 yieldAll(iterator(result))
 }
}

\* A sequence that supports drop(n) and take(n) operations

```

internal interface DropTakeSequence<T> : Sequence<T> {
    fun drop(n: Int): Sequence<T>
    fun take(n: Int): Sequence<T>
}

```

\* A sequence that skips [startIndex] values from the underlying [sequence] and stops returning values right before [endIndex], i.e. stops at `endIndex - 1`

```

internal class SubSequence<T> {
    constructor(
        private val sequence: Sequence<T>,
        private val startIndex: Int,
        private val endIndex: Int
    ): Sequence<T>, DropTakeSequence<T> {
        init {
            require(startIndex >= 0) { "\"startIndex should be non-negative, but is $startIndex\"" }
            require(endIndex >= 0) { "\"endIndex should be non-negative, but is $endIndex\"" }
            require(endIndex >= startIndex) { "\"endIndex should be not less than startIndex, but was $endIndex < $startIndex\"" }
        }
        private val count: Int get() = endIndex - startIndex
        override fun drop(n: Int): Sequence<T> = if (n >= count) emptySequence() else SubSequence(sequence, startIndex + n, endIndex)
        override fun take(n: Int): Sequence<T> = if (n >= count) this else SubSequence(sequence, startIndex, startIndex + n)
        override fun iterator() = object : Iterator<T> {
            val iterator = sequence.iterator()
            var position = 0
            // Shouldn't be called from constructor to avoid premature iteration
            private fun drop() {
                while (position < startIndex && iterator.hasNext()) {
                    iterator.next()
                    position++
                }
            }
            override fun hasNext(): Boolean {
                drop()
                return (position < endIndex) && iterator.hasNext()
            }
            override fun next(): T {
                drop()
                if (position >= endIndex)
                    throw NoSuchElementException()
                position++
                return iterator.next()
            }
        }
    }
}

```

\* A sequence that returns at most [count] values from the underlying [sequence], and stops returning values as soon as that count is reached.

```

internal class TakeSequence<T> {
    constructor(
        private val sequence: Sequence<T>,
        private val count: Int
    ): Sequence<T>, DropTakeSequence<T> {
        init {
            require(count >= 0) { "\"count must be non-negative, but was $count\"" }
        }
        override fun drop(n: Int): Sequence<T> = if (n >= count) emptySequence() else SubSequence(sequence, n, count)
        override fun take(n: Int): Sequence<T> = if (n >=

```



count) this else TakeSequence(sequence, n)\n\n override fun iterator():

```
Iterator<T> = object : Iterator<T> {\n    var left = count\n    val iterator = sequence.iterator()\n\n    override\n    fun next(): T {\n        if (left == 0)\n            throw NoSuchElementException()\n        left--\n        return\n        iterator.next()\n    }\n\n    override fun hasNext(): Boolean {\n        return left > 0 && iterator.hasNext()\n    }\n}\n\n/**\n * A sequence that returns values from the underlying [sequence] while the [predicate] function\n returns `true`, and stops returning values once the function returns `false` for the next element.\n */\n\ninternal\n class TakeWhileSequence<T>\n constructor(\n    private val sequence: Sequence<T>,\n    private val predicate: (T) -\n > Boolean\n ) : Sequence<T> {\n    override fun iterator(): Iterator<T> = object : Iterator<T> {\n        val iterator =\n        sequence.iterator()\n        var nextState: Int = -1 // -1 for unknown, 0 for done, 1 for continue\n        var nextItem: T?\n        = null\n\n        private fun calcNext() {\n            if (iterator.hasNext()) {\n                val item = iterator.next()\n                if\n                (predicate(item)) {\n                    nextState = 1\n                    nextItem = item\n                    return\n                }\n                nextState = 0\n            }\n\n            override fun next(): T {\n                if (nextState == -1)\n                    calcNext() // will change nextState\n                if (nextState == 0)\n                    throw NoSuchElementException()\n                @Suppress("UNCHECKED_CAST")\n                val result = nextItem as T\n                // Clean next to avoid keeping\n                reference on yielded instance\n                nextItem = null\n                nextState = -1\n                return result\n            }\n\n            override fun hasNext(): Boolean {\n                if (nextState == -1)\n                    calcNext() // will change nextState\n                return nextState == 1\n            }\n        }\n\n        /**\n         * A sequence\n         that skips the specified number of values from the underlying [sequence] and returns\n         * all values after that.\n         */\n\n        internal\n        class DropSequence<T>(\n            private val sequence: Sequence<T>,\n            private val count: Int\n ) : Sequence<T>,\n DropTakeSequence<T> {\n            init {\n                require(count >= 0) { \"count must be non-negative, but\n                was $count.\" }\n            }\n\n            override fun drop(n: Int): Sequence<T> = (count + n).let { n1 -> if (n1 < 0)\n            DropSequence(this, n) else DropSequence(sequence, n1) }\n\n            override fun take(n: Int): Sequence<T> = (count +\n            n).let { n1 -> if (n1 < 0) TakeSequence(this, n) else SubSequence(sequence, count, n1) }\n\n            override fun\n            iterator(): Iterator<T> = object : Iterator<T> {\n                val iterator = sequence.iterator()\n                var left = count\n\n                // Shouldn't be called from constructor to avoid premature iteration\n                private fun drop() {\n                    while (left >\n                    0 && iterator.hasNext()) {\n                        iterator.next()\n                        left--\n                    }\n                }\n\n                override fun next(): T {\n                    drop()\n                    return iterator.next()\n                }\n\n                override fun hasNext(): Boolean {\n                    drop()\n                    return iterator.hasNext()\n                }\n            }\n\n            /**\n             * A\n             sequence that skips the values from the underlying [sequence] while the given [predicate] returns `true` and\n             returns\n             * all values after that.\n             */\n\n            internal\n            class DropWhileSequence<T>\n            constructor(\n                private val sequence:\n                Sequence<T>,\n                private val predicate: (T) -> Boolean\n            ) : Sequence<T> {\n                override fun iterator():\n                Iterator<T> = object : Iterator<T> {\n                    val iterator = sequence.iterator()\n                    var dropState: Int = -1 // -1 for not\n                    dropping, 1 for nextItem, 0 for normal iteration\n                    var nextItem: T? = null\n                    private fun drop() {\n                        while (iterator.hasNext()) {\n                            val item = iterator.next()\n                            if (!predicate(item)) {\n                                nextItem\n                                = item\n                                dropState = 1\n                                return\n                            }\n                        }\n                        dropState = 0\n                    }\n\n                    override fun next(): T {\n                        if (dropState == -1)\n                            drop()\n                        if (dropState == 1) {\n                            @Suppress("UNCHECKED_CAST")\n                            val result = nextItem as T\n                            nextItem = null\n                            dropState = 0\n                            return result\n                        }\n                        return iterator.next()\n                    }\n\n                    override fun\n                    hasNext(): Boolean {\n                        if (dropState == -1)\n                            drop()\n                        return dropState == 1 ||\n                        iterator.hasNext()\n                    }\n                }\n\n                internal\n                class DistinctSequence<T, K>(\n                    private val source: Sequence<T>,\n                    private val keySelector: (T) -> K\n                ) : Sequence<T> {\n                    override fun iterator(): Iterator<T> =\n                    DistinctIterator(source.iterator(), keySelector)\n                }\n\n                private\n                class DistinctIterator<T, K>(\n                    private val source:\n                    Iterator<T>, private\n                    val keySelector: (T) -> K\n                ) : AbstractIterator<T>() {\n                    private val observed = HashSet<K>()\n                    override fun\n                    computeNext() {\n                        while (source.hasNext()) {\n                            val next = source.next()\n                            val key =\n                            keySelector(next)\n                            if (observed.add(key)) {\n                                setNext(next)\n                                return\n                            }\n                        }\n                    }\n                }\n            }\n        }\n    }\n}
```

```

done() } }
private class GeneratorSequence<T : Any>(private val getInitialValue: () -> T?,
private val getNextValue: (T) -> T?) : Sequence<T> {
    override fun iterator(): Iterator<T> = object : Iterator<T> {
        var nextItem: T? = null
        var nextState: Int = -2 // -2 for initial unknown, -1 for next unknown, 0 for
done, 1 for continue
        private fun calcNext() {
            nextItem = if (nextState == -2) getInitialValue() else
getNextValue(nextItem!!)
            nextState = if (nextItem == null) 0 else 1
        }
        override fun next(): T {
            if (nextState
< 0) calcNext()
            if (nextState == 0) throw NoSuchElementException()
            val
result = nextItem as T // Do not clean nextItem (to avoid keeping reference on yielded instance) -- need to
keep state for getNextValue
            nextState = -1
            return result
        }
        override fun hasNext():
Boolean {
            if (nextState < 0) calcNext()
            return nextState == 1
        }
    }
}

/**
 * Returns a wrapper sequence that provides values of this sequence, but ensures it can be iterated only one time.
 *
 * The operation is _intermediate_ and _stateless_.
 *
 * [IllegalStateException] is thrown on iterating the
returned sequence for the second time and the following times.
 */
public fun <T>
Sequence<T>.constrainOnce(): Sequence<T> {
    // as? does not work in js
    //return this as?
ConstrainedOnceSequence<T>?: ConstrainedOnceSequence(this)

    return if (this is ConstrainedOnceSequence<T>) this else ConstrainedOnceSequence(this)
}

/**
 * Returns
a sequence which invokes the function to calculate the next value on each iteration until the function returns `null`.
 *
 * The returned sequence is constrained to be iterated only once.
 *
 * @see constrainOnce
 *
 * @see
kotlin.sequences.sequence
 *
 * @sample samples.collections.Sequences.Building.generateSequence
 */
public
fun <T : Any> generateSequence(nextFunction: () -> T?): Sequence<T> {
    return
GeneratorSequence(nextFunction, { nextFunction() }).constrainOnce()
}

/**
 * Returns a sequence defined by
the starting value [seed] and the function [nextFunction],
 *
 * which is invoked to calculate the next value based on
the previous one on each iteration.
 *
 * The sequence produces values until it encounters first `null` value.
 *
 * If [seed] is `null`, an empty sequence is produced.
 *
 * The sequence can be iterated multiple times, each time
starting
with [seed].
 *
 * @see kotlin.sequences.sequence
 *
 * @sample
samples.collections.Sequences.Building.generateSequenceWithSeed
 */
@kotlin.internal.LowPriorityInOverloadResolution
public fun <T : Any> generateSequence(seed: T?,
nextFunction: (T) -> T?): Sequence<T> =
    if (seed == null) EmptySequence
    else
GeneratorSequence({ seed }, nextFunction)

/**
 * Returns a sequence defined by the function [seedFunction],
which is invoked to produce the starting value,
 *
 * and the [nextFunction], which is invoked to calculate the next
value based on the previous one on each iteration.
 *
 * The sequence produces values until it encounters first
`null` value.
 *
 * If [seedFunction] returns `null`, an empty sequence is produced.
 *
 * The sequence can be
iterated multiple times.
 *
 * @see kotlin.sequences.sequence
 *
 * @sample
samples.collections.Sequences.Building.generateSequenceWithLazySeed
 */
public fun <T : Any>
generateSequence(seedFunction:
() -> T?, nextFunction: (T) -> T?): Sequence<T> =
    GeneratorSequence(seedFunction, nextFunction)
}

/**
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 * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.
 */
@file:kotlin.jvm.JvmMultifileClass
@file:kotlin.jvm.JvmName("PreconditionsKt")
package
kotlin
import kotlin.contracts.contract
/**
 * Throws an [IllegalArgumentException] if the [value] is false.
 *
 * @sample samples.misc.Preconditions.failRequireWithLazyMessage
 */
@kotlin.internal.InlineOnly
public
inline fun require(value: Boolean): Unit {
    contract {
        returns() implies value
    }
    require(value) {
        "Failed requirement."
    }
}

/**
 * Throws an [IllegalArgumentException] with the result of calling
[lazyMessage] if the [value] is false.
 *
 * @sample samples.misc.Preconditions.failRequireWithLazyMessage
 */
@kotlin.internal.InlineOnly
public
inline fun require(value: Boolean, lazyMessage: () -> Any): Unit {
    contract {
        returns() implies value
    }
    if (!value) {
        val message = lazyMessage()
        throw IllegalArgumentException(message.toString())
    }
}

```

```

}
}

Throws an [IllegalArgumentException] if the [value] is null. Otherwise returns the not null value.
@kotlin.internal.InlineOnly
public inline fun <T : Any> requireNotNull(value: T?): T {
    contract {
        returns() implies (value != null)
    }
    return requireNotNull(value) { "Required value was null." }
}

Throws an [IllegalArgumentException] with the result of calling [lazyMessage] if the [value] is null. Otherwise
returns the not null value.
@sample samples.misc.Preconditions.failRequireNotNullWithLazyMessage
@kotlin.internal.InlineOnly
public inline fun <T : Any> requireNotNull(value: T?, lazyMessage: () -> Any): T {
    contract {
        returns() implies
            (value != null)
    }
    if (value == null) {
        val message = lazyMessage()
        throw
            IllegalArgumentException(message.toString())
    } else {
        return value
    }
}

Throws an [IllegalStateException] if the [value] is false.
@sample
samples.misc.Preconditions.failCheckWithLazyMessage
@kotlin.internal.InlineOnly
public inline fun
check(value: Boolean): Unit {
    contract {
        returns() implies value
    }
    check(value) { "Check failed." }
}

Throws an [IllegalStateException] with the result of calling [lazyMessage] if the [value] is false.
@sample
samples.misc.Preconditions.failCheckWithLazyMessage
@kotlin.internal.InlineOnly
public
inline fun check(value: Boolean, lazyMessage: () -> Any): Unit {
    contract {
        returns() implies value
    }
    if (!value) {
        val message = lazyMessage()
        throw IllegalStateException(message.toString())
    }
}

Throws
an [IllegalStateException] if the [value] is null. Otherwise
returns the not null value.
@sample
samples.misc.Preconditions.failCheckWithLazyMessage
@kotlin.internal.InlineOnly
public inline fun <T :
Any> checkNotNull(value: T?): T {
    contract {
        returns() implies (value != null)
    }
    return
checkNotNull(value) { "Required value was null." }
}

Throws an [IllegalStateException] with the
result of calling [lazyMessage] if the [value] is null. Otherwise
returns the not null value.
@sample
samples.misc.Preconditions.failCheckWithLazyMessage
@kotlin.internal.InlineOnly
public inline fun <T :
Any> checkNotNull(value: T?, lazyMessage: () -> Any): T {
    contract {
        returns() implies (value != null)
    }
    if (value == null) {
        val message = lazyMessage()
        throw
            IllegalStateException(message.toString())
    } else {
        return value
    }
}

Throws an
[IllegalStateException]
with the given [message].
@sample
samples.misc.Preconditions.failWithError
@kotlin.internal.InlineOnly
public inline fun error(message: Any): Nothing = throw
    IllegalStateException(message.toString())
}

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Language contributors.
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license/LICENSE.txt file.
package kotlin.collections
// NOTE: THIS FILE IS AUTO-GENERATED
by the GenerateStandardLib.kt
See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib
import
kotlin.js.*
import primitiveArrayConcat
import withType
import kotlin.ranges.contains
import
kotlin.ranges.reversed

Returns an element at the given [index] or throws an
[IndexOutOfBoundsException] if the [index] is out of bounds of this array.
@sample
samples.collections.Collections.Elements.elementAt
public actual fun <T> Array<out T>.elementAt(index:
Int): T {
    return elementAtOrElse(index) { throw IndexOutOfBoundsException("index: $index, size: $size") }
}

Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is
out of bounds of this array.
@sample
samples.collections.Collections.Elements.elementAt
public
actual fun ByteArray.elementAt(index: Int): Byte {
    return elementAtOrElse(index) { throw
        IndexOutOfBoundsException("index: $index, size: $size") }
}

Returns an element at the given
[index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.
@sample
samples.collections.Collections.Elements.elementAt
public actual fun ShortArray.elementAt(index: Int): Short
{
    return elementAtOrElse(index) { throw IndexOutOfBoundsException("index: $index, size: $size") }
}

Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is
out of bounds of this array.
@sample
samples.collections.Collections.Elements.elementAt
public
actual fun IntArray.elementAt(index: Int): Int {
    return elementAtOrElse(index) { throw

```



point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n

```
*\n@SinceKotlin("1.1")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic actual infix fun <T>
Array<out T>.contentDeepEquals(other: Array<out T>): Boolean {\n    return
this.contentDeepEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *deeply* equal to one
another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The specified arrays are
also considered deeply equal if both are `null`.\n * \n * If two corresponding elements are nested arrays, they are
also compared deeply.\n * If any of arrays contains itself on any nesting level the behavior is undefined.\n * \n * The
elements of other types are
    compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that `NaN` is
equal to itself and `-0.0` is not equal to `0.0`.\n */\n@SinceKotlin("1.4")\n@library("arrayDeepEquals")\npublic
actual infix fun <T> Array<out T>?.contentDeepEquals(other: Array<out T>?): Boolean {\n
    definedExternally\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n * Nested
arrays are treated as lists too.\n * \n * If any of arrays contains itself on any nesting level the behavior is
undefined.\n */\n@SinceKotlin("1.1")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic actual fun <T>
Array<out T>.contentDeepHashCode(): Int {\n    return this.contentDeepHashCode()\n}\n\n/**\n * Returns a hash
code based on the contents of this array as if it is [List].\n * Nested arrays are treated as lists too.\n * \n * If any of
arrays contains itself on any nesting level the behavior is undefined.\n */\n@SinceKotlin("1.4")\n@library("arrayDeepHashCode")\npublic
actual fun <T> Array<out T>?.contentDeepHashCode(): Int {\n    definedExternally\n}\n\n/**\n * Returns a string
representation of the contents of this array as if it is a [List].\n * Nested arrays are treated as lists too.\n * \n * If any
of arrays contains itself on any nesting level that reference\n * is rendered as `[...]` to prevent recursion.\n * \n *
@sample samples.collections.Arrays.ContentOperations.contentDeepToString\n */\n@SinceKotlin("1.1")\n@kotlin.internal.LowPriorityInOverloadResolution\npublic actual fun <T> Array<out
T>.contentDeepToString(): String {\n    return this.contentDeepToString()\n}\n\n/**\n * Returns a string
representation of the contents of this array as if it is a [List].\n * Nested arrays are treated as lists too.\n * \n * If any
of arrays contains itself on any nesting level that reference\n * is rendered as `[...]` to prevent recursion.\n * \n *
@sample samples.collections.Arrays.ContentOperations.contentDeepToString\n */\n@SinceKotlin("1.4")\n@library("arrayDeepToString")\npublic actual fun <T> Array<out
T>?.contentDeepToString(): String {\n    definedExternally\n}\n\n/**\n * Returns `true` if the two specified arrays
are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n *
\n * The elements are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers
it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated("Use Kotlin compiler 1.4 to
avoid deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic
actual infix fun <T> Array<out T>.contentEquals(other: Array<out T>): Boolean {\n    return
this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays are *structurally* equal to one
another,\n * i.e. contain the same number of the same elements in the same order.\n * \n * The elements
are compared for equality with the [equals][Any.equals] function.\n * For floating point numbers it means that
`NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated("Use Kotlin compiler 1.4 to avoid
deprecation warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic actual
infix fun ByteArray.contentEquals(other: ByteArray): Boolean {\n    return this.contentEquals(other)\n}\n\n/**\n *
Returns `true` if the two specified arrays are *structurally* equal to one another,\n * i.e. contain the same number of
the same elements in the same order.\n * \n * The elements are compared for equality with the [equals][Any.equals]
function.\n * For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.\n */\n@Deprecated("Use Kotlin compiler 1.4 to avoid deprecation
warning.")\n@SinceKotlin("1.1")\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\npublic actual infix fun
ShortArray.contentEquals(other:
    ShortArray): Boolean {\n    return this.contentEquals(other)\n}\n\n/**\n * Returns `true` if the two specified arrays
are *structurally* equal to one another,\n * i.e. contain the same number of the same elements in the same order.\n *

```



equal to `0.0`.  
`fun ShortArray?.contentEquals(other: ShortArray?): Boolean` {  
 definedExternally  
 Returns `true` if the two specified arrays are *structurally* equal to one another, i.e. contain the same number of the same elements in the same order. The elements are compared for equality with the `[equals][Any.equals]` function. For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`fun IntArray?.contentEquals(other: IntArray?): Boolean` {  
 definedExternally  
 Returns `true` if the two specified arrays are *structurally* equal to one another, i.e. contain the same number of the same elements in the same order. The elements are compared for equality with the `[equals][Any.equals]` function. For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`fun LongArray?.contentEquals(other: LongArray?): Boolean` {  
 definedExternally  
 Returns `true` if the two specified arrays are *structurally* equal to one another, i.e. contain the same number of the same elements in the same order. The elements are compared for equality with the `[equals][Any.equals]` function. For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`fun FloatArray?.contentEquals(other: FloatArray?): Boolean` {  
 definedExternally  
 Returns `true` if the two specified arrays are *structurally* equal to one another, i.e. contain the same number of the same elements in the same order. The elements are compared for equality with the `[equals][Any.equals]` function. For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`fun DoubleArray?.contentEquals(other: DoubleArray?): Boolean` {  
 definedExternally  
 Returns `true` if the two specified arrays are *structurally* equal to one another, i.e. contain the same number of the same elements in the same order. The elements are compared for equality with the `[equals][Any.equals]` function. For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`fun BooleanArray?.contentEquals(other: BooleanArray?): Boolean` {  
 definedExternally  
 Returns `true` if the two specified arrays are *structurally* equal to one another, i.e. contain the same number of the same elements in the same order. The elements are compared for equality with the `[equals][Any.equals]` function. For floating point numbers it means that `NaN` is equal to itself and `-0.0` is not equal to `0.0`.  
`fun CharArray?.contentHashCode(): Int` {  
 return this.contentHashCode()  
 Returns a hash code based on the contents of this array as if it is `[List]`.  
`fun <T> Array<out T>.contentHashCode(): Int` {  
 return this.contentHashCode()  
 Returns a hash code based on the contents of this array as if it is `[List]`.  
`fun ByteArray.contentHashCode(): Int` {  
 return this.contentHashCode()  
 Returns a hash code based on the contents of this array as if it is `[List]`.  
`fun ShortArray.contentHashCode(): Int` {  
 return this.contentHashCode()  
 Returns a hash code based on the contents of this array as if it is `[List]`.  
`fun IntArray.contentHashCode(): Int` {  
 return this.contentHashCode()  
 Returns a hash code based on the contents of this array as if it is `[List]`.  
`fun LongArray.contentHashCode(): Int` {  
 return this.contentHashCode()  
 Returns a hash code based on

the contents of this array as if it is [List].\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun FloatArray.contentHashCode(): Int {\n return this.contentHashCode()\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun DoubleArray.contentHashCode(): Int {\n return this.contentHashCode()\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun BooleanArray.contentHashCode(): Int {\n return this.contentHashCode()\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun CharArray.contentHashCode(): Int {\n return this.contentHashCode()\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun <T> Array<out T>?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun ByteArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun ShortArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun IntArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun LongArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun FloatArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun DoubleArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun BooleanArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a hash code based on the contents of this array as if it is [List].\n \* \n @SinceKotlin("1.4")\n @library("arrayHashCode")\n public actual fun CharArray?.contentHashCode(): Int {\n definedExternally\n }\n \n /\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].\n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun <T> Array<out T>.contentToString(): String {\n return this.contentToString()\n }\n \n /\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].\n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun ByteArray.contentToString(): String {\n return this.contentToString()\n }\n \n /\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].\n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun ShortArray.contentToString(): String {\n return this.contentToString()\n }\n \n /\*\*\n \* Returns a string representation of the contents of the specified array as if it is [List].\n \* \n \* @sample samples.collections.Arrays.ContentOperations.contentToString\n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n")\n @SinceKotlin("1.1")\n @DeprecatedSinceKotlin(hiddenSince = "1.4")\n public actual fun



IntArray.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")  
\n \*  
\n \* @SinceKotlin("1.1")  
\n \*  
\n \* @DeprecatedSinceKotlin(hiddenSince = "1.4")  
\n \*  
\n \* public actual fun LongArray.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")  
\n \*  
\n \* @SinceKotlin("1.1")  
\n \*  
\n \* @DeprecatedSinceKotlin(hiddenSince = "1.4")  
\n \*  
\n \* public actual fun FloatArray.contentToString():  
String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")  
\n \*  
\n \* @SinceKotlin("1.1")  
\n \*  
\n \* @DeprecatedSinceKotlin(hiddenSince = "1.4")  
\n \*  
\n \* public actual fun DoubleArray.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")  
\n \*  
\n \* @SinceKotlin("1.1")  
\n \*  
\n \* @DeprecatedSinceKotlin(hiddenSince = "1.4")  
\n \*  
\n \* public actual fun BooleanArray.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")  
\n \*  
\n \* @SinceKotlin("1.1")  
\n \*  
\n \* @DeprecatedSinceKotlin(hiddenSince = "1.4")  
\n \*  
\n \* public actual fun CharArray.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation warning.")  
\n \*  
\n \* @SinceKotlin("1.1")  
\n \*  
\n \* @DeprecatedSinceKotlin(hiddenSince = "1.4")  
\n \*  
\n \* public actual fun <T> Array<out T>?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun ByteArray?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun ShortArray?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun IntArray?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun LongArray?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun FloatArray?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun DoubleArray?.contentToString(): String {  
return this.contentToString()\n}\n\n/\*\*  
Returns a string representation of the contents of the specified array as if it is [List].  
\n \* @sample samples.collections.Arrays.ContentOperations.contentToString  
\n \*  
\n \* @SinceKotlin("1.4")  
\n \*  
\n \* @library("arrayToString")  
\n \*  
\n \* public actual fun

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*\n@SinceKotlin("1.4")\n@library("arrayToString")\npublic actual fun BooleanArray?.contentToString():
String {\n  definedExternally\n}\n\n/**\n * Returns a string representation of the contents of the specified array
as if it is [List].\n * \n * @sample samples.collections.Arrays.ContentOperations.contentToString\n
*\n@SinceKotlin("1.4")\n@library("arrayToString")\npublic actual fun CharArray?.contentToString(): String
{\n  definedExternally\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that
array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it
overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset
the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of
the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this
array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex]
or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws
IndexOutOfBoundsException
when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when
that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT
_ARGUMENTS")\npublic actual inline fun <T> Array<out T>.copyInto(destination: Array<T>, destinationOffset:
Int = 0, startIndex: Int = 0, endIndex: Int = size): Array<T> {\n  arrayCopy(this, destination, destinationOffset,
startIndex, endIndex)\n  return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination]
array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the
subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n *
@param destinationOffset the position in the [destination] array to copy to, 0 by default.\n *
@param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end
(exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or
[IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex
> endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array
starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n
*\n * @return the [destination] array.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT
_ARGUMENTS")\npublic actual inline fun ByteArray.copyInto(destination: ByteArray, destinationOffset: Int = 0,
startIndex: Int = 0, endIndex: Int = size): ByteArray {\n  arrayCopy(this.unsafeCast<Array<Byte>>(),
destination.unsafeCast<Array<Byte>>(), destinationOffset, startIndex,
endIndex)\n  return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and
returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so
that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param
destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the
beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the
subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or
[IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex
> endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array
starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n
*\n * @return the [destination] array.\n
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT
_ARGUMENTS")\npublic actual inline fun ShortArray.copyInto(destination: ShortArray, destinationOffset: Int =
0, startIndex: Int = 0, endIndex: Int = size): ShortArray {\n  arrayCopy(this.unsafeCast<Array<Short>>(),
destination.unsafeCast<Array<Short>>(), destinationOffset, startIndex, endIndex)\n  return destination\n}\n\n/**\n
* Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass
the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n *
*\n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to

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copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n

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*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual inline fun IntArray.copyInto(destination: IntArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): IntArray {\n    arrayCopy(this.unsafeCast<Array<Int>>(), destination.unsafeCast<Array<Int>>(), destinationOffset, startIndex, endIndex)\n    return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n
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*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual inline fun LongArray.copyInto(destination: LongArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): LongArray {\n    arrayCopy(this.unsafeCast<Array<Long>>(), destination.unsafeCast<Array<Long>>(), destinationOffset, startIndex, endIndex)\n    return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n
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*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual inline fun FloatArray.copyInto(destination: FloatArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): FloatArray {\n    arrayCopy(this.unsafeCast<Array<Float>>(), destination.unsafeCast<Array<Float>>(), destinationOffset, startIndex, endIndex)\n    return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n
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*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("\nACTUAL_FUNCTION_WITH_DEFAULT\n_ARGUMENTS")\n\npublic actual inline fun DoubleArray.copyInto(destination: DoubleArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): DoubleArray {
    \n arrayCopy(this.unsafeCast<Array<Double>>(), destination.unsafeCast<Array<Double>>(), destinationOffset, startIndex, endIndex)\n    return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("\nACTUAL_FUNCTION_WITH_DEFAULT\n_ARGUMENTS")\n\npublic actual inline fun BooleanArray.copyInto(destination: BooleanArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): BooleanArray {
    \n arrayCopy(this.unsafeCast<Array<Boolean>>(), destination.unsafeCast<Array<Boolean>>(), destinationOffset, startIndex, endIndex)\n    return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n */
*\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\n@Suppress("\nACTUAL_FUNCTION_WITH_DEFAULT\n_ARGUMENTS")\n\npublic actual inline fun CharArray.copyInto(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size): CharArray {
    \n arrayCopy(this.unsafeCast<Array<Char>>(), destination.unsafeCast<Array<Char>>(), destinationOffset, startIndex, endIndex)\n    return destination\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n\n@Suppress("\nACTUAL_WITHOUT_EXPECT", "\nNOTHING_TO_INLINE")\n\npublic actual inline fun <T> Array<out T>.copyOf(): Array<T> {
    \n return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n\n@Suppress("\nNOTHING_TO_INLINE")\n\npublic actual inline fun ByteArray.copyOf(): ByteArray {
    \n return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n\n@Suppress("\nNOTHING_TO_INLINE")\n\npublic actual inline fun ShortArray.copyOf(): ShortArray {
    \n return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n\n@Suppress("\nNOTHING_TO_INLINE")\n\npublic actual inline fun IntArray.copyOf(): IntArray {
    \n return this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */\n\npublic actual fun LongArray.copyOf(): LongArray {
    \n return withType("\nLongArray", this.asDynamic().slice())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n */

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*\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline fun FloatArray.copyOf(): FloatArray {\n    return
this.asDynamic().slice()\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.copyOf\n *\n@Suppress("NOTHING_TO_INLINE")\npublic
actual inline fun DoubleArray.copyOf(): DoubleArray {\n    return this.asDynamic().slice()\n}\n\n/**\n * Returns
new array which
is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOf\n
*\npublic actual fun BooleanArray.copyOf(): BooleanArray {\n    return withType("BooleanArray",
this.asDynamic().slice())\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.copyOf\n *\npublic actual fun CharArray.copyOf(): CharArray {\n
return withType("CharArray", this.asDynamic().slice())\n}\n\n/**\n * Returns new array which is a copy of the
original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values
if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the
[newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array are
filled with zero values.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n
*\npublic actual fun ByteArray.copyOf(newSize: Int): ByteArray {\n    require(newSize >= 0) { "Invalid new
array size: $newSize." }\n    return fillFrom(this, ByteArray(newSize))\n}\n\n/**\n * Returns new array which is a
copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with
zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is truncated
to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the copy array
are filled with zero values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n *\npublic actual fun
ShortArray.copyOf(newSize: Int): ShortArray {\n    require(newSize >= 0) { "Invalid new array size: $newSize."
}\n    return fillFrom(this, ShortArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original
array, resized to the given [newSize].\n
* The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than
the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size
of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n *\npublic actual fun
IntArray.copyOf(newSize: Int): IntArray {\n    require(newSize >= 0) { "Invalid new array size: $newSize." }\n
return fillFrom(this, IntArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array,
resized to the given [newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n
* \n * - If [newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If
[newSize] is greater than the size of the original array, the extra elements in the copy array
are filled with zero values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n *\npublic actual fun
LongArray.copyOf(newSize: Int): LongArray {\n    require(newSize >= 0) { "Invalid new array size: $newSize."
}\n    return withType("LongArray", arrayCopyResize(this, newSize, 0L))\n}\n\n/**\n * Returns new array which
is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end
with zero values if necessary.\n * \n * - If [newSize] is less than the size of the original array, the copy array is
truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra elements in the
copy array are filled with zero values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n *\npublic actual fun
FloatArray.copyOf(newSize: Int): FloatArray {\n    require(newSize >= 0) { "Invalid new array size: $newSize."
}\n    return fillFrom(this,
FloatArray(newSize))\n}\n\n/**\n * Returns new array which is a copy of the original array, resized to the given
[newSize].\n * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize]
is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater
than the size of the original array, the extra elements in the copy array are filled with zero values.\n * \n * @sample

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samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n *^/npublic actual fun
DoubleArray.copyOf(newSize: Int): DoubleArray {\n  require(newSize >= 0) { \"Invalid new array size:
$newSize.\" }\n  return fillFrom(this, DoubleArray(newSize))\n}\n/n/**\n * Returns new array which is a copy of
the original array, resized to the given [newSize].\n * The copy is either truncated or padded at the end with `false`
values if necessary.\n * \n * - If [newSize] is less than the size of the original array,
the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original array, the extra
elements in the copy array are filled with `false` values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n *^/npublic actual fun
BooleanArray.copyOf(newSize: Int): BooleanArray {\n  require(newSize >= 0) { \"Invalid new array size:
$newSize.\" }\n  return withType(\"BooleanArray\", arrayCopyResize(this, newSize, false))\n}\n/n/**\n * Returns
new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either truncated or
padded at the end with null char (`\u0000`) values if necessary.\n * \n * - If [newSize] is less than the size of the
original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original
array, the extra elements in the copy array are filled with null char (`\u0000`) values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizedPrimitiveCopyOf\n
*^/npublic actual fun CharArray.copyOf(newSize: Int): CharArray {\n  require(newSize >= 0) { \"Invalid new
array size: $newSize.\" }\n  return withType(\"CharArray\", fillFrom(this, CharArray(newSize)))\n}\n/n/**\n *
Returns new array which is a copy of the original array, resized to the given [newSize].\n * The copy is either
truncated or padded at the end with `null` values if necessary.\n * \n * - If [newSize] is less than the size of the
original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the original
array, the extra elements in the copy array are filled with `null` values.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.resizingCopyOf\n
*^/n@Suppress(\"ACTUAL_WITHOUT_EXPECT\")\npublic actual fun <T> Array<out T>.copyOf(newSize: Int):
Array<T?> {\n  require(newSize >= 0) { \"Invalid new array size: $newSize.\" }\n  return arrayCopyResize(this,
newSize, null)\n}\n/n/**\n
* Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the
start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n *
@throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this
array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*^/n@Suppress(\"ACTUAL_WITHOUT_EXPECT\")\npublic actual fun <T> Array<out
T>.copyOfRange(fromIndex: Int, toIndex: Int): Array<T> {\n  AbstractList.checkRangeIndexes(fromIndex,
toIndex, size)\n  return this.asDynamic().slice(fromIndex, toIndex)\n}\n/n/**\n * Returns a new array which is a
copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to
copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException
if [fromIndex] is less than zero or [toIndex]
is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than
[toIndex].\n *^/npublic actual fun ByteArray.copyOfRange(fromIndex: Int, toIndex: Int): ByteArray {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return this.asDynamic().slice(fromIndex,
toIndex)\n}\n/n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n *
@param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to
copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the
size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n *^/npublic
actual fun ShortArray.copyOfRange(fromIndex: Int, toIndex: Int): ShortArray {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return this.asDynamic().slice(fromIndex,
toIndex)\n}\n/n/**\n * Returns a new array
which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range
(inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *

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@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic actual fun
IntArray.copyOfRange(fromIndex: Int, toIndex: Int): IntArray {\n  AbstractList.checkRangeIndexes(fromIndex,
toIndex, size)\n  return this.asDynamic().slice(fromIndex, toIndex)\n}\n\n/**\n * Returns a new array which is a
copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to
copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException
if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentExcpion
if [fromIndex] is greater than [toIndex].\n */\npublic actual fun LongArray.copyOfRange(fromIndex: Int, toIndex:
Int): LongArray {\n  AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return
withType("<code>"LongArray"</code>", this.asDynamic().slice(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a
copy of the specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to
copy.\n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException
if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentExcpion if [fromIndex] is greater than [toIndex].\n */\npublic actual fun
FloatArray.copyOfRange(fromIndex: Int, toIndex: Int): FloatArray {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return this.asDynamic().slice(fromIndex,
toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original
array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the
range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or
[toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than
[toIndex].\n */\npublic actual fun DoubleArray.copyOfRange(fromIndex: Int, toIndex: Int): DoubleArray {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return this.asDynamic().slice(fromIndex,
toIndex)\n}\n\n/**\n * Returns a new array which is a copy of the specified range of the original array.\n * \n *
@param fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to
copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the
size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n */\npublic
actual fun BooleanArray.copyOfRange(fromIndex: Int, toIndex: Int): BooleanArray {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return withType("<code>"BooleanArray"</code>",
this.asDynamic().slice(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the specified
range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n * @param
toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is
less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
[fromIndex] is greater than [toIndex].\n */\npublic actual fun CharArray.copyOfRange(fromIndex: Int, toIndex: Int):
CharArray {\n  AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  return withType("<code>"CharArray"</code>",
this.asDynamic().slice(fromIndex, toIndex))\n}\n\n/**\n * Fills this array or its subrange with the specified
[element] value.\n * \n * @param
fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range
(exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less
than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is
greater than [toIndex].\n */\n\n@SinceKotlin("1.3")\n@Suppress("<code>"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS"</code>")\npublic
actual fun <T> Array<T>.fill(element: T, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  nativeFill(element, fromIndex, toIndex)\n}\n\n/**\n *
Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range
(inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex]
is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than
[toIndex].\n

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*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun ByteArray.fill(element: Byte, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range
(inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than
the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun ShortArray.fill(element:
Short, fromIndex: Int = 0, toIndex: Int = size): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex,
size)\n    nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its subrange with the specified
[element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param
toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun IntArray.fill(element: Int, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n
* Fills this array or its subrange with the specified [element]
value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end
of the range (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun LongArray.fill(element: Long, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n
* Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range
(inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex]
is less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
[fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun FloatArray.fill(element: Float, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n
* Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range
(inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than
the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual
fun DoubleArray.fill(element: Double, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n
* Fills this array or its subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range
(inclusive) to fill, 0 by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than
the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun BooleanArray.fill(element: Boolean, fromIndex: Int = 0, toIndex: Int = size): Unit {\n

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AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Fills this array or its
 * subrange with the specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0
 * by default.\n * @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n *
 * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this
 * array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
 * \n\n@SinceKotlin("1.3")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun CharArray.fill(element: Char, fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n  nativeFill(element, fromIndex, toIndex);\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n
 * \n\n@Suppress("ACTUAL_WITHOUT_EXPECT", "NOTHING_TO_INLINE")\npublic actual inline operator
fun <T> Array<out T>.plus(element: T): Array<T> {\n  return
this.asDynamic().concat(arrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given [element].\n
 * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun ByteArray.plus(element: Byte):
ByteArray {\n  return plus(byteArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the
 * original array and then the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline
operator fun ShortArray.plus(element: Short): ShortArray {\n  return plus(shortArrayOf(element))\n}\n\n/**\n *
 * Returns an array containing all elements of the original array and then the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun IntArray.plus(element: Int):
IntArray {\n  return plus(intArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the
 * original array and then the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline
operator fun LongArray.plus(element:
 * Long): LongArray {\n  return plus(longArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements
 * of the original array and then the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual
inline operator fun FloatArray.plus(element: Float): FloatArray {\n  return plus(floatArrayOf(element))\n}\n\n/**\n *
 * Returns an array containing all elements of the original array and then the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun DoubleArray.plus(element:
 * Double): DoubleArray {\n  return plus(doubleArrayOf(element))\n}\n\n/**\n * Returns an array containing all
 * elements of the original array and then the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic
actual inline operator fun BooleanArray.plus(element: Boolean): BooleanArray {\n  return
plus(booleanArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the original array and then
 * the given [element].\n * \n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun CharArray.plus(element: Char):
 * CharArray {\n  return plus(charArrayOf(element))\n}\n\n/**\n * Returns an array containing all elements of the
 * original array and then all elements of the given [elements] collection.\n * \n\n@Suppress("ACTUAL_WITHOUT_EXPECT")\npublic actual operator fun <T> Array<out T>.plus(elements:
 * Collection<T>): Array<T> {\n  return arrayPlusCollection(this, elements)\n}\n\n/**\n * Returns an array
 * containing all elements of the original array and then all elements of the given [elements] collection.\n * \n\npublic
actual operator fun ByteArray.plus(elements: Collection<Byte>): ByteArray {\n  return
fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing
 * all elements of the original array and then all elements of the given [elements] collection.\n * \n\npublic
actual operator fun ShortArray.plus(elements: Collection<Short>): ShortArray
 * {\n  return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an
 * array containing all elements of the original array and then all elements of the given [elements] collection.\n * \n\npublic
actual operator fun IntArray.plus(elements: Collection<Int>): IntArray {\n  return
fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array containing
 * all elements of the original array and then all elements of the given [elements] collection.\n * \n\npublic
actual

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operator fun LongArray.plus(elements: Collection<Long>): LongArray {\n  return arrayPlusCollection(this,
elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the
given [elements] collection.\n */\npublic actual operator fun FloatArray.plus(elements: Collection<Float>):
FloatArray {\n  return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n *
Returns an array containing all elements of the original array and then all elements of the given [elements]
collection.\n */\npublic actual operator fun DoubleArray.plus(elements: Collection<Double>): DoubleArray {\n
return fillFromCollection(this.copyOf(size + elements.size), this.size, elements)\n}\n\n/**\n * Returns an array
containing all elements of the original array and then all elements of the given [elements] collection.\n */\npublic
actual operator fun BooleanArray.plus(elements: Collection<Boolean>): BooleanArray {\n  return
arrayPlusCollection(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and
then all elements of the given [elements] collection.\n */\npublic actual operator fun CharArray.plus(elements:
Collection<Char>): CharArray {\n  return fillFromCollection(this.copyOf(size + elements.size), this.size,
elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the
given [elements] array.\n */\n\n@Suppress("ACTUAL_WITHOUT_EXPECT",
"NOTHING_TO_INLINE")\npublic actual inline operator fun <T> Array<out T>.plus(elements: Array<out T>):
Array<T> {\n  return this.asDynamic().concat(elements)\n}\n\n/**\n * Returns an array containing all elements of
the original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun ByteArray.plus(elements:
ByteArray): ByteArray {\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing
all elements of the original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun ShortArray.plus(elements:
ShortArray): ShortArray {\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array
containing all elements of the original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic
actual inline operator fun IntArray.plus(elements: IntArray): IntArray {\n  return primitiveArrayConcat(this,
elements)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements of the
given [elements] array.\n */\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun
LongArray.plus(elements: LongArray): LongArray {\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n *
Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun FloatArray.plus(elements:
FloatArray): FloatArray {\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing
all elements of the original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun DoubleArray.plus(elements:
DoubleArray): DoubleArray
{\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing all elements of the
original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun BooleanArray.plus(elements:
BooleanArray): BooleanArray {\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array
containing all elements of the original array and then all elements of the given [elements] array.\n
*/\n\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline operator fun CharArray.plus(elements:
CharArray): CharArray {\n  return primitiveArrayConcat(this, elements)\n}\n\n/**\n * Returns an array containing
all elements of the original array and then the given [element].\n
*/\n\n@Suppress("ACTUAL_WITHOUT_EXPECT", "NOTHING_TO_INLINE")\npublic actual inline fun <T>
Array<out T>.plusElement(element: T): Array<T> {\n  return
this.asDynamic().concat(arrayOf(element))\n}\n\n/**\n * Sorts the array
in-place.\n */\n\n * @sample samples.collections.Arrays.Sorting.sortArray\n
*/\n\n@library("primitiveArraySort")\npublic actual fun IntArray.sort(): Unit {\n  definedExternally\n}\n\n/**\n *
Sorts the array in-place.\n */\n\n * @sample samples.collections.Arrays.Sorting.sortArray\n */\npublic actual fun

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LongArray.sort(): Unit {
    @Suppress("DEPRECATION")
    if (size > 1) sort { a: Long, b: Long ->
a.compareTo(b) }
}

Samples.Collections.Arrays.Sorting.sortArray
    @library("primitiveArraySort")
    public actual fun
ByteArray.sort(): Unit {
    definedExternally
}

Samples.Collections.Arrays.Sorting.sortArray
    @library("primitiveArraySort")
    public actual fun
ShortArray.sort(): Unit {
    definedExternally
}

Samples.Collections.Arrays.Sorting.sortArray
    @library("primitiveArraySort")
    public actual fun
DoubleArray.sort(): Unit {
    definedExternally
}

Samples.Collections.Arrays.Sorting.sortArray
    @library("primitiveArraySort")
    public actual fun
FloatArray.sort(): Unit {
    definedExternally
}

Samples.Collections.Arrays.Sorting.sortArray
    @library("primitiveArraySort")
    public actual fun
CharArray.sort(): Unit {
    definedExternally
}

Samples.Collections.Arrays.Sorting.sortArrayOfComparable
    @public actual fun
<T : Comparable<T>> Array<out T>.sort(): Unit {
    if (size > 1) sortArray(this)
}

Samples.Collections.Arrays.Sorting.sortArrayOfComparable
    @public actual fun
<T : Comparable<T>> Array<out T>.sort(comparison: (a: T, b: T) -> Int): Unit {
    if (size > 1)
sortArrayWith(this, comparison)
}

Samples.Collections.Arrays.Sorting.sortRangeOfArrayOfComparable
    @sinceKotlin("1.4")
    @suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
    public actual fun
<T : Comparable<T>> Array<out T>.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {
    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)
    sortArrayWith(this, fromIndex, toIndex,
naturalOrder())
}

Samples.Collections.Arrays.Sorting.sortRangeOfArrayOfComparable
    @sinceKotlin("1.4")
    @suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
    public actual fun
ByteArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {
    AbstractList.checkRangeIndexes(fromIndex,
toIndex, size)
    val subarray = this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<ByteArray>()
    subarray.sort()
}

Samples.Collections.Arrays.Sorting.sortRangeOfArrayOfComparable
    @sinceKotlin("1.4")
    @suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
    public actual fun
ShortArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {
    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)
    val subarray =
this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<ShortArray>()
    subarray.sort()
}

Samples.Collections.Arrays.Sorting.sortRangeOfArrayOfComparable
    @sinceKotlin("1.4")
    @suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
    public actual fun
ShortArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {
    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)
    val subarray =
this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<ShortArray>()
    subarray.sort()
}

```

```

IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun IntArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    val subarray =
this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<IntArray>()\n    subarray.sort()\n}\n\n/**\n * Sorts a
range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n *
@param toIndex the end of the
range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun LongArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    sortArrayWith(this.unsafeCast<Array<Long>>(),
fromIndex, toIndex, naturalOrder())\n}\n\n/**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex
the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort,
size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or
[toIndex] is greater than the size of this
array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun FloatArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    val subarray =
this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<FloatArray>()\n    subarray.sort()\n}\n\n/**\n * Sorts a
range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n *
@param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun DoubleArray.sort(fromIndex: Int = 0, toIndex: Int = size): Unit {\n
AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    val subarray =
this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<DoubleArray>()\n    subarray.sort()\n}\n\n/**\n * Sorts
a range in the array in-place.\n * \n * @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n *
@param toIndex the end of the range (exclusive) to sort, size of this array by default.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun CharArray.sort(fromIndex: Int = 0, toIndex: Int = size):
Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    val subarray =
this.asDynamic().subarray(fromIndex, toIndex).unsafeCast<CharArray>()\n    subarray.sort()\n}\n\n/**\n * Sorts the
array in-place according to the order specified by the given [comparison] function.\n * \n * @param comparison the
order specified by the given [comparison] function.\n * \n * @param comparison the order specified by the given
[comparison] function.\n * \n * @param comparison the order specified by the given [comparison] function.\n * \n *
@Deprecated("Use other sorting functions from the Standard Library")\n * \n * @DeprecatedSinceKotlin(warningSince =
"1.6")\n * \n * @kotlin.internal.InlineOnly\n * \n * public inline fun ByteArray.sort(noinline comparison: (a: Byte, b: Byte) ->
Int): Unit {\n    nativeSort(comparison)\n}\n\n/**\n * Sorts the array in-place according to the order specified by the

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given [comparison] function.\n \*^@Deprecated("Use other sorting functions from the Standard Library")\n @DeprecatedSinceKotlin(warningSince = "1.6")\n @kotlin.internal.InlineOnly\n public inline fun ShortArray.sort(noinline comparison: (a: Short, b: Short) -> Int): Unit {\n nativeSort(comparison)\n }\n\n \*^\*\n \* Sorts the array in-place according to the order specified by the given [comparison] function.\n \*^@Deprecated("Use other sorting functions from the Standard Library")\n @DeprecatedSinceKotlin(warningSince = "1.6")\n @kotlin.internal.InlineOnly\n public inline fun IntArray.sort(noinline comparison: (a: Int, b: Int) -> Int): Unit {\n nativeSort(comparison)\n }\n\n \*^\*\n \* Sorts the array in-place according to the order specified by the given [comparison] function.\n \*^@Deprecated("Use other sorting functions from the Standard Library")\n @DeprecatedSinceKotlin(warningSince = "1.6")\n @kotlin.internal.InlineOnly\n public inline fun LongArray.sort(noinline comparison: (a: Long, b: Long) -> Int): Unit {\n nativeSort(comparison)\n }\n\n \*^\*\n \* Sorts the array in-place according to the order specified by the given [comparison] function.\n \*^@Deprecated("Use other sorting functions from the Standard Library")\n @DeprecatedSinceKotlin(warningSince = "1.6")\n @kotlin.internal.InlineOnly\n public inline fun FloatArray.sort(noinline comparison: (a: Float, b: Float) -> Int): Unit {\n nativeSort(comparison)\n }\n\n \*^\*\n \* Sorts the array in-place according to the order specified by the given [comparison] function.\n \*^@Deprecated("Use other sorting functions from the Standard Library")\n @DeprecatedSinceKotlin(warningSince = "1.6")\n @kotlin.internal.InlineOnly\n public inline fun DoubleArray.sort(noinline comparison: (a: Double, b: Double) -> Int): Unit {\n nativeSort(comparison)\n }\n\n \*^\*\n \* Sorts the array in-place according to the order specified by the given [comparison] function.\n \*^@Deprecated("Use other sorting functions from the Standard Library")\n @DeprecatedSinceKotlin(warningSince = "1.6")\n @kotlin.internal.InlineOnly\n public inline fun CharArray.sort(noinline comparison: (a: Char, b: Char) -> Int): Unit {\n nativeSort(comparison)\n }\n\n \*^\*\n \* Sorts the array in-place according to the order specified by the given [comparator].\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\n \*^\*\n \* @param fromIndex the start of the range (inclusive) to sort, 0 by default.\n \* @param toIndex the end of the range (exclusive) to sort, size of this array by default.\n \* @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n \*^\*\n \* @SinceKotlin("1.4")\n \* @Suppress("ACTUAL\_FUNCTION\_WITH\_DEFAULT\_ARGUMENTS")\n \*^\*\n \* public actual fun <T> Array<out T>.sortWith(comparator: Comparator<in T>, fromIndex: Int = 0, toIndex: Int = size): Unit {\n\n \*^\*\n \* AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n \*^\*\n \* sortArrayWith(this, fromIndex, toIndex, comparator)\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun ByteArray.toTypedArray(): Array<Byte> {\n return js("[]").slice.call(this)\n }\n\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun ShortArray.toTypedArray(): Array<Short> {\n return js("[]").slice.call(this)\n }\n\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun IntArray.toTypedArray(): Array<Int> {\n return js("[]").slice.call(this)\n }\n\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun LongArray.toTypedArray(): Array<Long> {\n return js("[]").slice.call(this)\n }\n\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun FloatArray.toTypedArray(): Array<Float> {\n return js("[]").slice.call(this)\n }\n\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun DoubleArray.toTypedArray(): Array<Double> {\n return js("[]").slice.call(this)\n }\n\n \*^\*\n \* Returns a *typed* object array containing all of the elements of this primitive array.\n \*^\*\n \* public actual fun BooleanArray.toTypedArray(): Array<Boolean> {\n return

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js("[\]).slice.call(this)\n\n\n * Returns a *typed* object array containing all of the elements of this primitive
array.\n * \n\npublic actual fun CharArray.toArray(): Array<Char> {\n    return Array(size) { index ->
this[index] }\n}\n\n", /*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmName("ComparisonsKt")\n\n@file:kotlin.jvm.JvmMultifileClass\n\npackage
kotlin.comparisons\n\n\n * Compares two values using the specified functions [selectors] to calculate the result
of the comparison.\n * The functions are called sequentially, receive the given values [a] and [b] and return
[Comparable]\n * objects. As soon as the [Comparable] instances returned by a function for [a] and [b] values do
not\n * compare as equal, the result of that comparison is returned.\n * \n * @sample
samples.comparisons.Comparisons.compareValuesByWithSelectors\n * \n\npublic fun <T> compareValuesBy(a: T,
b: T, vararg selectors: (T) -> Comparable<*>?): Int {\n    require(selectors.size > 0)\n    return
compareValuesByImpl(a, b, selectors)\n}\n\nprivate fun <T> compareValuesByImpl(a: T, b: T, selectors:
Array<out (T) -> Comparable<*>?): Int {\n    for (fn in selectors) {\n        val v1 = fn(a)\n        val v2 = fn(b)\n
val diff = compareValues(v1, v2)\n        if (diff
!= 0) return diff\n    }\n    return 0\n}\n\n\n * Compares two values using the specified [selector] function to
calculate the result of the comparison.\n * The function is applied to the given values [a] and [b] and return
[Comparable] objects.\n * The result of comparison of these [Comparable] instances is returned.\n * \n * @sample
samples.comparisons.Comparisons.compareValuesByWithSingleSelector\n * \n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <T> compareValuesBy(a: T, b: T, selector: (T) -> Comparable<*>?): Int {\n    return
compareValues(selector(a), selector(b))\n}\n\n\n * Compares two values using the specified [selector] function to
calculate the result of the comparison.\n * The function is applied to the given values [a] and [b] and return objects
of type K which are then being\n * compared with the given [comparator].\n * \n * @sample
samples.comparisons.Comparisons.compareValuesByWithComparator\n * \n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <T, K> compareValuesBy(a:
T, b: T, comparator: Comparator<in K>, selector: (T) -> K): Int {\n    return comparator.compare(selector(a),
selector(b))\n}\n\n\n/// Not so useful without type inference for receiver of expression\n\n/// compareValuesWith(v1,
v2, compareBy { it.prop1 } thenByDescending { it.prop2 })\n\n\n * Compares two values using the specified
[comparator].\n * \n * @Suppress("NOTHING_TO_INLINE")\n\npublic inline fun <T> compareValuesWith(a: T,
b: T, comparator: Comparator<T>): Int = comparator.compare(a, b)\n\n\n * Compares two nullable
[Comparable] values. Null is considered less than any value.\n * \n * @sample
samples.comparisons.Comparisons.compareValues\n * \n\npublic fun <T : Comparable<*>> compareValues(a: T?, b:
T?): Int {\n    if (a === b) return 0\n    if (a == null) return -1\n    if (b == null) return 1\n\n
@Suppress("UNCHECKED_CAST")\n    return (a as Comparable<Any>).compareTo(b)\n}\n\n\n * Creates a
comparator using the sequence of functions to calculate
a result of comparison.\n * The functions are called sequentially, receive the given values `a` and `b` and return
[Comparable]\n * objects. As soon as the [Comparable] instances returned by a function for `a` and `b` values do
not\n * compare as equal, the result of that comparison is returned from the [Comparator].\n * \n * @sample
samples.comparisons.Comparisons.compareByWithSelectors\n * \n\npublic fun <T> compareBy(vararg selectors: (T)
-> Comparable<*>?): Comparator<T> {\n    require(selectors.size > 0)\n    return Comparator { a, b ->
compareValuesByImpl(a, b, selectors) }\n}\n\n\n * Creates a comparator using the function to transform value
to a [Comparable] instance for comparison.\n * \n * @sample
samples.comparisons.Comparisons.compareByWithSingleSelector\n * \n\n@kotlin.internal.InlineOnly\n\npublic inline
fun <T> compareBy(crossinline selector: (T) -> Comparable<*>?): Comparator<T> =\n    Comparator { a, b ->
compareValuesBy(a, b, selector) }\n\n\n * Creates a comparator
using the [selector] function to transform values being compared and then applying\n * the specified [comparator]
to compare transformed values.\n * \n * @sample samples.comparisons.Comparisons.compareByWithComparator\n *
\n\n@kotlin.internal.InlineOnly\n\npublic inline fun <T, K> compareBy(comparator: Comparator<in K>, crossinline

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selector: (T) -> K): Comparator<T> =\n    Comparator { a, b -> compareValuesBy(a, b, comparator, selector)
}\n\n/**\n * Creates a descending comparator using the function to transform value to a [Comparable] instance for
comparison.\n *\n * @sample samples.comparisons.Comparisons.compareByDescendingWithSingleSelector\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T> compareByDescending(crossinline selector: (T) ->
Comparable<*>?): Comparator<T> =\n    Comparator { a, b -> compareValuesBy(b, a, selector) }\n\n/**\n *
Creates a descending comparator using the [selector] function to transform values being compared and then
applying\n * the specified [comparator]
to compare transformed values.\n *\n * Note that an order of [comparator] is reversed by this wrapper.\n *\n *
@sample samples.comparisons.Comparisons.compareByDescendingWithComparator\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T, K> compareByDescending(comparator: Comparator<in K>,
crossinline selector: (T) -> K): Comparator<T> =\n    Comparator { a, b -> compareValuesBy(b, a, comparator,
selector) }\n\n/**\n * Creates a comparator comparing values after the primary comparator defined them equal. It
uses\n * the function to transform value to a [Comparable] instance for comparison.\n *\n * @sample
samples.comparisons.Comparisons.thenBy\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T>
Comparator<T>.thenBy(crossinline selector: (T) -> Comparable<*>?): Comparator<T> =\n    Comparator { a, b -
->\n        val previousCompare = this@thenBy.compare(a, b)\n        if (previousCompare != 0) previousCompare else
compareValuesBy(a, b, selector)\n    }\n\n/**\n * Creates a
comparator comparing values after the primary comparator defined them equal. It uses\n * the [selector] function to
transform values and then compares them with the given [comparator].\n *\n * @sample
samples.comparisons.Comparisons.thenByWithComparator\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T,
K> Comparator<T>.thenBy(comparator: Comparator<in K>, crossinline selector: (T) -> K): Comparator<T> =\n
Comparator { a, b ->\n        val previousCompare = this@thenBy.compare(a, b)\n        if (previousCompare != 0)
previousCompare else compareValuesBy(a, b, comparator, selector)\n    }\n\n/**\n * Creates a descending
comparator using the primary comparator and\n * the function to transform value to a [Comparable] instance for
comparison.\n *\n * @sample samples.comparisons.Comparisons.thenByDescending\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T> Comparator<T>.thenByDescending(crossinline selector: (T)
-> Comparable<*>?): Comparator<T> =\n    Comparator { a, b ->\n        val previousCompare = this@thenByDescending.compare(a, b)\n        if (previousCompare != 0)
previousCompare else compareValuesBy(b, a, selector)\n    }\n\n/**\n * Creates a descending comparator
comparing values after the primary comparator defined them equal. It uses\n * the [selector] function to transform
values and then compares them with the given [comparator].\n *\n * @sample
samples.comparisons.Comparisons.thenByDescendingWithComparator\n
*/\n@kotlin.internal.InlineOnly\npublic
inline fun <T, K> Comparator<T>.thenByDescending(comparator: Comparator<in K>, crossinline selector: (T) ->
K): Comparator<T> =\n    Comparator { a, b ->\n        val previousCompare = this@thenByDescending.compare(a,
b)\n        if (previousCompare != 0) previousCompare else compareValuesBy(b, a, comparator, selector)\n    }\n\n\n/**\n * Creates a comparator using the primary comparator and function to calculate a result of comparison.\n
*\n * @sample samples.comparisons.Comparisons.thenComparator\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun <T> Comparator<T>.thenComparator(crossinline comparison:
(a: T, b: T) -> Int): Comparator<T> =\n    Comparator { a, b ->\n        val previousCompare =
this@thenComparator.compare(a, b)\n        if (previousCompare != 0) previousCompare else comparison(a, b)\n    }\n\n\n/**\n * Combines this comparator and the given [comparator] such that the latter is applied only\n * when the
former considered values equal.\n *\n * @sample samples.comparisons.Comparisons.then\n
*/\n@kotlin.internal.InlineOnly\npublic infix fun
<T> Comparator<T>.then(comparator: Comparator<in T>): Comparator<T> =\n    Comparator { a, b ->\n        val
previousCompare = this@then.compare(a, b)\n        if (previousCompare != 0) previousCompare else
comparator.compare(a, b)\n    }\n\n\n/**\n * Combines this comparator and the given [comparator] such that the latter
is applied only\n * when the former considered values equal.\n *\n * @sample
samples.comparisons.Comparisons.thenDescending\n
*/\npublic

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infix fun <T> Comparator<T>.thenDescending(comparator: Comparator<in T>): Comparator<T> =\n
Comparator<T> { a, b ->\n    val previousCompare = this@thenDescending.compare(a, b)\n    if
(previousCompare != 0) previousCompare else comparator.compare(b, a)\n    }\n\n// Not so useful without type
inference for receiver of expression\n\n**\n * Extends the given [comparator] of non-nullable values to a comparator
of nullable values\n * considering `null` value less than any other value.\n *\n * @sample
samples.comparisons.Comparisons.nullsFirstLastWithComparator\n *\npublic fun <T : Any>
nullsFirst(comparator: Comparator<in T>): Comparator<T?> =\n    Comparator { a, b ->\n        when {\n            a
=== b -> 0\n            a == null -> -1\n            b == null -> 1\n            else -> comparator.compare(a, b)\n        }\n    }\n\n**\n * Provides a comparator of nullable [Comparable] values\n * considering `null` value less than any other
value.\n *\n * @sample samples.comparisons.Comparisons.nullsFirstLastComparator\n
*\n@kotlin.internal.InlineOnly\npublic inline fun <T : Comparable<T>> nullsFirst(): Comparator<T?> =
nullsFirst(naturalOrder())\n\n**\n * Extends the given [comparator] of non-nullable values to a comparator of
nullable values\n * considering `null` value greater than any other value.\n *\n * @sample
samples.comparisons.Comparisons.nullsFirstLastWithComparator\n *\npublic fun <T : Any>
nullsLast(comparator: Comparator<in T>): Comparator<T?> =\n    Comparator { a, b ->\n        when {\n            a
=== b -> 0\n            a == null -> 1\n            b == null -> -1\n            else -> comparator.compare(a, b)\n        }\n    }\n\n**\n * Provides a comparator of nullable [Comparable] values\n * considering `null` value greater than any
other value.\n *\n * @sample samples.comparisons.Comparisons.nullsFirstLastComparator\n
*\n@kotlin.internal.InlineOnly\npublic inline fun <T : Comparable<T>> nullsLast(): Comparator<T?> =
nullsLast(naturalOrder())\n\n**\n * Returns a comparator that compares [Comparable] objects in natural order.\n *\n * @sample
samples.comparisons.Comparisons.naturalOrderComparator\n *\npublic fun <T : Comparable<T>> naturalOrder():
Comparator<T> = @Suppress("UNCHECKED_CAST") (NaturalOrderComparator as Comparator<T>)\n\n**\n * Returns a comparator that compares [Comparable] objects in reversed natural order.\n *\n * @sample
samples.comparisons.Comparisons.nullsFirstLastWithComparator\n *\npublic fun <T : Comparable<T>>
reverseOrder(): Comparator<T> = @Suppress("UNCHECKED_CAST") (ReverseOrderComparator as
Comparator<T>)\n\n**\n * Returns a comparator that imposes the reverse ordering of this comparator.\n *\n *
@sample samples.comparisons.Comparisons.reversed\n
*\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER")\npublic fun <T> Comparator<T>.reversed():
Comparator<T> = when (this) {\n    is ReversedComparator -> this.comparator\n    NaturalOrderComparator ->
@Suppress("UNCHECKED_CAST") (ReverseOrderComparator
as Comparator<T>)\n    ReverseOrderComparator -> @Suppress("UNCHECKED_CAST")
(NaturalOrderComparator as Comparator<T>)\n    else -> ReversedComparator(this)\n}\n\nprivate class
ReversedComparator<T>(public val comparator: Comparator<T>) : Comparator<T> {\n    override fun compare(a:
T, b: T): Int = comparator.compare(b, a)\n    @Suppress("VIRTUAL_MEMBER_HIDDEN")\n    fun reversed():
Comparator<T> = comparator\n}\n\nprivate object NaturalOrderComparator : Comparator<Comparable<Any>> {\n
    override fun compare(a: Comparable<Any>, b: Comparable<Any>): Int = a.compareTo(b)\n
    @Suppress("VIRTUAL_MEMBER_HIDDEN")\n    fun reversed(): Comparator<Comparable<Any>> =
ReverseOrderComparator\n}\n\nprivate object ReverseOrderComparator : Comparator<Comparable<Any>> {\n
    override fun compare(a: Comparable<Any>, b: Comparable<Any>): Int = b.compareTo(a)\n
    @Suppress("VIRTUAL_MEMBER_HIDDEN")\n    fun reversed(): Comparator<Comparable<Any>> =
NaturalOrderComparator\n}\n\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("StandardKt")\npackage kotlin\nimport
kotlin.contracts.*\n\n**\n * An exception is thrown to indicate that a method body remains to be implemented.\n
*\n\npublic class NotImplementedError(message: String = "An operation is not implemented.") :
Error(message)\n\n**\n * Always throws [NotImplementedError] stating that operation is not implemented.\n

```



```

*@kotlin.internal.InlineOnlypublic inline fun TODO(): Nothing = throw NotImplementedError()
Always throws [NotImplementedError] stating that operation is not implemented.
*@param reason a string explaining why the implementation is missing.
*@kotlin.internal.InlineOnlypublic inline fun TODO(reason: String): Nothing = throw NotImplementedError("An operation is not implemented: $reason")
* Calls the specified function [block] and returns its result.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#run).

*@kotlin.internal.InlineOnlypublic inline fun <R> run(block: () -> R): R {
contract {
callsInPlace(block, InvocationKind.EXACTLY_ONCE)
}
return block()
* Calls the specified function [block] with `this` value as its receiver and returns its result.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#run).

*@kotlin.internal.InlineOnlypublic inline fun <T, R> T.run(block: T.() -> R): R {
contract {
callsInPlace(block, InvocationKind.EXACTLY_ONCE)
}
return block()
* Calls the specified function [block] with the given [receiver] as its receiver and returns its result.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#with).

*@kotlin.internal.InlineOnlypublic inline fun <T, R> with(receiver: T, block: T.() -> R): R {
contract {
callsInPlace(block, InvocationKind.EXACTLY_ONCE)
}
return receiver.block()
* Calls the specified function [block] with `this` value as its receiver and returns `this` value.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#apply).

*@kotlin.internal.InlineOnlypublic inline fun <T> T.apply(block: T.() -> Unit): T {
contract {
callsInPlace(block, InvocationKind.EXACTLY_ONCE)
}
block()
return this
* Calls the specified function [block] with `this` value as its argument and returns `this` value.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#also).

*@kotlin.internal.InlineOnly@SinceKotlin("1.1")public inline fun <T> T.also(block: (T) -> Unit): T {
contract {
callsInPlace(block, InvocationKind.EXACTLY_ONCE)
}
block(this)
return this
* Calls the specified function [block] with `this` value as its argument and returns its result.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#let).

*@kotlin.internal.InlineOnlypublic inline fun <T, R> T.let(block: (T) -> R): R {
contract {
callsInPlace(block, InvocationKind.EXACTLY_ONCE)
}
return block(this)
* Returns `this` value if it satisfies the given [predicate] or `null`, if it doesn't.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#takeif-and-takeunless).

*@kotlin.internal.InlineOnly@SinceKotlin("1.1")public inline fun <T> T.takeIf(predicate: (T) -> Boolean): T?
contract {
callsInPlace(predicate, InvocationKind.EXACTLY_ONCE)
}
return if (predicate(this)) this else null
* Returns `this` value if it does not satisfy the given [predicate] or `null`, if it does.
* For detailed usage information see the documentation for [scope functions](https://kotlinlang.org/docs/reference/scope-functions.html#takeif-and-takeunless).

*@kotlin.internal.InlineOnly@SinceKotlin("1.1")public inline fun <T> T.takeUnless(predicate: (T) -> Boolean): T?
contract {
callsInPlace(predicate, InvocationKind.EXACTLY_ONCE)
}
return if (!predicate(this)) this else null
* Executes the given function [action] specified number of [times].
* A zero-based index of current iteration is passed as a parameter to [action].

*@sample samples.misc.ControlFlow.repeat
*@kotlin.internal.InlineOnlypublic inline fun repeat(times: Int, action: (Int) -> Unit) {
contract {
callsInPlace(action)
}
for (index in 0 until times) {
action(index)
}
* Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.
* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.
*@package kotlin.comparisons
// NOTE: THIS FILE IS AUTO-

```

GENERATED by the GenerateStandardLib.kt\n// See:

```
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.js.*\n\n * Returns the greater of two values.\n * \n * If values are equal, returns the first one.\n * \n @SinceKotlin("1.1")\npublic actual fun <T : Comparable<T>> maxOf(a: T, b: T): T {\n    return if (a >= b) a else b\n}\n\n * Returns the greater of two values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Byte, b: Byte): Byte {\n    return maxOf(a.toInt(), b.toInt()).unsafeCast<Byte>()\n}\n\n * Returns the greater of two values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Short, b: Short): Short {\n    return maxOf(a.toInt(), b.toInt()).unsafeCast<Short>()\n}\n\n * Returns the greater of two values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Int, b: Int): Int {\n    return JsMath.max(a, b)\n}\n\n * Returns the greater of two values.\n * \n @SinceKotlin("1.1")\n @Suppress("NOTHING_TO_INLINE")\npublic actual inline fun maxOf(a: Long, b: Long): Long {\n    return if (a >= b) a else b\n}\n\n * Returns the greater of two values.\n * \n * If either value is `NaN`, returns `NaN`.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Float, b: Float): Float {\n    return JsMath.max(a, b)\n}\n\n * Returns the greater of two values.\n * \n * If either value is `NaN`, returns `NaN`.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Double, b: Double): Double {\n    return JsMath.max(a, b)\n}\n\n * Returns the greater of three values.\n * \n * If there are multiple equal maximal values, returns the first of them.\n * \n @SinceKotlin("1.1")\npublic actual fun <T : Comparable<T>> maxOf(a: T, b: T, c: T): T {\n    return maxOf(a, maxOf(b, c))\n}\n\n * Returns the greater of three values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Byte, b: Byte, c: Byte): Byte {\n    return JsMath.max(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Byte>()\n}\n\n * Returns the greater of three values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Short, b: Short, c: Short): Short {\n    return JsMath.max(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Short>()\n}\n\n * Returns the greater of three values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Int, b: Int, c: Int): Int {\n    return JsMath.max(a, b, c)\n}\n\n * Returns the greater of three values.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Long, b: Long, c: Long): Long {\n    return maxOf(a, maxOf(b, c))\n}\n\n * Returns the greater of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Float, b: Float, c: Float): Float {\n    return JsMath.max(a, b, c)\n}\n\n * Returns the greater of three values.\n * \n * If any value is `NaN`, returns `NaN`.\n * \n @SinceKotlin("1.1")\n @kotlin.internal.InlineOnly\npublic actual inline fun maxOf(a: Double, b: Double, c: Double): Double {\n    return JsMath.max(a, b, c)\n}\n\n * Returns the greater of the given values.\n * \n * If there are multiple equal maximal values, returns the first of them.\n * \n @SinceKotlin("1.4")\npublic actual fun <T : Comparable<T>> maxOf(a: T, vararg other: T): T {\n    var max = a\n    for (e in other) max = maxOf(max, e)\n    return max\n}\n\n * Returns the greater of the given values.\n * \n @SinceKotlin("1.4")\npublic actual fun maxOf(a: Byte, vararg other: Byte): Byte {\n    var max = a\n    for (e in other) max = maxOf(max, e)\n    return max\n}\n\n * Returns the greater of the given values.\n * \n @SinceKotlin("1.4")\npublic actual fun maxOf(a: Short, vararg other: Short): Short {\n    var max = a\n    for (e in other) max = maxOf(max, e)\n    return max\n}\n\n * Returns the greater of the given values.\n * \n @SinceKotlin("1.4")\npublic actual fun maxOf(a: Int, vararg other: Int): Int {\n    var max = a\n    for (e in other) max = maxOf(max, e)\n    return max\n}\n\n * Returns the greater of the given values.\n * \n @SinceKotlin("1.4")\npublic actual fun maxOf(a: Long, vararg other: Long): Long {\n    var max = a\n    for (e in other) max = maxOf(max, e)\n    return max\n}\n\n * Returns the greater of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n * \n @SinceKotlin("1.4")\npublic actual fun maxOf(a: Float, vararg other: Float): Float {\n    var max = a\n    for (e in other) max = maxOf(max, e)\n    return max\n}\n\n * Returns the greater of the given values.\n * \n * If any value is `NaN`, returns `NaN`.\n * \n @SinceKotlin("1.4")\npublic actual fun maxOf(a: Double, vararg other:
```

Double): Double {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of two values.  
} // If values are equal, returns the first one.  
} // Since Kotlin("1.1")\npublic actual fun <T : Comparable<T>> minOf(a: T, b: T): T {  
return if (a <= b) a else b  
} // Returns the smaller of two values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Byte, b: Byte): Byte {  
return minOf(a.toInt(), b.toInt()).unsafeCast<Byte>()  
} // Returns the smaller of two values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Short, b: Short): Short {  
return minOf(a.toInt(), b.toInt()).unsafeCast<Short>()  
} // Returns the smaller of two values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Int, b: Int): Int {  
return JsMath.min(a, b)  
} // Returns the smaller of two values.  
} // Since Kotlin("1.1")\n@Suppress("NOTHING\_TO\_INLINE")\npublic actual inline fun minOf(a: Long, b: Long): Long {  
return if (a <= b) a else b  
} // Returns the smaller of two values.  
} // If either value is `NaN`, returns `NaN`.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Float, b: Float): Float {  
return JsMath.min(a, b)  
} // Returns the smaller of two values.  
} // If either value is `NaN`, returns `NaN`.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Double, b: Double): Double {  
return JsMath.min(a, b)  
} // Returns the smaller of three values.  
} // If there are multiple equal minimal values, returns the first of them.  
} // Since Kotlin("1.1")\npublic actual fun <T : Comparable<T>> minOf(a: T, b: T, c: T): T {  
return minOf(a, minOf(b, c))  
} // Returns the smaller of three values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Byte, b: Byte, c: Byte): Byte {  
return JsMath.min(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Byte>()  
} // Returns the smaller of three values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Short, b: Short, c: Short): Short {  
return JsMath.min(a.toInt(), b.toInt(), c.toInt()).unsafeCast<Short>()  
} // Returns the smaller of three values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Int, b: Int, c: Int): Int {  
return JsMath.min(a, b, c)  
} // Returns the smaller of three values.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Long, b: Long, c: Long): Long {  
return minOf(a, minOf(b, c))  
} // Returns the smaller of three values.  
} // If any value is `NaN`, returns `NaN`.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Float, b: Float, c: Float): Float {  
return JsMath.min(a, b, c)  
} // Returns the smaller of three values.  
} // If any value is `NaN`, returns `NaN`.  
} // Since Kotlin("1.1")\n@kotlin.internal.InlineOnly\npublic actual inline fun minOf(a: Double, b: Double, c: Double): Double {  
return JsMath.min(a, b, c)  
} // Returns the smaller of the given values.  
} // If there are multiple equal minimal values, returns the first of them.  
} // Since Kotlin("1.4")\npublic actual fun <T : Comparable<T>> minOf(a: T, vararg other: T): T {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // Since Kotlin("1.4")\npublic actual fun minOf(a: Byte, vararg other: Byte): Byte {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // Since Kotlin("1.4")\npublic actual fun minOf(a: Short, vararg other: Short): Short {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // Since Kotlin("1.4")\npublic actual fun minOf(a: Int, vararg other: Int): Int {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // Since Kotlin("1.4")\npublic actual fun minOf(a: Long, vararg other: Long): Long {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // If any value is `NaN`, returns `NaN`.  
} // Since Kotlin("1.4")\npublic actual fun minOf(a: Float, vararg other: Float): Float {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // If any value is `NaN`, returns `NaN`.  
} // Since Kotlin("1.4")\npublic actual fun minOf(a: Double, vararg other: Double): Double {  
var min = a  
for (e in other) min = minOf(min, e)  
return min  
} // Returns the smaller of the given values.  
} // Copyright

2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n \* Auto-generated file. DO NOT EDIT!\npackage kotlin\nimport kotlin.experimental.\*\nimport kotlin.jvm.\*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@JvmInline\npublic

```
value class ULong @PublishedApi internal constructor(@PublishedApi internal val data: Long) :  
Comparable<ULong> {\n    companion object {\n        /**\n         * A constant holding the minimum value an instance of ULong can have.\n         */\n        public const val MIN_VALUE: ULong = ULong(0)\n        /**\n         * A constant holding the maximum value an instance of ULong can have.\n         */\n        public const val MAX_VALUE: ULong = ULong(-1)\n        /**\n         * The number of bytes used to represent an instance of ULong in a binary form.\n         */\n        public const val SIZE_BYTES: Int = 8\n        /**\n         * The number of bits used to represent an instance of ULong in a binary form.\n         */\n        public const val SIZE_BITS: Int = 64\n    }\n    /**\n     * Compares this value with the specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n     * or a positive number if it's greater than other.\n     */\n    @kotlin.internal.InlineOnly\n    public inline operator fun compareTo(other: UByte): Int = this.compareTo(other.toULong())\n    /**\n     * Compares this value with the specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n     * or a positive number if it's greater than other.\n     */\n    @kotlin.internal.InlineOnly\n    public inline operator fun compareTo(other: UShort): Int = this.compareTo(other.toULong())\n    /**\n     * Compares this value with the specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n     * or a positive number if it's greater than other.\n     */\n    @kotlin.internal.InlineOnly\n    public inline operator fun compareTo(other: UInt): Int = this.compareTo(other.toULong())\n    /**\n     * Compares this value with the specified value for order.\n     * Returns zero if this value is equal to the specified other value, a negative number if it's less than other,\n     * or a positive number if it's greater than other.\n     */\n    @kotlin.internal.InlineOnly\n    public override inline operator fun compareTo(other: ULong): Int = ulongCompare(this.data, other.data)\n    /** Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: UByte): ULong = this.plus(other.toULong())\n    /** Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: UShort): ULong = this.plus(other.toULong())\n    /** Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: UInt): ULong = this.plus(other.toULong())\n    /** Adds the other value to this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun plus(other: ULong): ULong = ULong(this.data.plus(other.data))\n    /** Subtracts the other value from this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: UByte): ULong = this.minus(other.toULong())\n    /** Subtracts the other value from this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: UShort): ULong = this.minus(other.toULong())\n    /** Subtracts the other value from this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: UInt): ULong = this.minus(other.toULong())\n    /** Subtracts the other value from this value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun minus(other: ULong): ULong = ULong(this.data.minus(other.data))\n    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UByte): ULong = this.times(other.toULong())\n    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UShort): ULong = this.times(other.toULong())\n    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: UInt): ULong = this.times(other.toULong())\n    /** Multiplies this value by the other value. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun times(other: ULong): ULong = ULong(this.data.times(other.data))\n    /** Divides this value by the other value, truncating the result to an integer that is closer to zero. */\n    @kotlin.internal.InlineOnly\n    public inline operator fun div(other: UByte): ULong = this.div(other.toULong())\n    /** Divides this value by the other value, truncating the result to an integer that is
```

```

closer to zero. */n @kotlin.internal.InlineOnly\n public inline operator
fun div(other: UShort): ULong = this.div(other.toULong())\n /** Divides this value by the other value, truncating
the result to an integer that is closer to zero. */n @kotlin.internal.InlineOnly\n public inline operator fun
div(other: UInt): ULong = this.div(other.toULong())\n /** Divides this value by the other value, truncating the
result to an integer that is closer to zero. */n @kotlin.internal.InlineOnly\n public inline operator fun div(other:
ULong): ULong = ulongDivide(this, other)\n\n /**\n * Calculates the remainder of truncating division of this
value by the other value.\n * \n * The result is always less than the divisor.\n */n
@kotlin.internal.InlineOnly\n public inline operator fun rem(other: UByte): ULong = this.rem(other.toULong())\n
/**\n * Calculates the remainder of truncating division of this value by the other value.\n * \n * The result is
always less than the divisor.\n */n @kotlin.internal.InlineOnly\n
public inline operator fun rem(other: UShort): ULong = this.rem(other.toULong())\n /**\n * Calculates the
remainder of truncating division of this value by the other value.\n * \n * The result is always less than the
divisor.\n */n @kotlin.internal.InlineOnly\n public inline operator fun rem(other: UInt): ULong =
this.rem(other.toULong())\n /**\n * Calculates the remainder of truncating division of this value by the other
value.\n * \n * The result is always less than the divisor.\n */n @kotlin.internal.InlineOnly\n public
inline operator fun rem(other: ULong): ULong = ulongRemainder(this, other)\n\n /**\n * Divides this value by
the other value, flooring the result to an integer that is closer to negative infinity.\n * \n * For unsigned types,
the results of flooring division and truncating division are the same.\n */n @kotlin.internal.InlineOnly\n
public inline fun floorDiv(other: UByte): ULong
= this.floorDiv(other.toULong())\n /**\n * Divides this value by the other value, flooring the result to an
integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division and
truncating division are the same.\n */n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other:
UShort): ULong = this.floorDiv(other.toULong())\n /**\n * Divides this value by the other value, flooring the
result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division
and truncating division are the same.\n */n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other:
UInt): ULong = this.floorDiv(other.toULong())\n /**\n * Divides this value by the other value, flooring the
result to an integer that is closer to negative infinity.\n * \n * For unsigned types, the results of flooring division
and truncating division are the same.\n
*/n @kotlin.internal.InlineOnly\n public inline fun floorDiv(other: ULong): ULong = div(other)\n\n /**\n
* Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is always
less than the divisor.\n * \n * For unsigned types, the remainders of flooring division and truncating division are
the same.\n */n @kotlin.internal.InlineOnly\n public inline fun mod(other: UByte): UByte =
this.mod(other.toULong()).toUByte()\n /**\n * Calculates the remainder of flooring division of this value by the
other value.\n * \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders
of flooring division and truncating division are the same.\n */n @kotlin.internal.InlineOnly\n public inline
fun mod(other: UShort): UShort = this.mod(other.toULong()).toUShort()\n /**\n * Calculates the remainder of
flooring division of this value by the other value.\n
* \n * The result is always less than the divisor.\n * \n * For unsigned types, the remainders of flooring
division and truncating division are the same.\n */n @kotlin.internal.InlineOnly\n public inline fun
mod(other: UInt): UInt = this.mod(other.toULong()).toUInt()\n /**\n * Calculates the remainder of flooring
division of this value by the other value.\n * \n * The result is always less than the divisor.\n * \n * For
unsigned types, the remainders of flooring division and truncating division are the same.\n */n
@kotlin.internal.InlineOnly\n public inline fun mod(other: ULong): ULong = rem(other)\n\n /**\n * Returns
this value incremented by one.\n * \n * @sample samples.misc.Builtins.inc\n */n
@kotlin.internal.InlineOnly\n public inline operator fun inc(): ULong = ULong(data.inc())\n\n /**\n * Returns
this value decremented by one.\n * \n * @sample samples.misc.Builtins.dec\n */n
@kotlin.internal.InlineOnly\n public inline operator fun dec(): ULong = ULong(data.dec())\n\n /**\n * Creates a
range from this value to the specified [other] value. */n @kotlin.internal.InlineOnly\n public inline operator fun

```

```

rangeTo(other: ULong): ULongRange = ULongRange(this, other)\n\n /**\n * Shifts this value left by the
[bitCount] number of bits.\n *\n * Note that only the six lowest-order bits of the [bitCount] are used as the shift
distance.\n * The shift distance actually used is therefore always in the range `0..63`.\n */\n
@kotlin.internal.InlineOnly\n public inline infix fun shl(bitCount: Int): ULong = ULong(data shl bitCount)\n\n
/**\n * Shifts this value right by the [bitCount] number of bits, filling the leftmost bits with zeros.\n *\n *
Note that only the six lowest-order bits of the [bitCount] are used as the shift distance.\n * The shift distance
actually used is therefore always in the range `0..63`.\n
*/\n @kotlin.internal.InlineOnly\n public inline infix fun shr(bitCount: Int): ULong = ULong(data ushr
bitCount)\n\n /** Performs a bitwise AND operation between the two values. */\n @kotlin.internal.InlineOnly\n
public inline infix fun and(other: ULong): ULong = ULong(this.data and other.data)\n\n /** Performs a bitwise OR
operation between the two values. */\n @kotlin.internal.InlineOnly\n public inline infix fun or(other: ULong):
ULong = ULong(this.data or other.data)\n\n /** Performs a bitwise XOR operation between the two values. */\n
@kotlin.internal.InlineOnly\n public inline infix fun xor(other: ULong): ULong = ULong(this.data xor
other.data)\n\n /** Inverts the bits in this value. */\n @kotlin.internal.InlineOnly\n public inline fun inv():
ULong = ULong(data.inv())\n\n /**\n * Converts this [ULong] value to [Byte].\n *\n * If this value is less
than or equals to [Byte.MAX_VALUE], the resulting `Byte` value represents\n
* the same numerical value as this `ULong`.\n *\n * The resulting `Byte` value is represented by the least
significant 8 bits of this `ULong` value.\n * Note that the resulting `Byte` value may be negative.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toByte(): Byte = data.toByte()\n\n /**\n * Converts this [ULong]
value to [Short].\n *\n * If this value is less than or equals to [Short.MAX_VALUE], the resulting `Short` value
represents\n * the same numerical value as this `ULong`.\n *\n * The resulting `Short` value is represented
by the least significant 16 bits of this `ULong` value.\n * Note that the resulting `Short` value may be negative.\n
*/\n @kotlin.internal.InlineOnly\n public inline fun toShort(): Short = data.toShort()\n\n /**\n * Converts this
[ULong] value to [Int].\n *\n * If this value is less than or equals to [Int.MAX_VALUE], the resulting `Int`
value represents\n * the same numerical
value as this `ULong`.\n *\n * The resulting `Int` value is represented by the least significant 32 bits of this
`ULong` value.\n * Note that the resulting `Int` value may be negative.\n */\n @kotlin.internal.InlineOnly\n
public inline fun toInt(): Int = data.toInt()\n\n /**\n * Converts this [ULong] value to [Long].\n *\n * If this
value is less than or equals to [Long.MAX_VALUE], the resulting `Long` value represents\n * the same
numerical value as this `ULong`. Otherwise the result is negative.\n *\n * The resulting `Long` value has the
same binary representation as this `ULong` value.\n */\n @kotlin.internal.InlineOnly\n public inline fun
toLong(): Long = data\n\n /**\n * Converts this [ULong] value to [UByte].\n *\n * If this value is less than
or equals to [UByte.MAX_VALUE], the resulting `UByte` value represents\n * the same numerical value as this
`ULong`.\n *\n * The resulting `UByte` value
is represented by the least significant 8 bits of this `ULong` value.\n */\n @kotlin.internal.InlineOnly\n public
inline fun toUByte(): UByte = data.toUByte()\n\n /**\n * Converts this [ULong] value to [UShort].\n *\n * If
this value is less than or equals to [UShort.MAX_VALUE], the resulting `UShort` value represents\n * the same
numerical value as this `ULong`.\n *\n * The resulting `UShort` value is represented by the least significant 16
bits of this `ULong` value.\n */\n @kotlin.internal.InlineOnly\n public inline fun toUShort(): UShort =
data.toUShort()\n\n /**\n * Converts this [ULong] value to [UInt].\n *\n * If this value is less than or equals
to [UInt.MAX_VALUE], the resulting `UInt` value represents\n * the same numerical value as this `ULong`.\n
*\n * The resulting `UInt` value is represented by the least significant 32 bits of this `ULong` value.\n */\n
@kotlin.internal.InlineOnly\n public inline
fun toUInt(): UInt = data.toUInt()\n\n /** Returns this value. */\n @kotlin.internal.InlineOnly\n public inline
fun toULong(): ULong = this\n\n /**\n * Converts this [ULong] value to [Float].\n *\n * The resulting
value is the closest `Float` to this `ULong` value.\n * In case when this `ULong` value is exactly between two
`Float`s,\n * the one with zero at least significant bit of mantissa is selected.\n */\n
@kotlin.internal.InlineOnly\n public inline fun toFloat(): Float = this.toDouble().toFloat()\n\n /**\n * Converts

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this [ULong] value to [Double].\n * The resulting value is the closest `Double` to this `ULong` value.\n *
In case when this `ULong` value is exactly between two `Double`s,\n * the one with zero at least significant bit of
mantissa is selected.\n */\n @kotlin.internal.InlineOnly\n public inline fun toDouble(): Double =
ulongToDouble(data)\n\n public override fun toString(): String = ulongToString(data)\n\n}\n\n/**\n * Converts this [Byte] value to [ULong].\n */\n * If this value is positive, the resulting `ULong` value represents the
same numerical value as this `Byte`.\n */\n * The least significant 8 bits of the resulting `ULong` value are the same
as the bits of this `Byte` value,\n */\n * whereas the most significant 56 bits are filled with the sign bit of this value.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public inline fun Byte.toULong(): ULong = ULong(this.toLong())\n\n/**\n * Converts this [Short] value to
[ULong].\n */\n * If this value is positive, the resulting `ULong` value represents the same numerical value as this
`Short`.\n */\n * The least significant 16 bits of the resulting `ULong` value are the same as the bits of this `Short`
value,\n */\n * whereas the most significant 48 bits are filled with the sign bit of this value.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public
inline fun Short.toULong(): ULong = ULong(this.toLong())\n\n/**\n * Converts this [Int] value to [ULong].\n */\n *
If this value is positive, the resulting `ULong` value represents the same numerical value as this `Int`.\n */\n * The
least significant 32 bits of the resulting `ULong` value are the same as the bits of this `Int` value,\n */\n * whereas the
most significant 32 bits are filled with the sign bit of this value.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public inline fun Int.toULong(): ULong = ULong(this.toLong())\n\n/**\n * Converts this [Long] value to [ULong].\n
*/\n * If this value is positive, the resulting `ULong` value represents the same numerical value as this `Long`.\n
*/\n * The resulting `ULong` value has the same binary representation as this `Long` value.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public
inline fun Long.toULong(): ULong = ULong(this)\n\n/**\n * Converts this [Float] value to [ULong].\n */\n * The
fractional part, if any, is rounded down towards zero.\n */\n * Returns zero if this `Float` value is negative or `NaN`,
[ULong.MAX_VALUE] if it's bigger than `ULong.MAX_VALUE`.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public inline fun Float.toULong(): ULong = doubleToULong(this.toDouble())\n\n/**\n * Converts this [Double]
value to [ULong].\n */\n * The fractional part, if any, is rounded down towards zero.\n */\n * Returns zero if this
`Double` value is negative or `NaN`, [ULong.MAX_VALUE] if it's bigger than `ULong.MAX_VALUE`.\n
*/\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n
public inline fun Double.toULong(): ULong = doubleToULong(this)\n", "/*\n * Copyright 2010-2022 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n */\n * Use of this source
code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n @file:kotlin.jvm.JvmMultifileClass\n @file:kotlin.jvm.JvmName("CollectionsKt")\n\n package
kotlin.collections\n\n\n // NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n // See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n\n import kotlin.random.*\n import
kotlin.ranges.contains\n import kotlin.ranges.reversed\n\n\n /**\n * Returns 1st *element* from the list.\n */\n *
Throws an [IndexOutOfBoundsException] if the size of this list is less than 1.\n
*/\n\n @kotlin.internal.InlineOnly\n public inline operator fun <T> List<T>.component1(): T {\n return
get(0)\n}\n\n /**\n * Returns 2nd *element* from the list.\n */\n * Throws an [IndexOutOfBoundsException] if the
size of this list is less than 2.\n\n @kotlin.internal.InlineOnly\n public inline operator fun <T>
List<T>.component2(): T {\n return get(1)\n}\n\n /**\n * Returns 3rd *element* from the list.\n
*/\n * Throws an [IndexOutOfBoundsException] if the size of this list is less than 3.\n
*/\n\n @kotlin.internal.InlineOnly\n public inline operator fun <T> List<T>.component3(): T {\n return
get(2)\n}\n\n /**\n * Returns 4th *element* from the list.\n */\n * Throws an [IndexOutOfBoundsException] if the
size of this list is less than 4.\n\n @kotlin.internal.InlineOnly\n public inline operator fun <T>

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List<T>.component4(): T {
    return get(3)
}
/**
 * Returns 5th *element* from the list.
 *
 * Throws an [IndexOutOfBoundsException] if the size of this list is less than 5.
 */
@kotlin.internal.InlineOnly
public inline operator fun <T> List<T>.component5(): T {
    return get(4)
}
/**
 * Returns `true` if [element] is found in the collection.
 */
public operator fun <@kotlin.internal.OnlyInputTypes T> Iterable<T>.contains(element: T): Boolean {
    if (this is Collection)
        return contains(element)
    return indexOf(element) >= 0
}
/**
 * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this collection.
 */
@sample samples.collections.Collections.Elements.elementAt
/**
 * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this list.
 */
@sample samples.collections.Collections.Elements.elementAt
/**
 * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this collection.
 */
@sample samples.collections.Collections.Elements.elementAtOrElse
/**
 * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this list.
 */
@sample samples.collections.Collections.Elements.elementAtOrElse
/**
 * Returns an element at the given [index] or `null` if the [index] is out of bounds of this collection.
 */
@sample samples.collections.Collections.Elements.elementAtOrNull
/**
 * Returns an element at the given [index] or `null` if the [index] is out of bounds of this list.
 */
@sample samples.collections.Collections.Elements.elementAtOrNull
/**
 * Returns the first element matching the given [predicate], or `null` if no such element was found.
 */
@sample samples.collections.Collections.Elements.find
/**
 * Returns the last element matching the given [predicate], or `null` if no such element was found.
 */
@sample samples.collections.Collections.Elements.findLast
/**
 * Returns the first element matching the given [predicate], or `null` if no such element was found.
 */
@throws NoSuchElementException if the collection is empty.
public fun <T> Iterable<T>.first(): T {
    when (this) {
        is List -> return this.first()
        else -> {
            val iterator = iterator()
            if (!iterator.hasNext())
                throw NoSuchElementException("Collection is empty.")
            return iterator.next()
        }
    }
}
/**
 * Returns the first element.
 */
@throws NoSuchElementException if the list is empty.
public fun <T> List<T>.first(): T {
    if (isEmpty())
        throw NoSuchElementException("List is

```



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empty.}\n return this[0]\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws
[NoSuchElementException] if no such element is found.\n */\npublic inline fun <T> Iterable<T>.first(predicate: (T)
-> Boolean): T {\n for (element in this) if (predicate(element)) return element\n throw
NoSuchElementException("Collection contains no element matching the predicate.}\n}\n\n/**\n * Returns the
first non-null value produced by [transform] function being applied to elements of this collection in iteration order,\n
* or throws [NoSuchElementException] if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any>
Iterable<T>.firstNotNullOf(transform: (T) -> R?): R {\n return firstNotNullOfOrNull(transform) ?: throw
NoSuchElementException("No element of the collection was transformed to a non-null value.}\n}\n\n/**\n *
Returns the first non-null value produced by [transform] function being applied to elements of this collection in
iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*/\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Any>
Iterable<T>.firstNotNullOfOrNull(transform: (T) -> R?): R? {\n for (element in this) {\n val result =
transform(element)\n if (result != null) {\n return result\n }\n }\n return null\n}\n\n/**\n *
Returns the first element, or `null` if the collection is
empty.\n */\npublic fun <T> Iterable<T>.firstOrNull(): T? {\n when (this) {\n is List -> {\n if
(isEmpty())\n return null\n else\n return this[0]\n }\n else -> {\n val iterator
= iterator()\n if (!iterator.hasNext())\n return null\n return iterator.next()\n }\n
}\n}\n\n/**\n * Returns the first element, or `null` if the list is empty.\n */\npublic fun <T> List<T>.firstOrNull():
T? {\n return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element matching the given [predicate],
or `null` if element was not found.\n */\npublic inline fun <T> Iterable<T>.firstOrNull(predicate: (T) -> Boolean):
T? {\n for (element in this) if (predicate(element)) return element\n return null\n}\n\n/**\n * Returns an element
at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this list.\n
*/\n@kotlin.internal.InlineOnly\npublic
inline fun <T> List<T>.getOrNull(index: Int, defaultValue: (Int) -> T): T {\n return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or `null` if the
[index] is out of bounds of this list.\n * \n * @sample samples.collections.Collections.Elements.getOrNull\n
*/\npublic fun <T> List<T>.getOrNull(index: Int): T? {\n return if (index >= 0 && index <= lastIndex) get(index)
else null\n}\n\n/**\n * Returns first index of [element], or -1 if the collection does not contain element.\n */\npublic
fun <@kotlin.internal.OnlyInputTypes T> Iterable<T>.indexOf(element: T): Int {\n if (this is List) return
this.indexOf(element)\n var index = 0\n for (item in this) {\n checkIndexOverflow(index)\n if (element
== item)\n return index\n index++\n }\n return -1\n}\n\n/**\n * Returns first index of [element], or -1
if the list does not contain
element.\n */\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER") // false warning, extension takes
precedence in some cases\npublic fun <@kotlin.internal.OnlyInputTypes T> List<T>.indexOf(element: T): Int {\n
return indexOf(element)\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the
collection does not contain such element.\n */\npublic inline fun <T> Iterable<T>.indexOfFirst(predicate: (T) ->
Boolean): Int {\n var index = 0\n for (item in this) {\n checkIndexOverflow(index)\n if
(predicate(item))\n return index\n index++\n }\n return -1\n}\n\n/**\n * Returns index of the first
element matching the given [predicate], or -1 if the list does not contain such element.\n */\npublic inline fun <T>
List<T>.indexOfFirst(predicate: (T) -> Boolean): Int {\n var index = 0\n for (item in this) {\n if
(predicate(item))\n return index\n index++\n }\n return -1\n}\n\n/**\n *
Returns index of the last element matching the given [predicate], or -1 if the collection does not contain such
element.\n */\npublic inline fun <T> Iterable<T>.indexOfLast(predicate: (T) -> Boolean): Int {\n var lastIndex = -
1\n var index = 0\n for (item in this) {\n checkIndexOverflow(index)\n if (predicate(item))\n
lastIndex = index\n index++\n }\n return lastIndex\n}\n\n/**\n * Returns index of the last element matching

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the given [predicate], or -1 if the list does not contain such element.\n */\npublic inline fun <T>
List<T>.indexOfLast(predicate: (T) -> Boolean): Int {\n    val iterator = this.listIterator(size)\n    while
(iterator.hasPrevious()) {\n        if (predicate(iterator.previous())) {\n            return iterator.nextIndex()\n        }\n    }\n    return -1\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the collection
is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n
*/\npublic fun <T> Iterable<T>.last(): T {\n    when (this) {\n        is List -> return this.last()\n        else -> {\n            val iterator = iterator()\n            if (!iterator.hasNext())\n                throw NoSuchElementException("Collection is
empty.")\n            var last = iterator.next()\n            while (iterator.hasNext())\n                last = iterator.next()\n            return last\n        }\n    }\n}\n\n/**\n * Returns the last element.\n * \n * @throws NoSuchElementException if the
list is empty.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic fun <T> List<T>.last(): T
{\n    if (isEmpty())\n        throw NoSuchElementException("List is empty.")\n    return this[lastIndex]}\n}\n\n/**\n * Returns the last element matching the given [predicate].\n * \n * @throws NoSuchElementException if no such
element is found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T>
Iterable<T>.last(predicate:
(T) -> Boolean): T {\n    var last: T? = null\n    var found = false\n    for (element in this) {\n        if
(predicate(element)) {\n            last = element\n            found = true\n        }\n    }\n    if (!found) throw
NoSuchElementException("Collection contains no element matching the predicate.")\n    @Suppress("UNCHECKED_CAST")\n    return last as T\n}\n}\n\n/**\n * Returns the last element matching the
given [predicate].\n * \n * @throws NoSuchElementException if no such element is found.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun <T> List<T>.last(predicate: (T) -> Boolean): T
{\n    val iterator = this.listIterator(size)\n    while (iterator.hasPrevious()) {\n        val element = iterator.previous()\n
        if (predicate(element)) return element\n    }\n    throw NoSuchElementException("List contains no element
matching the predicate.")\n}\n}\n\n/**\n * Returns last index of [element], or -1 if the collection does not
contain element.\n */\npublic fun <@kotlin.internal.OnlyInputTypes T> Iterable<T>.lastIndexOf(element: T): Int
{\n    if (this is List) return this.lastIndexOf(element)\n    var lastIndex = -1\n    var index = 0\n    for (item in this)
{\n        checkIndexOverflow(index)\n        if (element == item)\n            lastIndex = index\n            index++\n    }\n    return lastIndex\n}\n}\n\n/**\n * Returns last index of [element], or -1 if the list does not contain element.\n
*/\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER") // false warning, extension takes precedence in
some cases\npublic fun <@kotlin.internal.OnlyInputTypes T> List<T>.lastIndexOf(element: T): Int {\n    return
lastIndexOf(element)\n}\n}\n\n/**\n * Returns the last element, or `null` if the collection is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun <T> Iterable<T>.lastOrNull(): T? {\n    when (this)
{\n        is List -> return if (isEmpty()) null else this[size - 1]\n        else -> {\n            val iterator = iterator()\n            if (!iterator.hasNext())\n                return null\n            var last =
iterator.next()\n            while (iterator.hasNext())\n                last = iterator.next()\n            return last\n        }\n    }\n}\n}\n\n/**\n * Returns the last element, or `null` if the list is empty.\n * \n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun <T> List<T>.lastOrNull(): T? {\n    return if
(isEmpty()) null else this[size - 1]\n}\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if
no such element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun
<T> Iterable<T>.lastOrNull(predicate: (T) -> Boolean): T? {\n    var last: T? = null\n    for (element in this) {\n
        if (predicate(element)) {\n            last = element\n        }\n    }\n    return last\n}\n}\n\n/**\n * Returns the last element
matching the given [predicate], or `null` if no such
element was found.\n * \n * @sample samples.collections.Collections.Elements.last\n */\npublic inline fun <T>
List<T>.lastOrNull(predicate: (T) -> Boolean): T? {\n    val iterator = this.listIterator(size)\n    while
(iterator.hasPrevious()) {\n        val element = iterator.previous()\n        if (predicate(element)) return element\n    }\n    return null\n}\n}\n\n/**\n * Returns a random element from this collection.\n * \n * @throws
NoSuchElementException if this collection is empty.\n
*/\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.random(): T {\n    return
random(Random)\n}\n}\n\n/**\n * Returns a random element from this collection using the specified source of

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randomness.\n * \n * @throws NoSuchElementException if this collection is empty.\n
*\n@SinceKotlin("1.3")\npublic fun <T> Collection<T>.random(random: Random): T {\n  if (isEmpty())\n  throw NoSuchElementException("Collection is empty.")\n  return elementAt(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this collection, or `null` if this collection is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Collection<T>.randomOrNull(): T? {\n  return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this collection using the specified source of randomness, or `null` if this collection is empty.\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T> Collection<T>.randomOrNull(random: Random): T? {\n  if (isEmpty())\n  return null\n  return elementAt(random.nextInt(size))\n}\n\n/**\n * Returns the single element, or throws an exception if the collection is empty or has more than one element.\n
*\npublic fun <T> Iterable<T>.single(): T {\n  when (this) {\n    is List -> return this.single()\n    else -> {\n      val iterator = iterator()\n      if (!iterator.hasNext())\n        throw NoSuchElementException("Collection is empty.")\n      val single = iterator.next()\n      if (iterator.hasNext())\n        throw IllegalArgumentException("Collection has more than one element.")\n    }\n  }\n}\n\n/**\n * Returns the single element, or throws an exception if the list is empty or has more than one element.\n
*\npublic fun <T> List<T>.single(): T {\n  return when (size) {\n    0 -> throw NoSuchElementException("List is empty.")\n    1 -> this[0]\n    else -> throw IllegalArgumentException("List has more than one element.")\n  }\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one matching element.\n
*\npublic inline fun <T> Iterable<T>.single(predicate: (T) -> Boolean): T {\n  var single: T? = null\n  var found = false\n  for (element in this) {\n    if (predicate(element)) {\n      if (found)\n        throw IllegalArgumentException("Collection contains more than one matching element.")\n      single = element\n      found = true\n    }\n  }\n  if (!found) throw NoSuchElementException("Collection contains no element matching the predicate.")\n  @Suppress("UNCHECKED_CAST")\n  return single as T\n}\n\n/**\n * Returns single element, or `null` if the collection is empty or has more than one element.\n
*\npublic fun <T> Iterable<T>.singleOrNull(): T? {\n  when (this) {\n    is List -> return if (size == 1) this[0] else null\n    else -> {\n      val iterator = iterator()\n      if (!iterator.hasNext())\n        return null\n      val single = iterator.next()\n      if (iterator.hasNext())\n        return null\n      return single\n    }\n  }\n}\n\n/**\n * Returns single element, or `null` if the list is empty or has more than one element.\n
*\npublic fun <T> List<T>.singleOrNull(): T? {\n  return if (size == 1) this[0] else null\n}\n\n/**\n * Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.\n
*\npublic inline fun <T> Iterable<T>.singleOrNull(predicate: (T) -> Boolean): T? {\n  var single: T? = null\n  var found = false\n  for (element in this) {\n    if (predicate(element)) {\n      if (found) return null\n      single = element\n      found = true\n    }\n  }\n  if (!found) return null\n  return single\n}\n\n/**\n * Returns a list containing all elements except first [n] elements.\n
*\n * @throws IllegalArgumentException if [n] is negative.\n
*\n * @sample samples.collections.Collections.Transformations.drop\n
*\npublic fun <T> Iterable<T>.drop(n: Int): List<T> {\n  require(n >= 0) {"Requested element count $n is less than zero."}\n  if (n == 0) return toList()\n  val list: ArrayList<T>\n  if (this is Collection<*>) {\n    val resultSize = size - n\n    if (resultSize <= 0)\n      return emptyList()\n    if (resultSize == 1)\n      return listOf(last())\n    list = ArrayList<T>(resultSize)\n    if (this is List<T>) {\n      if (this is RandomAccess) {\n        for (index in n until size)\n          list.add(this[index])\n      } else {\n        for (item in listIterator(n))\n          list.add(item)\n      }\n    }\n    return list\n  }\n  else {\n    list = ArrayList<T>()\n    var count = 0\n    for (item in this) {\n      if (count >= n) list.add(item) else ++count\n    }\n    return list.optimizeReadOnlyList()\n  }\n}\n\n/**\n * Returns a list containing all elements except last [n] elements.\n
*\n * @throws IllegalArgumentException if [n] is negative.\n
*\n * @sample samples.collections.Collections.Transformations.drop\n
*\npublic fun <T> List<T>.dropLast(n: Int): List<T> {\n  require(n >= 0) {\n

```



at indices in the specified [indices] range.\n \*^\\npublic fun <T> List<T>.slice(indices: IntRange): List<T> {\\n if (indices.isEmpty()) return listOf()\\n return this.subList(indices.start, indices.endInclusive + 1).toList()\\n}\\n\\n/\*\*\\n \* Returns a list containing elements at specified [indices].\\n \*^\\npublic fun <T> List<T>.slice(indices: Iterable<Int>): List<T> {\\n val size = indices.collectionSizeOrDefault(10)\\n if (size == 0) return emptyList()\\n val list = ArrayList<T>(size)\\n for (index in indices) {\\n list.add(get(index))\\n }\\n return list\\n}\\n\\n/\*\*\\n \* Returns a list containing first [n] elements.\\n \* \\n \* @throws IllegalArgumentException if [n] is negative.\\n \* \\n \* @sample samples.collections.Collections.Transformations.take\\n \*^\\npublic fun <T> Iterable<T>.take(n: Int): List<T> {\\n require(n >= 0) { \\\"Requested element count \$n is less than zero.\" }\\n if (n == 0) return emptyList()\\n if (this is Collection<T>) {\\n if (n >= size) return toList()\\n if (n == 1) return listOf(first())\\n }\\n var count = 0\\n val list = ArrayList<T>(n)\\n for (item in this) {\\n list.add(item)\\n if (++count == n)\\n break\\n }\\n return list.optimizeReadOnlyList()\\n}\\n\\n/\*\*\\n \* Returns a list containing last [n] elements.\\n \* \\n \* @throws IllegalArgumentException if [n] is negative.\\n \* \\n \* @sample samples.collections.Collections.Transformations.take\\n \*^\\npublic fun <T> List<T>.takeLast(n: Int): List<T> {\\n require(n >= 0) { \\\"Requested element count \$n is less than zero.\" }\\n if (n == 0) return emptyList()\\n val size = size\\n if (n >= size) return toList()\\n if (n == 1) return listOf(last())\\n val list = ArrayList<T>(n)\\n if (this is RandomAccess) {\\n for (index in size - n until size)\\n list.add(this[index])\\n } else {\\n for (item in listIterator(size - n))\\n list.add(item)\\n }\\n return list\\n}\\n\\n/\*\*\\n \* Returns a list containing last elements satisfying the given [predicate].\\n \* \\n \* @sample samples.collections.Collections.Transformations.take\\n \*^\\npublic inline fun <T> List<T>.takeLastWhile(predicate: (T) -> Boolean): List<T> {\\n if (isEmpty())\\n return emptyList()\\n val iterator = listIterator(size)\\n while (iterator.hasPrevious()) {\\n if (!predicate(iterator.previous())) {\\n iterator.next()\\n val expectedSize = size - iterator.nextIndex()\\n if (expectedSize == 0) return emptyList()\\n return ArrayList<T>(expectedSize).apply {\\n while (iterator.hasNext())\\n add(iterator.next())\\n }\\n }\\n }\\n return toList()\\n}\\n\\n/\*\*\\n \* Returns a list containing first elements satisfying the given [predicate].\\n \* \\n \* @sample samples.collections.Collections.Transformations.take\\n \*^\\npublic inline fun <T> Iterable<T>.takeWhile(predicate: (T) -> Boolean): List<T> {\\n val list = ArrayList<T>()\\n for (item in this) {\\n if (!predicate(item))\\n break\\n list.add(item)\\n }\\n return list\\n}\\n\\n/\*\*\\n \* Reverses elements in the list in-place.\\n \*^\\npublic expect fun <T> MutableList<T>.reverse(): Unit\\n\\n/\*\*\\n \* Returns a list with elements in reversed order.\\n \*^\\npublic fun <T> Iterable<T>.reversed(): List<T> {\\n if (this is Collection && size <= 1) return toList()\\n val list = toMutableList()\\n list.reverse()\\n return list\\n}\\n\\n/\*\*\\n \* Randomly shuffles elements in this list in-place using the specified [random] instance as the source of randomness.\\n \* \\n \* See: [https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\\_shuffle#The\\_modern\\_algorithm](https://en.wikipedia.org/wiki/Fisher%20%80%93Yates_shuffle#The_modern_algorithm)\\n \*^\\n@SinceKotlin("1.3")\\npublic fun <T> MutableList<T>.shuffle(random: Random): Unit {\\n for (i in lastIndex downTo 1) {\\n val j = random.nextInt(i + 1)\\n this[j] = this.set(i, this[j])\\n }\\n}\\n\\n/\*\*\\n \* Sorts elements in the list in-place according to natural sort order of the value returned by specified [selector] function.\\n \* \\n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\\n \*^\\npublic inline fun <T, R : Comparable<R>> MutableList<T>.sortBy(crossinline selector: (T) -> R?): Unit {\\n if (size > 1) sortBy(selector)\\n}\\n\\n/\*\*\\n \* Sorts elements in the list in-place descending according to natural sort order of the value returned by specified [selector] function.\\n \* \\n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\\n \*^\\npublic inline fun <T, R : Comparable<R>> MutableList<T>.sortByDescending(crossinline selector: (T) -> R?): Unit {\\n if (size > 1) sortByDescending(selector)\\n}\\n\\n/\*\*\\n \* Sorts elements in the list in-place descending according to their natural sort order.\\n \* \\n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after

```

    sorting.\n */\npublic fun <T : Comparable<T>> MutableList<T>.sortDescending(): Unit {\n
    sortWith(reverseOrder())\n}\n\n/**\n * Returns a list of all elements sorted according to their natural sort order.\n *
    \n * The sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n
    */\npublic fun <T : Comparable<T>> Iterable<T>.sorted(): List<T> {\n    if (this is Collection) {\n        if (size <= 1)
    return this.toList()\n        @Suppress("UNCHECKED_CAST")\n        return (toTypedArray<Comparable<T>>())
    as Array<T>).apply { sort() }.asList()\n    }\n    return toMutableList().apply { sort() }\n}\n\n/**\n * Returns a list of
    all elements sorted according to natural sort order of the value returned by specified [selector] function.\n * \n * The
    sort is _stable_. It means that equal elements preserve their order relative to each other after sorting.\n * \n *
    @sample samples.collections.Collections.Sorting.sortedBy\n */\npublic inline fun
    <T, R : Comparable<R>> Iterable<T>.sortedBy(crossinline selector: (T) -> R?): List<T> {\n    return
    sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending according to natural
    sort order of the value returned by specified [selector] function.\n * \n * The sort is _stable_. It means that equal
    elements preserve their order relative to each other after sorting.\n */\npublic inline fun <T, R : Comparable<R>>
    Iterable<T>.sortedByDescending(crossinline selector: (T) -> R?): List<T> {\n    return
    sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a list of all elements sorted descending
    according to their natural sort order.\n * \n * The sort is _stable_. It means that equal elements preserve their order
    relative to each other after sorting.\n */\npublic fun <T : Comparable<T>> Iterable<T>.sortedDescending(): List<T>
    {\n    return sortedWith(reverseOrder())\n}\n\n/**\n * Returns a list of all elements sorted according to the specified
    [comparator].\n * \n * The sort is _stable_. It means that equal elements preserve their order relative to each other
    after sorting.\n */\npublic fun <T> Iterable<T>.sortedWith(comparator: Comparator<in T>): List<T> {\n    if (this is
    Collection) {\n        if (size <= 1) return this.toList()\n        @Suppress("UNCHECKED_CAST")\n        return
    (toTypedArray<Any?>() as Array<T>).apply { sortWith(comparator) }.asList()\n    }\n    return
    toMutableList().apply { sortWith(comparator) }\n}\n\n/**\n * Returns an array of Boolean containing all of the
    elements of this collection.\n */\npublic fun Collection<Boolean>.toBooleanArray(): BooleanArray {\n    val result =
    BooleanArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return
    result\n}\n\n/**\n * Returns an array of Byte containing all of the elements of this collection.\n */\npublic fun
    Collection<Byte>.toByteArray(): ByteArray {\n    val result = ByteArray(size)\n    var index = 0\n    for (element
    in this)\n        result[index++] = element\n    return result\n}\n\n/**\n * Returns an array of Char containing all of
    the elements of this collection.\n */\npublic fun Collection<Char>.toCharArray(): CharArray {\n    val result =
    CharArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return
    result\n}\n\n/**\n * Returns an array of Double containing all of the elements of this collection.\n */\npublic fun
    Collection<Double>.toDoubleArray(): DoubleArray {\n    val result = DoubleArray(size)\n    var index = 0\n    for
    (element in this)\n        result[index++] = element\n    return result\n}\n\n/**\n * Returns an array of Float
    containing all of the elements of this collection.\n */\npublic fun Collection<Float>.toFloatArray(): FloatArray {\n
    val result = FloatArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return
    result\n}\n\n/**\n * Returns an array of Int containing all of the elements
    of this collection.\n */\npublic fun Collection<Int>.toIntArray(): IntArray {\n    val result = IntArray(size)\n    var
    index = 0\n    for (element in this)\n        result[index++] = element\n    return result\n}\n\n/**\n * Returns an array
    of Long containing all of the elements of this collection.\n */\npublic fun Collection<Long>.toLongArray():
    LongArray {\n    val result = LongArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] =
    element\n    return result\n}\n\n/**\n * Returns an array of Short containing all of the elements of this collection.\n
    */\npublic fun Collection<Short>.toShortArray(): ShortArray {\n    val result = ShortArray(size)\n    var index = 0\n
    for (element in this)\n        result[index++] = element\n    return result\n}\n\n/**\n * Returns a [Map] containing
    key-value pairs provided by [transform] function\n * applied to elements of the given collection.\n * \n * If any of
    two pairs would have the same key the last one gets
    added to the map.\n * \n * The returned map preserves the entry iteration order of the original collection.\n * \n *
    @sample samples.collections.Collections.Transformations.associate\n */\npublic inline fun <T, K, V>

```

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Iterable<T>.associate(transform: (T) -> Pair<K, V>): Map<K, V> {
    val capacity =
mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16)
    return associateTo(LinkedHashMap<K,
V>(capacity), transform)
}

Returns a [Map] containing the elements from the given collection indexed
by the key
returned from [keySelector] function applied to each element.
If any two elements would
have the same key returned by [keySelector] the last one gets added to the map.
The returned map preserves
the entry iteration order of the original collection.
@sample
samples.collections.Collections.Transformations.associateBy

public inline fun <T, K>
Iterable<T>.associateBy(keySelector: (T) -> K): Map<K, T> {
    val capacity =
mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16)
    return associateByTo(LinkedHashMap<K, T>(capacity), keySelector)
}

Returns a [Map] containing
the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given
collection.
If any two elements would have the same key returned by [keySelector] the last one gets added
to the map.
The returned map preserves the entry iteration order of the original collection.
@sample
samples.collections.Collections.Transformations.associateByWithValueTransform

public inline fun <T, K, V>
Iterable<T>.associateBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, V> {
    val capacity =
mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16)
    return associateByTo(LinkedHashMap<K,
V>(capacity), keySelector, valueTransform)
}

Populates and returns the [destination] mutable map with
key-value pairs,
where key is provided by the [keySelector]
function applied to each element of the given collection
and value is the element itself.
If any two
elements would have the same key returned by [keySelector] the last one gets added to the map.
@sample
samples.collections.Collections.Transformations.associateByTo

public inline fun <T, K, M : MutableMap<in
K, in T>>
Iterable<T>.associateByTo(destination: M, keySelector: (T) -> K): M {
    for (element in this) {
destination.put(keySelector(element), element)
    }
    return destination
}

Populates and returns the
[destination] mutable map with key-value pairs,
where key is provided by the [keySelector] function and
value is provided by the [valueTransform] function applied to elements of the given collection.
If any two
elements would have the same key returned by [keySelector] the last one gets added to the map.
@sample
samples.collections.Collections.Transformations.associateByToWithValueTransform

public inline fun <T, K, V, M : MutableMap<in K, in V>>
Iterable<T>.associateByTo(destination: M,
keySelector: (T) -> K, valueTransform: (T) -> V): M {
    for (element in this) {
destination.put(keySelector(element), valueTransform(element))
    }
    return destination
}

Populates
and returns the [destination] mutable map with key-value pairs
provided by [transform] function applied to each
element of the given collection.
If any of two pairs would have the same key the last one gets added to the
map.
@sample
samples.collections.Collections.Transformations.associateTo

public inline fun <T, K,
V, M : MutableMap<in K, in V>>
Iterable<T>.associateTo(destination: M, transform: (T) -> Pair<K, V>): M {
    for (element in this) {
destination += transform(element)
    }
    return destination
}

Returns a
[Map] where keys are elements from the given collection and values are
produced by the [valueSelector]
function
applied to each element.
If any two elements are equal, the last one gets added to the map.
The
returned map preserves the entry iteration order of the original collection.
@sample
samples.collections.Collections.Transformations.associateWith

@SinceKotlin("1.3")
public inline fun <K,
V>
Iterable<K>.associateWith(valueSelector: (K) -> V): Map<K, V> {
    val result = LinkedHashMap<K,
V>(mapCapacity(collectionSizeOrDefault(10)).coerceAtLeast(16))
    return associateWithTo(result,
valueSelector)
}

Populates and returns the [destination] mutable map with key-value pairs for each
element of the given collection,
where key is the element itself and value is provided by the [valueSelector]
function applied to that key.
If any two elements are equal, the last one overwrites the former value in the
map.
@sample
samples.collections.Collections.Transformations.associateWithTo

@SinceKotlin("1.3")
public inline

```

```

fun <K, V, M : MutableMap<in K, in V>> Iterable<K>.associateWithTo(destination: M, valueSelector: (K) -> V):
M {
    for (element in this) {
        destination.put(element, valueSelector(element))
    }
    return
destination
}

/**
 * Appends all elements to the given [destination] collection.
 */
public fun <T, C :
MutableCollection<in T>> Iterable<T>.toCollection(destination: C): C {
    for (item in this) {
        destination.add(item)
    }
    return destination
}

/**
 * Returns a new [HashSet] of all elements.
 */
public fun <T> Iterable<T>.toHashSet(): HashSet<T> {
    return
toCollection(HashSet<T>(mapCapacity(collectionSizeOrDefault(12))))
}

/**
 * Returns a [List] containing all
elements.
 */
public fun <T> Iterable<T>.toList(): List<T> {
    if (this is Collection) {
        return when (size)
        {
            0 -> emptyList()
            1 -> listOf(if (this is List) get(0) else iterator().next())
            else ->
this.toMutableList()
        }
    }
    return this.toMutableList().optimizeReadOnlyList()
}

/**
 * Returns a new [MutableList]
filled with all elements of this collection.
 */
public fun <T> Iterable<T>.toMutableList(): MutableList<T> {
    if (this is Collection<T>)
        return this.toMutableList()
    return toCollection(ArrayList<T>())
}

/**
 * Returns a new [MutableList] filled with all elements of this collection.
 */
public fun <T>
Collection<T>.toMutableList(): MutableList<T> {
    return ArrayList(this)
}

/**
 * Returns a [Set] of all
elements.
 * The returned set preserves the element iteration order of the original collection.
 */
public fun
<T> Iterable<T>.toSet(): Set<T> {
    if (this is Collection) {
        return when (size)
        {
            0 -> emptySet()
            1 -> setOf(if (this is List) this[0] else iterator().next())
            else ->
toCollection(LinkedHashSet<T>(mapCapacity(size)))
        }
    }
    return
toCollection(LinkedHashSet<T>()).optimizeReadOnlySet()
}

/**
 * Returns a single list of all elements yielded from results of [transform] function being invoked on each element of
original collection.
 */
@sample samples.collections.Collections.Transformations.flatMap
public inline
fun <T, R> Iterable<T>.flatMap(transform: (T) -> Iterable<R>): List<R> {
    return flatMapTo(ArrayList<R>(),
transform)
}

/**
 * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element of original collection.
 */
@sample
samples.collections.Collections.Transformations.flatMap
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.jvm.JvmName("flatMapSequence")
public inline fun <T, R>
Iterable<T>.flatMap(transform: (T) -> Sequence<R>): List<R> {
    return flatMapTo(ArrayList<R>(),
transform)
}

/**
 * Returns a single list of all elements yielded from results
of [transform] function being invoked on each element
 * and its index in the original collection.
 */
@sample
samples.collections.Collections.Transformations.flatMapIndexed
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.jvm.JvmName("flatMapIndexedIterable")
@kotlin.internal.InlineOnly
public
inline fun <T, R> Iterable<T>.flatMapIndexed(transform: (index: Int, T) -> Iterable<R>): List<R> {
    return
flatMapIndexedTo(ArrayList<R>(), transform)
}

/**
 * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element
 * and its index in the original collection.
 */
@sample
samples.collections.Collections.Transformations.flatMapIndexed
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.jvm.JvmName("flatMapIndexedSequence")
@kotlin.internal.InlineOnly
publi
c
inline fun <T, R> Iterable<T>.flatMapIndexed(transform: (index: Int, T) -> Sequence<R>): List<R> {
    return
flatMapIndexedTo(ArrayList<R>(), transform)
}

/**
 * Appends all elements yielded from results of
[transform] function being invoked on each element
 * and its index in the original collection, to the given
[destination].
 */
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.jvm.JvmName("flatMapIndexedIterableTo")
@kotlin.internal.InlineOnly
publi
c
inline fun <T, R, C : MutableCollection<in R>> Iterable<T>.flatMapIndexedTo(destination: C, transform: (index:

```







given collection\n \* having distinct keys returned by the given [selector] function.\n \* \n \* Among elements of the given collection with equal keys, only the first one will be present in the resulting list.\n \* The elements in the resulting list are in the same order as they were in the source collection.\n \* \n \* @sample

samples.collections.Collections.Transformations.distinctAndDistinctBy\n \* \n \* public inline fun <T, K>  
Iterable<T>.distinctBy(selector:

(T) -> K): List<T> {\n val set = HashSet<K>()\n val list = ArrayList<T>()\n for (e in this) {\n val key = selector(e)\n if (set.add(key))\n list.add(e)\n }\n return list\n}\n \* Returns a set containing all elements that are contained by both this collection and the specified collection.\n \* \n \* The returned set preserves the element iteration order of the original collection.\n \* \n \* To get a set containing all elements that are contained at least in one of these collections use [union].\n \* \n \* public infix fun <T> Iterable<T>.intersect(other: Iterable<T>):

Set<T> {\n val set = this.toMutableSet()\n set.retainAll(other)\n return set\n}\n \* Returns a set containing all elements that are contained by this collection and not contained by the specified collection.\n \* \n \* The returned set preserves the element iteration order of the original collection.\n \* \n \* public infix fun <T> Iterable<T>.subtract(other: Iterable<T>):

Set<T> {\n val set = this.toMutableSet()\n set.removeAll(other)\n return set\n}\n \* Returns a new [MutableSet] containing all distinct elements from the given collection.\n \* \n \* The returned set preserves the element iteration order of the original collection.\n \* \n \* public fun <T> Iterable<T>.toMutableSet(): MutableSet<T> {\n return when (this) {\n is Collection<T> -> LinkedHashSet(this)\n else ->

toCollection(LinkedHashSet<T>())\n }\n}\n \* Returns a set containing all distinct elements from both collections.\n \* \n \* The returned set preserves the element iteration order of the original collection.\n \* \n \* Those elements of the [other] collection that are unique are iterated in the end\n \* in the order of the [other] collection.\n \* \n \* To get a set containing all elements that are contained in both collections use [intersect].\n \* \n \* public infix fun <T> Iterable<T>.union(other: Iterable<T>): Set<T> {\n val set = this.toMutableSet()\n

set.addAll(other)\n return set\n}\n \* Returns `true` if all elements match the given [predicate].\n \* \n \* @sample samples.collections.Collections.Aggregates.all\n \* \n \* public inline fun <T> Iterable<T>.all(predicate: (T) -> Boolean): Boolean {\n if (this is Collection && isEmpty()) return true\n for (element in this) if (!predicate(element)) return false\n return true\n}\n \* Returns `true` if collection has at least one element.\n \* \n \* @sample samples.collections.Collections.Aggregates.any\n \* \n \* public fun <T> Iterable<T>.any(): Boolean {\n if (this is Collection) return !isEmpty()\n return iterator().hasNext()\n}\n \* Returns `true` if at least one element matches the given [predicate].\n \* \n \* @sample

samples.collections.Collections.Aggregates.anyWithPredicate\n \* \n \* public inline fun <T> Iterable<T>.any(predicate: (T) -> Boolean): Boolean {\n if (this is Collection && isEmpty()) return false\n for (element in this) if (predicate(element)) return true\n return false\n}\n \* Returns the number of elements in this collection.\n \* \n \* public fun <T> Iterable<T>.count(): Int {\n if (this is Collection) return size\n var count = 0\n for (element in this)

checkCountOverflow(++count)\n return count\n}\n \* Returns the number of elements in this collection.\n \* \n \* @kotlin.internal.InlineOnly\n \* \n \* public inline fun <T> Collection<T>.count(): Int {\n return size\n}\n \* Returns the number of elements matching the given [predicate].\n \* \n \* public inline fun <T> Iterable<T>.count(predicate: (T) -> Boolean): Int {\n if (this is Collection && isEmpty()) return 0\n var count = 0\n for (element in this) if (predicate(element)) checkCountOverflow(++count)\n return count\n}\n \* Accumulates value starting with [initial] value and applying [operation] from left to right\n \* to current accumulator value and each element.\n \* \n \* Returns the specified [initial] value if the collection

is empty.\n \* \n \* @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n \* \n \* public inline fun <T, R> Iterable<T>.fold(initial: R, operation: (acc: R, T) -> R): R {\n var accumulator = initial\n for (element in this) accumulator = operation(accumulator, element)\n return accumulator\n}\n \* Accumulates value starting with [initial] value and applying [operation] from left to right\n \* to current accumulator value and each element with its index in the original collection.\n \* \n \* Returns the specified [initial] value if the collection is empty.\n \* \n \* @param [operation] function that takes the index of an

```

element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
*\npublic inline fun <T, R> Iterable<T>.foldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): R {\n  var
index = 0\n  var accumulator = initial\n  for (element in this)
  accumulator = operation(checkIndexOverflow(index++), accumulator, element)\n  return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and
current accumulator value.\n * \n * Returns the specified [initial] value if the list is empty.\n * \n * @param
[operation] function that takes an element and current accumulator value, and calculates the next accumulator
value.\n *\npublic inline fun <T, R> List<T>.foldRight(initial: R, operation: (T, acc: R) -> R): R {\n  var
accumulator = initial\n  if (!isEmpty()) {\n    val iterator = listIterator(size)\n    while (iterator.hasPrevious())
{\n      accumulator = operation(iterator.previous(), accumulator)\n    }\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to
left\n * to each element with its index in the original list and current accumulator value.\n
* \n * Returns the specified [initial] value if the list is empty.\n * \n * @param [operation] function that takes the
index of an element, the element itself\n * and current accumulator value, and calculates the next accumulator
value.\n *\npublic inline fun <T, R> List<T>.foldRightIndexed(initial: R, operation: (index: Int, T, acc: R) -> R): R
{\n  var accumulator = initial\n  if (!isEmpty()) {\n    val iterator = listIterator(size)\n    while
(iterator.hasPrevious()) {\n      val index = iterator.previousIndex()\n      accumulator = operation(index,
iterator.previous(), accumulator)\n    }\n  }\n  return accumulator\n}\n\n/**\n * Performs the given [action] on
each element.\n * \n *@kotlin.internal.HidesMembers\npublic inline fun <T> Iterable<T>.forEach(action: (T) ->
Unit): Unit {\n  for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element,
providing sequential index with the element.\n * \n * @param [action] function
that takes the index of an element and the element itself\n * and performs the action on the element.\n *\npublic
inline fun <T> Iterable<T>.forEachIndexed(action: (index: Int, T) -> Unit): Unit {\n  var index = 0\n  for (item in
this) action(checkIndexOverflow(index++), item)\n}\n\n/**\n * Returns the largest element.\n * \n * If any of
elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOA
DS")\npublic fun Iterable<Double>.max(): Double {\n  val iterator = iterator()\n  if (!iterator.hasNext()) throw
NoSuchElementException()\n  var max = iterator.next()\n  while (iterator.hasNext()) {\n    val e =
iterator.next()\n    max = maxOf(max, e)\n  }\n  return max\n}\n\n/**\n * Returns the largest element.\n * \n *
If any of elements is `NaN` returns `NaN`.\n * \n * @throws NoSuchElementException if the collection is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOA
DS")\npublic fun Iterable<Float>.max(): Float {\n  val iterator = iterator()\n  if (!iterator.hasNext()) throw
NoSuchElementException()\n  var max = iterator.next()\n  while (iterator.hasNext()) {\n    val e =
iterator.next()\n    max = maxOf(max, e)\n  }\n  return max\n}\n\n/**\n * Returns the largest element.\n * \n *
@throws NoSuchElementException if the collection is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOA
DS")\npublic fun <T : Comparable<T>> Iterable<T>.max(): T {\n  val iterator = iterator()\n  if
(!iterator.hasNext()) throw NoSuchElementException()\n  var max = iterator.next()\n  while (iterator.hasNext())
{\n    val e = iterator.next()\n    if (max < e) max = e\n  }\n  return max\n}\n\n/**\n * Returns the first
element yielding the largest value of the given function.\n * \n
* \n * @throws NoSuchElementException if the collection is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERL
OADS")\npublic inline fun <T, R : Comparable<R>> Iterable<T>.maxBy(selector: (T) -> R): T {\n  val iterator =
iterator()\n  if (!iterator.hasNext()) throw NoSuchElementException()\n  var maxElem = iterator.next()\n  if
(!iterator.hasNext()) return maxElem\n  var maxValue = selector(maxElem)\n  do {\n    val e = iterator.next()\n
val v = selector(e)\n    if (maxValue < v) {\n      maxElem = e\n      maxValue = v\n    }\n  } while
(iterator.hasNext())\n  return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the

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given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n * \n @SinceKotlin("1.4")\n public inline fun <T, R :
Comparable<R>>
    Iterable<T>.maxByOrNull(selector: (T) -> R): T? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return
null\n    var maxElem = iterator.next()\n    if (!iterator.hasNext()) return maxElem\n    var maxV = selector(maxElem)\n    do {\n        val e = iterator.next()\n        val v = selector(e)\n        if (maxV < v) {\n            maxElem = e\n            maxV = v\n        }\n    } while (iterator.hasNext())\n    return maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the collection.\n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * @throws NoSuchElementException if the collection is empty.\n */\n\n*\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution
ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T> Iterable<T>.maxOf(selector: (T) ->
Double): Double
    {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var maxV =
selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        maxV =
maxOf(maxV, v)\n    }\n    return maxV\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the collection.\n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * @throws NoSuchElementException if the collection is
empty.\n */\n\n*\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution
ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T> Iterable<T>.maxOf(selector: (T) ->
Float): Float {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var
maxV = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        maxV =
maxOf(maxV, v)\n    }\n    return maxV\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the collection.\n * @throws NoSuchElementException if the collection is
empty.\n */\n\n*\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution
ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T, R : Comparable<R>>
    Iterable<T>.maxOf(selector: (T) -> R): R {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw
NoSuchElementException()\n    var maxV = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v
= selector(iterator.next())\n        if (maxV < v) {\n            maxV = v\n        }\n    }\n    return
maxV\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the collection or `null`\n * if there are no elements.\n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n */\n\n*\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution
ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T> Iterable<T>.maxOfOrNull(selector: (T)
-> Double): Double? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var maxV =
selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        maxV =
maxOf(maxV, v)\n    }\n    return maxV\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the collection or `null` if there are no elements.\n * If any
of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n\n*\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution
ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public
    inline fun <T> Iterable<T>.maxOfOrNull(selector: (T) -> Float): Float? {\n    val iterator = iterator()\n    if
(!iterator.hasNext()) return null\n    var maxV = selector(iterator.next())\n    while (iterator.hasNext()) {\n       
val v = selector(iterator.next())\n        maxV = maxOf(maxV, v)\n    }\n    return maxV\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the

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collection or `null` if there are no elements.

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>>\nIterable<T>.maxOfOrNull(selector: (T) -> R): R? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return\n    null\n    var max = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v =\n        selector(iterator.next())\n
```

```
        if (max < v) {\n            max = v\n        }\n    }\n    return max\n}\n\n/**\n * Returns the largest\n * value according to the provided [comparator]\n * among all values produced by [selector] function applied to each\n * element in the collection.\n * @throws NoSuchElementException if the collection is empty.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R>
```

```
Iterable<T>.maxOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var max = selector(iterator.next())\n    while\n    (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if (comparator.compare(max, v) < 0) {\n            max = v\n        }\n    }\n    return max\n}\n\n/**\n * Returns the largest value according\n * to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the\n * collection or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R>
```

```
Iterable<T>.maxOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n    val iterator =\n    iterator()\n    if (!iterator.hasNext()) return null\n    var max = selector(iterator.next())\n    while\n    (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if (comparator.compare(max, v) < 0) {\n            max = v\n        }\n    }\n    return max\n}\n\n/**\n * Returns the largest element or `null` if there are no\n * elements.\n * If any of elements is `NaN` returns `NaN`.
```

```
*\n@SinceKotlin("1.4")\npublic fun\nIterable<Double>.maxOrNull(): Double? {\n    val iterator = iterator()\n    if (!iterator.hasNext())\n    return null\n    var max = iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        max =\n        maxOf(max, e)\n    }\n    return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.\n * If any of elements is `NaN` returns `NaN`.
```

```
*\n@SinceKotlin("1.4")\npublic fun\nIterable<Float>.maxOrNull(): Float? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var max\n    = iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        max =\n        maxOf(max, e)\n    }\n    return max\n}\n\n/**\n * Returns the largest element or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun <T : Comparable<T>> Iterable<T>.maxOrNull(): T? {\n    val iterator =\n    iterator()\n    if (!iterator.hasNext()) return null\n    var max = iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        if (max < e) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator].\n * @throws\n * NoSuchElementException if the collection is empty.
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrNull")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun <T> Iterable<T>.maxWith(comparator: Comparator<in T>): T {\n    val iterator =\n    iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var max = iterator.next()\n    while\n    (iterator.hasNext()) {\n        val e = iterator.next()\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided [comparator]\n * or `null` if there are no elements.
```

```
*\n@SinceKotlin("1.4")\npublic fun <T>
```

```
Iterable<T>.maxWithOrNull(comparator: Comparator<in T>): T? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var max = iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        if (comparator.compare(max, e) < 0) max = e\n    }\n    return max\n}\n\n/**\n * Returns the smallest element.\n * If any of elements is `NaN` returns `NaN`.
```

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minOrNull")\n@Suppress("CONFLICTING_OVERLOA
```

```

DS`)npublic fun Iterable<Double>.min(): Double {n  val iterator = iterator()n  if (!iterator.hasNext()) throw
NoSuchElementException()n  var min = iterator.next()n  while (iterator.hasNext()) {n  val e =
iterator.next()n  min = minOf(min, e)n  }n  return min\n}\n\n/**n * Returns the smallest element.n * n * If
any of elements is `NaN` returns `NaN`.n * n * @throws NoSuchElementException if the collection is empty.n
*/n\n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("minOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun Iterable<Float>.min(): Float {n  val iterator = iterator()n
if (!iterator.hasNext()) throw NoSuchElementException()n  var min = iterator.next()n  while
(iterator.hasNext()) {n  val e = iterator.next()n  min = minOf(min, e)n  }n  return min\n}\n\n/**n *
Returns the smallest element.n * n * @throws NoSuchElementException if the collection is empty.n
*/n\n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("minOrThrow")n@Suppress("CONFLICTING_OVERLOA
DS`)npublic fun <T : Comparable<T>> Iterable<T>.min(): T {n  val iterator = iterator()n  if
(!iterator.hasNext()) throw NoSuchElementException()n  var min = iterator.next()n  while (iterator.hasNext())
{n  val e = iterator.next()n  if (min > e) min = e\n  }n  return min\n}\n\n/**n * Returns the first element
yielding the smallest value of the given function.n * n * @throws NoSuchElementException if the collection is
empty.n * n * @sample samples.collections.Collections.Aggregates.minBy\n
*/n\n@SinceKotlin("1.7")n@kotlin.jvm.JvmName("minByOrThrow")n@Suppress("CONFLICTING_OVERLO
ADS`)npublic
inline fun <T, R : Comparable<R>> Iterable<T>.minBy(selector: (T) -> R): T {n  val iterator = iterator()n  if
(!iterator.hasNext()) throw NoSuchElementException()n  var minElem = iterator.next()n  if (!iterator.hasNext())
return minElem\n  var minValue = selector(minElem)\n  do {n  val e = iterator.next()n  val v =
selector(e)\n  if (minValue > v) {n  minElem = e\n  minValue = v\n  }n  } while
(iterator.hasNext())n  return minElem\n}\n\n/**n * Returns the first element yielding the smallest value of the
given function or `null` if there are no elements.n * n * @sample
samples.collections.Collections.Aggregates.minByOrNull\n
*/n\n@SinceKotlin("1.4")npublic inline fun <T, R :
Comparable<R>> Iterable<T>.minByOrNull(selector: (T) -> R): T? {n  val iterator = iterator()n  if
(!iterator.hasNext()) return null\n  var minElem = iterator.next()n
if (!iterator.hasNext()) return minElem\n  var minValue = selector(minElem)\n  do {n  val e =
iterator.next()n  val v = selector(e)\n  if (minValue > v) {n  minElem = e\n  minValue = v\n
}\n  } while (iterator.hasNext())n  return minElem\n}\n\n/**n * Returns the smallest value among all values
produced by [selector] function\n * applied to each element in the collection.n * n * If any of values produced by
[selector] function is `NaN`, the returned result is `NaN`.n * n * @throws NoSuchElementException if the
collection is empty.\n
*/n\n@SinceKotlin("1.4")n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)n@OverloadResolution
ByLambdaReturnTypen@kotlin.internal.InlineOnlynpublic inline fun <T> Iterable<T>.minOf(selector: (T) ->
Double): Double {n  val iterator = iterator()n  if (!iterator.hasNext()) throw NoSuchElementException()n  var
minValue = selector(iterator.next())n  while (iterator.hasNext())
{n  val v = selector(iterator.next())n  minValue = minOf(minValue, v)\n  }n  return
minValue\n}\n\n/**n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the collection.n * n * If any of values produced by [selector] function is `NaN`, the returned result
is `NaN`.n * n * @throws NoSuchElementException if the collection is empty.\n
*/n\n@SinceKotlin("1.4")n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)n@OverloadResolution
ByLambdaReturnTypen@kotlin.internal.InlineOnlynpublic inline fun <T> Iterable<T>.minOf(selector: (T) ->
Float): Float {n  val iterator = iterator()n  if (!iterator.hasNext()) throw NoSuchElementException()n  var
minValue = selector(iterator.next())n  while (iterator.hasNext()) {n  val v = selector(iterator.next())n
minValue = minOf(minValue, v)\n  }n  return minValue\n}\n\n/**n * Returns the smallest value among all
values produced by
[selector] function\n * applied to each element in the collection.n * n * @throws NoSuchElementException if the
collection is empty.\n

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```

min() Returns the smallest element or `null` if there are no elements.
If any of elements is `NaN` returns `NaN`.
@SinceKotlin("1.4")
public fun Iterable<Float>.minOrNull(): Float? {
    val iterator = iterator()
    if (!iterator.hasNext()) return null
    var min = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        min = minOf(min, e)
    }
    return min
}

min() Returns the smallest element or `null` if there are no elements.
@SinceKotlin("1.4")
public fun <T : Comparable<T>>
Iterable<T>.minOrNull(): T? {
    val iterator = iterator()
    if (!iterator.hasNext()) return null
    var min =
iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        if (min > e) min = e
    }
    return
min
}

min() Returns the first element having the smallest value according to the provided [comparator].
@throws NoSuchElementException if the collection is
empty.
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minWithOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public fun <T> Iterable<T>.minWith(comparator: Comparator<in T>): T {
    val iterator = iterator()
    if (!iterator.hasNext()) throw NoSuchElementException()
    var min = iterator.next()
    while
(iterator.hasNext()) {
        val e = iterator.next()
        if (comparator.compare(min, e) > 0) min = e
    }
    return
min
}

min() Returns the first element having the smallest value according to the provided [comparator] or
`null` if there are no elements.
@SinceKotlin("1.4")
public fun <T>
Iterable<T>.minWithOrNull(comparator: Comparator<in T>): T? {
    val iterator = iterator()
    if
(!iterator.hasNext()) return null
    var min = iterator.next()
    while (iterator.hasNext()) {
        val e =
iterator.next()
        if (comparator.compare(min, e) > 0) min = e
    }
    return min
}

min() Returns `true` if
the collection has no
elements.
@sample samples.collections.Collections.Aggregates.none
public fun <T>
Iterable<T>.none(): Boolean {
    if (this is Collection) return isEmpty()
    return iterator().hasNext()
}

min() Returns `true` if no elements match the given [predicate].
@sample
samples.collections.Collections.Aggregates.noneWithPredicate
public inline fun <T>
Iterable<T>.none(predicate: (T) -> Boolean): Boolean {
    if (this is Collection && isEmpty()) return true
    for
(element in this) if (predicate(element)) return false
    return true
}

min() Performs the given [action] on each
element and returns the collection itself afterwards.
@SinceKotlin("1.1")
public inline fun <T, C :
Iterable<T>> C.onEach(action: (T) -> Unit): C {
    return apply { for (element in this) action(element)
}
}

min() Performs the given [action] on each element, providing sequential index with the element,
and
returns the collection itself afterwards.
@param [action] function that takes the index of an element and the element itself
and performs the action on
the element.
@SinceKotlin("1.4")
public inline fun <T, C : Iterable<T>> C.onEachIndexed(action: (index:
Int, T) -> Unit): C {
    return apply { forEachIndexed(action) }
}

min() Accumulates value starting with the
first element and applying [operation] from left to right
to current accumulator value and each element.
Throws an exception if this collection is empty. If the collection can be empty in an expected way,
please use
[reduceOrNull] instead. It returns `null` when its receiver is empty.
@param [operation] function that takes
current accumulator value and an element,
and calculates the next accumulator value.
@sample
samples.collections.Collections.Aggregates.reduce
public inline fun <S, T : S> Iterable<T>.reduce(operation:
(acc: S, T) -> S): S {
    val iterator = this.iterator()
    if (!iterator.hasNext())
throw UnsupportedOperationException("Empty collection can't be reduced.")
    var accumulator: S =
iterator.next()
    while (iterator.hasNext()) {
        accumulator = operation(accumulator, iterator.next())
    }
    return accumulator
}

min() Accumulates value starting with the first element and applying [operation] from
left to right
to current accumulator value and each element with its index in the original collection.
Throws an exception if this collection is empty. If the collection can be empty in an expected way,
please use
[reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.
@param [operation] function
that takes the index of an element, current accumulator value and the element itself,
and calculates the next
accumulator value.
@sample samples.collections.Collections.Aggregates.reduce
public inline fun <S,
T : S> Iterable<T>.reduceIndexed(operation: (index: Int, acc: S, T) -> S): S {

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    val iterator = this.iterator()\n    if (!iterator.hasNext()) throw UnsupportedOperationException("Empty collection
can't be reduced.")\n    var index = 1\n    var accumulator: S = iterator.next()\n    while (iterator.hasNext()) {\n
accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original collection.\n * \n * Returns
`null` if the collection is empty.\n * \n * @param [operation] function that takes the index of an element, current
accumulator value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n *\n@SinceKotlin("1.4")\npublic inline fun <S, T : S>
Iterable<T>.reduceIndexedOrNull(operation: (index: Int, acc: S, T) -> S): S? {\n    val iterator
= this.iterator()\n    if (!iterator.hasNext()) return null\n    var index = 1\n    var accumulator: S = iterator.next()\n
while (iterator.hasNext()) {\n        accumulator = operation(checkIndexOverflow(index++), accumulator,
iterator.next())\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and
applying [operation] from left to right\n * to current accumulator value and each element.\n * \n * Returns `null` if
the collection is empty.\n * \n * @param [operation] function that takes current accumulator value and an element,\n
* and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S>
Iterable<T>.reduceOrNull(operation: (acc: S, T) -> S): S? {\n    val iterator = this.iterator()\n    if
(!iterator.hasNext()) return null\n    var accumulator: S = iterator.next()\n    while
(iterator.hasNext()) {\n        accumulator = operation(accumulator, iterator.next())\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Throws an exception if this list is empty. If the list
can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its receiver is
empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n * and calculates
the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRight\n *\npublic
inline fun <S, T : S> List<T>.reduceRight(operation: (T, acc: S) -> S): S {\n    val iterator = listIterator(size)\n
if (!iterator.hasPrevious())\n        throw UnsupportedOperationException("Empty list can't be reduced.")\n    var
accumulator: S = iterator.previous()\n    while (iterator.hasPrevious()) {\n
        accumulator = operation(iterator.previous(), accumulator)\n    }\n    return accumulator\n}\n\n/**\n *
Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with
its index in the original list and current accumulator value.\n * \n * Throws an exception if this list is empty. If the
list can be empty in an expected way,\n * please use [reduceRightIndexedOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and
current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n *\npublic inline fun <S, T : S>
List<T>.reduceRightIndexed(operation: (index: Int, T, acc: S) -> S): S {\n    val iterator = listIterator(size)\n
if (!iterator.hasPrevious())\n        throw UnsupportedOperationException("Empty list can't be reduced.")\n    var
accumulator:\n
        S = iterator.previous()\n    while (iterator.hasPrevious()) {\n        val index = iterator.previousIndex()\n
accumulator = operation(index, iterator.previous(), accumulator)\n    }\n    return accumulator\n}\n\n/**\n *
Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with
its index in the original list and current accumulator value.\n * \n * Returns `null` if the list is empty.\n * \n *
@param [operation] function that takes the index of an element, the element itself and current accumulator value,\n
* and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n *\n@SinceKotlin("1.4")\npublic inline fun <S,
T : S> List<T>.reduceRightIndexedOrNull(operation: (index: Int, T, acc: S) -> S): S? {\n    val iterator =
listIterator(size)\n    if (!iterator.hasPrevious())\n        return null\n    var accumulator: S = iterator.previous()\n
while

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(iterator.hasPrevious()) {\n    val index = iterator.previousIndex()\n    accumulator = operation(index,
iterator.previous(), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the last
element and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n *
Returns `null` if the list is empty.\n * \n * @param [operation] function that takes an element and current
accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S>
List<T>.reduceRightOrNull(operation: (T, acc: S) -> S): S? {\n    val iterator = listIterator(size)\n    if
(!iterator.hasPrevious())\n        return null\n    var accumulator: S = iterator.previous()\n    while
(iterator.hasPrevious()) {\n        accumulator = operation(iterator.previous(), accumulator)\n
    }\n    return accumulator\n}\n\n/**\n * Returns a list containing successive accumulation values generated by
applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial]
value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value
and an element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\npublic inline fun <T, R>
Iterable<T>.runningFold(initial: R, operation: (acc: R, T) -> R): List<R> {\n    val estimatedSize =
collectionSizeOrDefault(9)\n    if (estimatedSize == 0) return listOf(initial)\n    val result =
ArrayList<R>(estimatedSize + 1).apply { add(initial) }\n    var accumulator = initial\n    for (element in this) {\n
accumulator = operation(accumulator,
element)\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive
accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original
collection and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to
[operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n *
@param [operation] function that takes the index of an element, current accumulator value\n * and the element
itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningFold\n
*\n@SinceKotlin("1.4")\npublic inline fun <T, R>
Iterable<T>.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): List<R> {\n    val estimatedSize
= collectionSizeOrDefault(9)\n    if (estimatedSize == 0) return listOf(initial)\n    val result =
ArrayList<R>(estimatedSize
+ 1).apply { add(initial) }\n    var index = 0\n    var accumulator = initial\n    for (element in this) {\n
accumulator = operation(index++, accumulator, element)\n        result.add(accumulator)\n    }\n    return
result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from
left to right\n * to each element and current accumulator value that starts with the first element of this collection.\n *
\n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the
previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and the
element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S>
Iterable<T>.runningReduce(operation: (acc: S, T)
-> S): List<S> {\n    val iterator = this.iterator()\n    if (!iterator.hasNext()) return emptyList()\n    var accumulator:
S = iterator.next()\n    val result = ArrayList<S>(collectionSizeOrDefault(10)).apply { add(accumulator) }\n    while
(iterator.hasNext()) {\n        accumulator = operation(accumulator, iterator.next())\n        result.add(accumulator)\n
    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element, its index in the original collection and current accumulator value
that starts with the first element of this collection.\n * \n * Note that `acc` value passed to [operation] function
should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation]
function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the

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next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*/\n@SinceKotlin("1.4")\npublic inline fun <S, T : S> Iterable<T>.runningReduceIndexed(operation: (index: Int,\n
acc: S, T) -> S): List<S> {\n    val iterator = this.iterator()\n    if (!iterator.hasNext()) return emptyList()\n    var\n
accumulator: S = iterator.next()\n    val result = ArrayList<S>(collectionSizeOrDefault(10)).apply {\n
add(accumulator) }\n    var index = 1\n    while (iterator.hasNext()) {\n        accumulator = operation(index++,\n
accumulator, iterator.next())\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list\n
containing successive accumulation values generated by applying [operation] from left to right\n * to each element\n
and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation]\n
function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param\n
[operation] function that takes\n
current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample\n
samples.collections.Collections.Aggregates.scan\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <T, R>\n
Iterable<T>.scan(initial: R, operation: (acc: R, T) -> R): List<R> {\n    return runningFold(initial,\n
operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation]\n
from left to right\n * to each element, its index in the original collection and current accumulator value that starts\n
with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * \n *\n
otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the\n
index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator\n
value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <T, R>\n
Iterable<T>.scanIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): List<R> {\n    return\n
runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function\n
applied to each element in the collection.\n * \n * @Deprecated("Use sumOf instead.")\n
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun <T>\n
Iterable<T>.sumBy(selector: (T) -> Int): Int {\n    var sum: Int = 0\n    for (element in this) {\n        sum +=\n
selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function\n
applied to each element in the collection.\n * \n * @Deprecated("Use sumOf instead.")\n
ReplaceWith("this.sumOf(selector)")\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun <T>\n
Iterable<T>.sumByDouble(selector: (T) -> Double): Double {\n\n
    var sum: Double = 0.0\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n
 * Returns the sum of all values produced by [selector] function applied to each element in the collection.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\n
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfDouble")\n@kotlin.internal.InlineOnly\npublic inline fun\n
<T> Iterable<T>.sumOf(selector: (T) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in\n
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by\n
[selector] function applied to each element in the collection.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\n
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun <T>\n
Iterable<T>.sumOf(selector: (T) -> Int):\n
Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return\n
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the\n
collection.\n
*/\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\n
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun\n
<T> Iterable<T>.sumOf(selector: (T) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n\n
sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector]\n
function applied to each element in the collection.\n
*/\n

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*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType
s::class)\n@kotlin.internal.InlineOnly\npublic inline
fun <T> Iterable<T>.sumOf(selector: (T) -> UInt): UInt {
    var sum: UInt = 0.toUInt()
    for (element in this)
        sum += selector(element)
    return sum
}
\n\n/**
 * Returns the sum of all values produced by
 [selector] function applied to each element in the collection.
 */
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTy
pes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.sumOf(selector: (T) -> ULong): ULong
{
    var sum: ULong = 0.toULong()
    for (element in this)
        sum += selector(element)
    return
sum
}
\n\n/**
 * Returns an original collection containing all the non-`null` elements, throwing an
 [IllegalArgumentException] if there are any `null` elements.
 */
\npublic fun <T : Any>
Iterable<T?>.requireNotNulls(): Iterable<T> {
    for (element in this)
        if (element == null)
            throw IllegalArgumentException("null element found in $this.")
    return this as Iterable<T>
}
\n\n/**
 * Returns an original
 collection containing all the non-`null` elements, throwing an [IllegalArgumentException] if there are any `null`
 elements.
 */
\npublic fun <T : Any> List<T?>.requireNotNulls(): List<T> {
    for (element in this)
        if
(element == null)
            throw IllegalArgumentException("null element found in $this.")
    return this as List<T>
}
\n\n/**
 * Splits this collection into a list of
 lists each not exceeding the given [size].
 * The last list in the resulting list may have fewer elements than the
 given [size].
 * @param size the number of elements to take in each list, must be positive and can be greater
 than the number of elements in this collection.
 */
\n * @sample
samples.collections.Collections.Transformations.chunked
*\n@SinceKotlin("1.2")\npublic fun <T> Iterable<T>.chunked(size: Int): List<List<T>> {
    return
windowed(size, size, partialWindows = true)
}
\n\n/**
 * Splits this collection into several lists each not exceeding
 the given [size] and applies the given [transform] function to an each.
 * @return list of results of the
 [transform] applied to an each list.
 * Note that the list passed to the [transform] function is ephemeral and is
 valid only inside that function.
 * You should not store it or allow it to escape in some way, unless you made a
 snapshot of it.
 * The last list may have fewer elements than the given [size].
 * @param size the number of
 elements to take in each list, must be positive and can be greater than the number of elements in this collection.
 */
\n * @sample
samples.text.Strings.chunkedTransform
*\n@SinceKotlin("1.2")\npublic fun <T, R>
Iterable<T>.chunked(size: Int, transform: (List<T>)
-> R): List<R> {
    return windowed(size, size, partialWindows = true, transform = transform)
}
\n\n/**
 * Returns a list containing all elements of the original collection without the first occurrence of the given [element].
 */
*\npublic operator fun <T> Iterable<T>.minus(element: T): List<T> {
    val result =
ArrayList<T>(collectionSizeOrDefault(10))
    var removed = false
    return this.filterTo(result) {
        if (!removed
&& it == element)
            removed = true;
        false
    } else true
}
\n\n/**
 * Returns a list containing all elements of the
 original collection except the elements contained in the given [elements] array.
 * Before Kotlin 1.6, the
 [elements] array may have been converted to a [HashSet] to speed up the operation, thus the elements were required
 to have
 * a correct and stable implementation of `hashCode()` that didn't change between successive
 invocations.
 * On JVM, you can enable this behavior back with the system property
 `kotlin.collections.convert_arg_to_set_in_removeAll`
 */
\npublic operator fun <T> Iterable<T>.minus(elements: Array<out T>): List<T> {
    if
(elements.isEmpty())
        return this.toList()
    val other = elements.convertToSetForSetOperation()
    return
this.filterNot { it in other
}
}
\n\n/**
 * Returns a list containing all elements of the original collection except the
 elements contained in the given [elements] collection.
 * Before Kotlin 1.6, the [elements] collection may have
 been converted to a [HashSet] to speed up the operation, thus the elements were required to have
 * a correct and
 stable implementation of `hashCode()` that didn't change between successive invocations.
 * On JVM, you can

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enable this behavior back with the system property `kotlin.collections.convert\_arg\_to\_set\_in\_removeAll` set to `true`.

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*\npublic operator fun <T> Iterable<T>.minus(elements: Iterable<T>): List<T> {\n    val other = elements.convertToSetForSetOperationWith(this)\n    if (other.isEmpty())\n        return this.toList()\n    return this.filterNot { it in other }\n}\n\n/**\n * Returns a list containing all elements of the original collection except the elements contained in the given [elements] sequence.\n * \n * Before Kotlin 1.6, the [elements] sequence may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.

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*\npublic operator fun <T> Iterable<T>.minus(elements: Sequence<T>): List<T> {\n    val other = elements.convertToSetForSetOperation()\n    if (other.isEmpty())\n        return this.toList()\n    return this.filterNot { it in other }\n}\n\n/**\n * Returns a list containing all elements of the original collection without the first occurrence of the given [element].\n *\n * @kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.minusElement(element: T): List<T> {\n    return minus(element)\n}\n\n/**\n * Splits the original collection into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n * while *second* list contains elements for which [predicate] yielded `false`.\n * \n * @sample samples.collections.Iterables.Operations.partition\n *\npublic inline fun <T> Iterable<T>.partition(predicate: (T) -> Boolean): Pair<List<T>, List<T>> {\n    val first = ArrayList<T>()\n    val second = ArrayList<T>()\n    for (element in this) {\n        if (predicate(element)) {\n            first.add(element)\n        } else {\n            second.add(element)\n        }\n    }\n    return Pair(first, second)\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n *\npublic operator fun <T> Iterable<T>.plus(element: T): List<T> {\n    if (this is Collection) return this.plus(element)\n\n    val result = ArrayList<T>()\n    result.addAll(this)\n    result.add(element)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n *\npublic operator fun <T> Collection<T>.plus(element: T): List<T> {\n    val result = ArrayList<T>(size + 1)\n    result.addAll(this)\n    result.add(element)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] array.\n *\npublic operator fun <T> Iterable<T>.plus(elements: Array<out T>): List<T> {\n    if (this is Collection) return this.plus(elements)\n\n    val result = ArrayList<T>()\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] array.\n *\npublic operator fun <T> Collection<T>.plus(elements: Array<out T>): List<T> {\n    val result = ArrayList<T>(this.size + elements.size)\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] collection.\n *\npublic operator fun <T> Iterable<T>.plus(elements: Iterable<T>): List<T> {\n    if (this is Collection) return this.plus(elements)\n\n    val result = ArrayList<T>()\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] collection.\n *\npublic operator fun <T> Collection<T>.plus(elements: Iterable<T>): List<T> {\n    if (elements is Collection) {\n        val result = ArrayList<T>(this.size + elements.size)\n        result.addAll(this)\n        result.addAll(elements)\n        return result\n    } else {\n        val result = ArrayList<T>(this)\n        result.addAll(elements)\n        return result\n    }\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] sequence.\n *\npublic operator fun <T> Iterable<T>.plus(elements: Sequence<T>): List<T> {\n    val result = ArrayList<T>()\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then all elements of the given [elements] sequence.\n *\npublic operator fun <T> Collection<T>.plus(elements: Sequence<T>): List<T> {\n    val result = ArrayList<T>(this.size + 10)\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n * Returns a list containing all elements of the original collection and then the given [element].\n *\n * @kotlin.internal.InlineOnly\npublic inline fun <T> Iterable<T>.plusElement(element: T): List<T> {\n    return

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plus(element)\n}\n\n/**\n * Returns a list containing all elements of the original
collection and then the given [element].\n *^\n@kotlin.internal.InlineOnly\npublic inline fun <T>
Collection<T>.plusElement(element: T): List<T> {\n    return plus(element)\n}\n\n/**\n * Returns a list of
snapshots of the window of the given [size]\n * sliding along this collection with the given [step], where each\n *
snapshot is a list.\n * \n * Several last lists may have fewer elements than the given [size].\n * \n * Both [size] and
[step] must be positive and can be greater than the number of elements in this collection.\n * @param size the
number of elements to take in each window\n * @param step the number of elements to move the window forward
by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial windows in the
end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample
samples.collections.Sequences.Transformations.takeWindows\n *^\n@SinceKotlin("1.2")\npublic fun <T>
Iterable<T>.windowed(size:
Int, step: Int = 1, partialWindows: Boolean = false): List<List<T>> {\n    checkWindowSizeStep(size, step)\n    if
(this is RandomAccess && this is List) {\n        val thisSize = this.size\n        val resultCapacity = thisSize / step + if
(thisSize % step == 0) 0 else 1\n        val result = ArrayList<List<T>>(resultCapacity)\n        var index = 0\n        while (index in 0 until thisSize) {\n            val windowSize = size.coerceAtMost(thisSize - index)\n            if
(windowSize < size && !partialWindows) break\n            result.add(List(windowSize) { this[it + index] })\n            index += step\n        }\n        return result\n    }\n    val result = ArrayList<List<T>>()\n    windowedIterator(iterator(), size, step, partialWindows, reuseBuffer = false).forEach {\n        result.add(it)\n    }\n    return result\n}\n\n/**\n * Returns a list of results of applying the given [transform] function to\n * an each list
representing a view over the window of the given [size]\n * sliding along this collection with the given [step].\n * \n * Note that the list passed to the [transform] function is
ephemeral and is valid only inside that function.\n * You should not store it or allow it to escape in some way,
unless you made a snapshot of it.\n * Several last lists may have fewer elements than the given [size].\n * \n * Both
[size] and [step] must be positive and can be greater than the number of elements in this collection.\n * @param size
the number of elements to take in each window\n * @param step the number of elements to move the window
forward by on an each step, by default 1\n * @param partialWindows controls whether or not to keep partial
windows in the end if any,\n * by default `false` which means partial windows won't be preserved\n * \n * @sample
samples.collections.Sequences.Transformations.averageWindows\n *^\n@SinceKotlin("1.2")\npublic fun <T, R>
Iterable<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (List<T>)
-> R): List<R> {\n    checkWindowSizeStep(size, step)\n    if (this is RandomAccess && this is List) {\n        val
thisSize = this.size\n        val resultCapacity = thisSize / step + if (thisSize % step == 0) 0 else 1\n        val result =
ArrayList<R>(resultCapacity)\n        val window = MovingSubList(this)\n        var index = 0\n        while (index in 0
until thisSize) {\n            val windowSize = size.coerceAtMost(thisSize - index)\n            if (!partialWindows &&
windowSize < size) break\n            window.move(index, index + windowSize)\n            result.add(transform(window))\n            index += step\n        }\n        return result\n    }\n    val result =
ArrayList<R>()\n    windowedIterator(iterator(), size, step, partialWindows, reuseBuffer = true).forEach {\n        result.add(transform(it))\n    }\n    return result\n}\n\n/**\n * Returns a list of pairs built from the elements of `this`
collection and the [other] array with the same index.\n * The returned
list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n *^\npublic infix fun <T, R> Iterable<T>.zip(other: Array<out R>): List<Pair<T, R>> {\n    return zip(other) { t1, t2 -
> t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` collection and the [other] array
with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned
list has length of the shortest collection.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n *^\npublic inline fun <T, R, V>
Iterable<T>.zip(other: Array<out R>, transform: (a: T, b: R) -> V): List<V> {\n    val arraySize = other.size\n    val
list = ArrayList<V>(minOf(collectionSizeOrDefault(10), arraySize))\n    var i = 0\n    for (element in this) {\n        if
(i >= arraySize) break\n        list.add(transform(element, other[i++]))\n    }\n    return list\n}\n\n/**\n * Returns a list

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of pairs built from the elements of `this` collection and [other] collection with the same index.\n * The returned list
has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\npublic infix fun <T, R> Iterable<T>.zip(other: Iterable<R>): List<Pair<T, R>> {\n    return zip(other) { t1, t2 ->
t1 to t2 }\n}\n\n/**\n * Returns a list of values built from the elements of `this` collection and the [other] collection
with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned
list has length of the shortest collection.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n *\npublic inline fun <T, R, V>
Iterable<T>.zip(other: Iterable<R>, transform: (a: T, b: R) -> V): List<V> {\n    val first = iterator()\n    val second
= other.iterator()\n    val list = ArrayList<V>(minOf(collectionSizeOrDefault(10),
other.collectionSizeOrDefault(10)))\n    while
(first.hasNext() && second.hasNext()) {\n        list.add(transform(first.next(), second.next()))\n    }\n    return
list\n}\n\n/**\n * Returns a list of pairs of each two adjacent elements in this collection.\n * \n * The returned list is
empty if this collection contains less than two elements.\n * \n * @sample
samples.collections.Collections.Transformations.zipWithNext\n *\n@SinceKotlin("1.2")\npublic fun <T>
Iterable<T>.zipWithNext(): List<Pair<T, T>> {\n    return zipWithNext { a, b -> a to b }\n}\n\n/**\n * Returns a list
containing the results of applying the given [transform] function\n * to an each pair of two adjacent elements in this
collection.\n * \n * The returned list is empty if this collection contains less than two elements.\n * \n * @sample
samples.collections.Collections.Transformations.zipWithNextToFindDeltas\n *\n@SinceKotlin("1.2")\npublic
inline fun <T, R> Iterable<T>.zipWithNext(transform: (a: T, b: T) -> R): List<R> {\n    val iterator = iterator()\n
    if (!iterator.hasNext()) return emptyList()\n    val result = mutableListOf<R>()\n    var current = iterator.next()\n
    while (iterator.hasNext()) {\n        val next = iterator.next()\n        result.add(transform(current, next))\n
        current = next\n    }\n    return result\n}\n\n/**\n * Appends the string from all the elements separated using [separator] and
using the given [prefix] and [postfix] if supplied.\n * \n * If the collection could be huge, you can specify a non-
negative value of [limit], in which case only the first [limit]\n * elements will be appended, followed by the
[truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinTo\n *\npublic fun <T, A : Appendable>
Iterable<T>.joinTo(buffer: A, separator: CharSequence = '\n', prefix: CharSequence = "\n", postfix: CharSequence
= "\n", limit: Int = -1, truncated: CharSequence = "...", transform: ((T) -> CharSequence)? = null): A {\n
    buffer.append(prefix)\n
    var count = 0\n    for (element in this) {\n        if (++count > 1) buffer.append(separator)\n        if (limit < 0 || count
<= limit) {\n            buffer.appendElement(element, transform)\n        } else break\n    }\n    if (limit >= 0 && count
> limit) buffer.append(truncated)\n    buffer.append(postfix)\n    return buffer\n}\n\n/**\n * Creates a string from all
the elements separated using [separator] and using the given [prefix] and [postfix] if supplied.\n * \n * If the
collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit]\n *
elements will be appended, followed by the [truncated] string (which defaults to "...").\n * \n * @sample
samples.collections.Collections.Transformations.joinToString\n *\npublic fun <T>
Iterable<T>.joinToString(separator: CharSequence = '\n', prefix: CharSequence = "\n", postfix: CharSequence =
"\n", limit: Int = -1, truncated: CharSequence = "...", transform: ((T) -> CharSequence)?
= null): String {\n    return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated,
transform).toString()\n}\n\n/**\n * Returns this collection as an [Iterable].\n *\n@kotlin.internal.InlineOnly\npublic
inline fun <T> Iterable<T>.asIterable(): Iterable<T> {\n    return this\n}\n\n/**\n * Creates a [Sequence] instance
that wraps the original collection returning its elements when being iterated.\n * \n * @sample
samples.collections.Sequences.Building.sequenceFromCollection\n *\npublic fun <T> Iterable<T>.asSequence():
Sequence<T> {\n    return Sequence { this.iterator() }\n}\n\n/**\n * Returns an average value of elements in the
collection.\n *\n@kotlin.jvm.JvmName("averageOfByte")\npublic fun Iterable<Byte>.average(): Double {\n    var
sum: Double = 0.0\n    var count: Int = 0\n    for (element in this) {\n        sum += element\n
        checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns
an average value

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of elements in the collection.\n *\n@kotlin.jvm.JvmName("averageOfShort")\npublic fun
Iterable<Short>.average(): Double {\n    var sum: Double = 0.0\n    var count: Int = 0\n    for (element in this) {\n
sum += element\n        checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum /
count\n}\n\n/**\n * Returns an average value of elements in the collection.\n
*\n@kotlin.jvm.JvmName("averageOfInt")\npublic fun Iterable<Int>.average(): Double {\n    var sum: Double =
0.0\n    var count: Int = 0\n    for (element in this) {\n        sum += element\n        checkCountOverflow(++count)\n
}\n    return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in the
collection.\n *\n@kotlin.jvm.JvmName("averageOfLong")\npublic fun Iterable<Long>.average(): Double {\n
var sum: Double = 0.0\n    var count: Int = 0\n    for (element in this) {\n        sum += element\n
checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns an average value of elements in
the collection.\n *\n@kotlin.jvm.JvmName("averageOfFloat")\npublic fun Iterable<Float>.average(): Double {\n
var sum: Double = 0.0\n    var count: Int = 0\n    for (element in this) {\n        sum += element\n
checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns
an average value of elements in the collection.\n *\n@kotlin.jvm.JvmName("averageOfDouble")\npublic fun
Iterable<Double>.average(): Double {\n    var sum: Double = 0.0\n    var count: Int = 0\n    for (element in this) {\n
sum += element\n        checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum /
count\n}\n\n/**\n * Returns the sum of all elements in the collection.\n
*\n@kotlin.jvm.JvmName("sumOfByte")\npublic fun Iterable<Byte>.sum(): Int {\n    var sum: Int = 0\n    for
(element in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n
*\n@kotlin.jvm.JvmName("sumOfShort")\npublic fun Iterable<Short>.sum(): Int {\n    var sum: Int = 0\n    for
(element in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the
collection.\n *\n@kotlin.jvm.JvmName("sumOfInt")\npublic fun Iterable<Int>.sum(): Int {\n    var sum: Int = 0\n
for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in
the collection.\n *\n@kotlin.jvm.JvmName("sumOfLong")\npublic fun Iterable<Long>.sum(): Long {\n    var
sum: Long = 0L\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the
sum of all elements in the collection.\n *\n@kotlin.jvm.JvmName("sumOfFloat")\npublic fun
Iterable<Float>.sum(): Float {\n    var sum: Float = 0.0f\n    for (element in this) {\n        sum +=
element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the collection.\n
*\n@kotlin.jvm.JvmName("sumOfDouble")\npublic fun Iterable<Double>.sum(): Double {\n    var sum: Double
= 0.0\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n"/\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n@n\npackage kotlin.collections\n\nimport
kotlin.comparisons.naturalOrder\nimport kotlin.random.Random\nimport kotlin.js.arrayBufferIsView\n\n/**\n *
Returns the array if it's not `null`, or an empty array otherwise.\n * @sample
samples.collections.Arrays.Usage.arrayOrEmpty\n *\n@kotlin.internal.InlineOnly\npublic actual inline fun <T>
Array<out T>?.orEmpty(): Array<out T> = this ?: emptyArray<T>()\n\n/**\n * Returns a *typed* array containing
all of the elements of this collection.\n *\n * Allocates an array of runtime type `T` having its size equal to the size of this collection\n * and populates the
array with the elements of this collection.\n * @sample
samples.collections.Collections.Collections.collectionToTypedArray\n *\n@kotlin.internal.InlineOnly\npublic
actual inline fun <T> Collection<T>.toTypedArray(): Array<T> =
copyToArray(this)\n\n@JsName("copyToArray")\n@PublishedApi\ninternal fun <T> copyToArray(collection:
Collection<T>): Array<T> {\n    return if (collection.asDynamic().toArray !== undefined)\n
collection.asDynamic().toArray().unsafeCast<Array<T>>()\n    else\n
copyToArrayImpl(collection).unsafeCast<Array<T>>()\n}\n\n@JsName("copyToArrayImpl")\ninternal actual fun
copyToArrayImpl(collection: Collection<*>): Array<Any?> {\n    val array = emptyArray<Any?>()\n    val iterator

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= collection.iterator()\n while (iterator.hasNext())\n     array.asDynamic().push(iterator.next())\n return
array\n}\n\n@JsName("copyToExistingArrayImpl")\ninternal
actual fun <T> copyToArrayImpl(collection: Collection<*>, array: Array<T>): Array<T> {\n if (array.size <
collection.size)\n     return copyToArrayImpl(collection).unsafeCast<Array<T>>()\n\n val iterator =
collection.iterator()\n var index = 0\n while (iterator.hasNext()) {\n     array[index++] =
iterator.next().unsafeCast<T>()\n }\n if (index < array.size) {\n     array[index] = null.unsafeCast<T>()\n }\n
return array\n}\n\n/**\n * Returns an immutable list containing only the specified object [element].\n */\npublic
fun <T> listOf(element: T): List<T> =
arrayListOf(element)\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninternal actual
inline fun <E> buildListInternal(builderAction: MutableList<E>().->Unit): List<E> {\n return
ArrayList<E>().apply(builderAction).build()\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.Inlin
eOnly\ninternal actual inline fun <E> buildListInternal(capacity: Int,
builderAction: MutableList<E>().->Unit): List<E> {\n checkBuilderCapacity(capacity)\n return
ArrayList<E>(capacity).apply(builderAction).build()\n}\n\n/**\n * Returns an immutable set containing only the
specified object [element].\n */\npublic fun <T> setOf(element: T): Set<T> =
hashSetOf(element)\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninternal actual inline
fun <E> buildSetInternal(builderAction: MutableSet<E>().->Unit): Set<E> {\n return
LinkedHashSet<E>().apply(builderAction).build()\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.
InlineOnly\ninternal actual inline fun <E> buildSetInternal(capacity: Int, builderAction: MutableSet<E>().->Unit):
Set<E> {\n return LinkedHashSet<E>(capacity).apply(builderAction).build()\n}\n\n/**\n * Returns an
immutable map, mapping only the specified key to the\n * specified value.\n */\npublic fun <K, V> mapOf(pair:
Pair<K, V>): Map<K, V> =
hashMapOf(pair)\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninternal
actual inline fun <K, V> buildMapInternal(builderAction: MutableMap<K, V>().->Unit): Map<K, V> {\n return
LinkedHashMap<K,
V>().apply(builderAction).build()\n}\n\n@PublishedApi\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\ninte
rnal actual inline fun <K, V> buildMapInternal(capacity: Int, builderAction: MutableMap<K, V>().->Unit):
Map<K, V> {\n return LinkedHashMap<K, V>(capacity).apply(builderAction).build()\n}\n\n/**\n * Fills the
list with the provided [value].\n */\npublic fun <T> MutableList<T>.fill(value: T): Unit {\n for (index in
0..lastIndex) {\n     this[index] = value\n }\n}\n\n/**\n * Randomly shuffles elements in this list.\n */\npublic
fun <T> MutableList<T>.shuffle(): Unit = shuffle(Random)\n\n/**\n * Returns a new list with the elements of this
list randomly shuffled.\n */\npublic fun <T> Iterable<T>.shuffled(): List<T> = toMutableList().apply {
shuffle() }\n\n/**\n * Sorts elements in the list in-place according to their natural sort order.\n */\npublic
fun <T> MutableList<T>.sort(): Unit = sort()\n\n/**\n * Sorts elements in the list in-place according to the
order specified with [comparator].\n */\npublic fun <T> MutableList<T>.sortWith(comparator: Comparator<in T>):
Unit = sortWith(comparator)\n\n/**\n * Sorts elements in the list in-place according to the order specified
with [comparator].\n */\npublic fun <T> MutableList<T>.sortWith(comparator: Comparator<in T>): Unit {\n
collectionsSort(this,
comparator)\n}\n\nprivate fun <T> collectionsSort(list: MutableList<T>, comparator: Comparator<in T>) {\n if
(list.size <= 1) return\n\n val array = copyToArray(list)\n sortArrayWith(array, comparator)\n\n for (i in 0
until array.size) {\n     list[i] = array[i]\n }\n}\n\ninternal actual fun <T> arrayOfNulls(reference: Array<T>,
size: Int):
Array<T> {\n return
arrayOfNulls<Any>(size).unsafeCast<Array<T>>()\n}\n\n@SinceKotlin("1.3")\n@PublishedApi\n@JsName("arr
ayCopy")\ninternal fun <T> arrayCopy(source: Array<out T>, destination: Array<in T>, destinationOffset: Int,

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startIndex: Int, endIndex: Int) {\n  AbstractList.checkRangeIndexes(startIndex, endIndex, source.size)\n  val
rangeSize = endIndex - startIndex\n  AbstractList.checkRangeIndexes(destinationOffset, destinationOffset +
rangeSize, destination.size)\n  if (arrayBufferIsView(destination) && arrayBufferIsView(source)) {\n    val
subrange = source.asDynamic().subarray(startIndex,
endIndex)\n    destination.asDynamic().set(subrange, destinationOffset)\n  } else {\n    if (source !==
destination || destinationOffset <= startIndex) {\n      for (index in 0 until rangeSize) {\n
destination[destinationOffset + index] = source[startIndex + index]\n      }\n    } else {\n      for (index in
rangeSize - 1 downTo 0) {\n        destination[destinationOffset + index] = source[startIndex + index]\n
}\n    }\n  }\n}\n}\n}\n}\n\n// no singleton map implementation in js, return map as
is\n\n@Suppress("NOTHING_TO_INLINE")\n\ninternal actual inline fun <K, V> Map<K,
V>.toSingletonMapOrSelf(): Map<K, V> = this\n\n@Suppress("NOTHING_TO_INLINE")\n\ninternal actual inline
fun <K, V> Map<out K, V>.toSingletonMap(): Map<K, V> =
this.toMutableMap()\n\n\n@Suppress("NOTHING_TO_INLINE")\n\ninternal actual inline fun <T> Array<out
T>.copyToArrayOfAny(isVarargs: Boolean): Array<out Any?> =\n  if (isVarargs)\n  // no need
to copy vararg array in JS\n  this\n  else\n  this.copyOf()\n\n\n@PublishedApi\n\ninternal actual fun
checkIndexOverflow(index: Int): Int {\n  if (index < 0) {\n    throwIndexOverflow()\n  }\n  return
index\n}\n}\n}\n}\n\n@PublishedApi\n\ninternal actual fun checkCountOverflow(count: Int): Int {\n  if (count < 0) {\n
throwCountOverflow()\n  }\n  return count\n}\n}\n}\n}\n\n**\n\n* JS map and set implementations do not make use of
capacities or load factors.\n\n*\n\n@PublishedApi\n\ninternal actual fun mapCapacity(expectedSize: Int) =
expectedSize\n}\n}\n}\n\n**\n\n* Checks a collection builder function capacity argument.\n\n* In JS no validation is made in
Map/Set constructor yet.\n\n*\n\n@SinceKotlin("1.3")\n\n@PublishedApi\n\ninternal fun
checkBuilderCapacity(capacity: Int) {\n  require(capacity >= 0) { "capacity must be non-negative."
}\n}\n}\n}\n}\n\ninternal actual fun brittleContainsOptimizationEnabled(): Boolean = false", "/*\n\n* Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming
Language contributors.\n\n* Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n\n@file:kotlin.jvm.JvmName("CollectionsKt")\n\n\npackage
kotlin.collections\n}\n}\n}\n\n**\n\n* Returns the given iterator itself. This allows to use an instance of iterator in a `for`
loop.\n\n* @sample samples.collections.Iterators.iterator\n\n*\n\n@kotlin.internal.InlineOnly\n\npublic inline operator
fun <T> Iterator<T>.iterator(): Iterator<T> = this\n}\n}\n}\n\n**\n\n* Returns an [Iterator] that wraps each element produced
by the original iterator\n\n* into an [IndexedValue] containing the index of that element and the element itself.\n\n*\n\n* @sample samples.collections.Iterators.withIndexIterator\n\n*\n\npublic fun <T> Iterator<T>.withIndex():
Iterator<IndexedValue<T>> = IndexingIterator(this)\n}\n}\n}\n\n**\n\n* Performs the given [operation] on each element of
this [Iterator].\n\n* @sample samples.collections.Iterators.forEachIterator\n
*\n\npublic inline fun <T> Iterator<T>.forEach(operation: (T) -> Unit): Unit {\n  for (element in this)
operation(element)\n}\n}\n}\n}\n\n**\n\n* Iterator transforming original `iterator` into iterator of [IndexedValue], counting
index from zero.\n\n*\n\ninternal class IndexingIterator<out T>(private val iterator: Iterator<T>) :
Iterator<IndexedValue<T>> {\n  private var index = 0\n  final override fun hasNext(): Boolean =
iterator.hasNext()\n  final override fun next(): IndexedValue<T> = IndexedValue(checkIndexOverflow(index++),
iterator.next())\n}\n}\n}\n}\n\n", "/*\n\n* Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n\n* Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n\n@file:kotlin.jvm.JvmName("ComparisonsKt")\n\n\npackage
kotlin.comparisons\n}\n}\n}\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n}\n}\n}\n\nimport
kotlin.random.*\n}\n}\n}\n\n**\n\n* Returns the greater of two values.\n\n* \n\n* If values are equal, returns the first one.\n
*\n\n@SinceKotlin("1.1")\n\npublic expect fun <T : Comparable<T>> maxOf(a: T, b: T): T\n}\n}\n}\n\n**\n\n* Returns the
greater of two values.\n\n*\n\n@SinceKotlin("1.1")\n\n@kotlin.internal.InlineOnly\n\npublic expect inline fun maxOf(a:

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Byte, b: Byte): Byte\n\n\*\*\n \* Returns the greater of two values.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Short, b: Short): Short\n\n\*\*\n \* Returns the greater of two values.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Int, b: Int): Int\n\n\*\*\n \* Returns the greater of two values.\n \*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Long, b: Long): Long\n\n\*\*\n \* Returns the greater of two values.\n \* \n \* If either value is `NaN`, returns `NaN`.\n \*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Float, b: Float): Float\n\n\*\*\n \* Returns the greater of two values.\n \* \n \* If either value is `NaN`, returns `NaN`.\n \*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Double, b: Double): Double\n\n\*\*\n \* Returns the greater of three values.\n \* \n \* If there are multiple equal maximal values, returns the first of them.\n \*\n@SinceKotlin("1.1")\npublic expect fun <T : Comparable<T>> maxOf(a: T, b: T, c: T): T\n\n\*\*\n \* Returns the greater of three values.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Byte, b: Byte, c: Byte): Byte\n\n\*\*\n \* Returns the greater of three values.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Short, b: Short, c: Short): Short\n\n\*\*\n \* Returns the greater of three values.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Int, b: Int, c: Int): Int\n\n\*\*\n \* Returns the greater of three values.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Long, b: Long, c: Long): Long\n\n\*\*\n \* Returns the greater of three values.\n \* \n \* If any value is `NaN`, returns `NaN`.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Float, b: Float, c: Float): Float\n\n\*\*\n \* Returns the greater of three values.\n \* \n \* If any value is `NaN`, returns `NaN`.\n

\*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun maxOf(a: Double, b: Double, c: Double): Double\n\n\*\*\n \* Returns the greater of three values according to the order specified by the given [comparator].\n \* \n \* If there are multiple equal maximal values, returns the first of them.\n

\*\n@SinceKotlin("1.1")\npublic fun <T> maxOf(a: T, b: T, c: T, comparator: Comparator<in T>): T {\n return maxOf(a, maxOf(b, c, comparator), comparator)\n}\n\n\*\*\n \* Returns the greater of two values according to the order specified by the given [comparator].\n \* \n \* If values are equal, returns the first one.\n \*\n@SinceKotlin("1.1")\npublic fun <T> maxOf(a: T, b: T, comparator: Comparator<in T>): T {\n return if (comparator.compare(a, b) >= 0) a else b\n}\n\n\*\*\n \* Returns the greater of the given values.\n \* \n \* If there are multiple equal maximal values, returns the first of them.\n \*\n@SinceKotlin("1.4")\npublic expect fun <T : Comparable<T>> maxOf(a: T, vararg other: T): T\n\n\*\*\n \* Returns the greater of the given values.\n \*\n@SinceKotlin("1.4")\npublic expect fun maxOf(a: Byte, vararg other: Byte): Byte\n\n\*\*\n \* Returns the greater of the given values.\n

\*\n@SinceKotlin("1.4")\npublic expect fun maxOf(a: Short, vararg other: Short): Short\n\n\*\*\n \* Returns the greater of the given values.\n \*\n@SinceKotlin("1.4")\npublic expect fun maxOf(a: Int, vararg other: Int): Int\n\n\*\*\n \* Returns the greater of the given values.\n \*\n@SinceKotlin("1.4")\npublic expect fun maxOf(a: Long, vararg other: Long): Long\n\n\*\*\n \* Returns the greater of the given values.\n \* \n \* If any value is `NaN`, returns `NaN`.\n

\*\n@SinceKotlin("1.4")\npublic expect fun maxOf(a: Float, vararg other: Float): Float\n\n\*\*\n \* Returns the greater of the given values.\n \* \n \* If any value is `NaN`, returns `NaN`.\n \*\n@SinceKotlin("1.4")\npublic expect fun maxOf(a: Double, vararg other: Double): Double\n\n\*\*\n \* Returns the greater of the given values according to the order specified by the given [comparator].\n \* \n \* If there are multiple equal maximal values, returns the first of them.\n \*\n@SinceKotlin("1.4")\npublic fun <T> maxOf(a: T, vararg other: T, comparator: Comparator<in T>): T {\n var max = a\n for (e in other) if (comparator.compare(max, e) < 0) max = e\n return max\n}\n\n\*\*\n \* Returns the smaller of two values.\n \* \n \* If values are equal, returns the first one.\n \*\n@SinceKotlin("1.1")\npublic expect fun <T : Comparable<T>> minOf(a: T, b: T): T\n\n\*\*\n \* Returns the smaller of two values.\n \*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun

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minOf(a: Byte, b: Byte): Byte\n\n/**\n * Returns the smaller of two values.\n
*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Short, b: Short):
Short\n\n/**\n * Returns the smaller of two values.\n
*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Int, b: Int): Int\n\n/**\n
* Returns the smaller of two values.\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline
fun minOf(a: Long, b: Long): Long\n\n/**\n * Returns the smaller of two values.\n * \n * If either value is `NaN`,
returns `NaN`.\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Float,
b: Float): Float\n\n/**\n * Returns the smaller of two values.\n * \n * If
either value is `NaN`, returns `NaN`.\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect
inline fun minOf(a: Double, b: Double): Double\n\n/**\n * Returns the smaller of three values.\n * \n * If there are
multiple equal minimal values, returns the first of them.\n *\n@SinceKotlin("1.1")\n\npublic expect fun <T>
Comparable<T>> minOf(a: T, b: T, c: T): T\n\n/**\n * Returns the smaller of three values.\n
*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Byte, b: Byte, c: Byte):
Byte\n\n/**\n * Returns the smaller of three values.\n
*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Short, b: Short, c:
Short): Short\n\n/**\n * Returns the smaller of three values.\n
*\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a: Int, b: Int, c: Int):
Int\n\n/**\n * Returns the smaller of three values.\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic
expect inline fun minOf(a: Long, b: Long, c: Long): Long\n\n/**\n * Returns the smaller of three values.\n * \n * If
any value is `NaN`, returns `NaN`.\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline
fun minOf(a: Float, b: Float, c: Float): Float\n\n/**\n * Returns the smaller of three values.\n * \n * If any value is
`NaN`, returns `NaN`.\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic expect inline fun minOf(a:
Double, b: Double, c: Double): Double\n\n/**\n * Returns the smaller of three values according to the order
specified by the given [comparator].\n * \n * If there are multiple equal minimal values, returns the first of them.\n
*\n@SinceKotlin("1.1")\n\npublic fun <T> minOf(a: T, b: T, c: T, comparator: Comparator<in T>): T {\n    return
minOf(a, minOf(b, c, comparator), comparator)\n}\n\n/**\n * Returns the smaller of two values according to the
order specified by the given [comparator].\n * \n * If values are equal, returns
the first one.\n *\n@SinceKotlin("1.1")\n\npublic fun <T> minOf(a: T, b: T, comparator: Comparator<in T>): T {\n
    return if (comparator.compare(a, b) <= 0) a else b\n}\n\n/**\n * Returns the smaller of the given values.\n * \n * If
there are multiple equal minimal values, returns the first of them.\n *\n@SinceKotlin("1.4")\n\npublic expect fun <T>
Comparable<T>> minOf(a: T, vararg other: T): T\n\n/**\n * Returns the smaller of the given values.\n
*\n@SinceKotlin("1.4")\n\npublic expect fun minOf(a: Byte, vararg other: Byte): Byte\n\n/**\n * Returns the
smaller of the given values.\n *\n@SinceKotlin("1.4")\n\npublic expect fun minOf(a: Short, vararg other: Short):
Short\n\n/**\n * Returns the smaller of the given values.\n *\n@SinceKotlin("1.4")\n\npublic expect fun minOf(a:
Int, vararg other: Int): Int\n\n/**\n * Returns the smaller of the given values.\n *\n@SinceKotlin("1.4")\n\npublic
expect fun minOf(a: Long, vararg other: Long): Long\n\n/**\n * Returns the smaller of the
given values.\n * \n * If any value is `NaN`, returns `NaN`.\n *\n@SinceKotlin("1.4")\n\npublic expect fun
minOf(a: Float, vararg other: Float): Float\n\n/**\n * Returns the smaller of the given values.\n * \n * If any value is
`NaN`, returns `NaN`.\n *\n@SinceKotlin("1.4")\n\npublic expect fun minOf(a: Double, vararg other: Double):
Double\n\n/**\n * Returns the smaller of the given values according to the order specified by the given
[comparator].\n * \n * If there are multiple equal minimal values, returns the first of them.\n
*\n@SinceKotlin("1.4")\n\npublic fun <T> minOf(a: T, vararg other: T, comparator: Comparator<in T>): T {\n
    var min = a\n    for (e in other) if (comparator.compare(min, e) > 0) min = e\n    return min\n}\n\n"/**\n * Copyright
2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n@n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("MapsKt")\n\npackage
kotlin.collections\n\n/\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.random.*\nimport

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kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns the first non-null value produced by
[transform] function being applied to entries of this map in iteration order,\n * or throws
[NoSuchElementException] if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Any> Map<out K,
V>.firstNotNullOf(transform: (Map.Entry<K, V>) -> R?): R {\n    return firstNotNullOfOrNull(transform) ?: throw
NoSuchElementException("No element of the map was transformed to a non-null value.")\n}\n\n/**\n * Returns
the first non-null value produced by [transform] function being applied to entries
of this map in iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Any> Map<out K,
V>.firstNotNullOfOrNull(transform: (Map.Entry<K, V>) -> R?): R? {\n    for (element in this) {\n        val result =
transform(element)\n        if (result != null) {\n            return result\n        }\n    }\n    return null\n}\n\n/**\n *
Returns a [List] containing all key-value pairs.\n *\npublic fun <K, V> Map<out K, V>.toList(): List<Pair<K, V>>
{\n    if (size == 0)\n        return emptyList()\n    val iterator = entries.iterator()\n    if (!iterator.hasNext())\n        return emptyList()\n    val first = iterator.next()\n    if (!iterator.hasNext())\n        return listOf(first.toPair())\n    val
result = ArrayList<Pair<K, V>>(size)\n    result.add(first.toPair())\n    do {\n
result.add(iterator.next().toPair())\n
    } while (iterator.hasNext())\n    return result\n}\n\n/**\n * Returns a single list of all elements yielded from results
of [transform] function being invoked on each entry of original map.\n * \n * @sample
samples.collections.Maps.Transformations.flatMap\n *\npublic inline fun <K, V, R> Map<out K,
V>.flatMap(transform: (Map.Entry<K, V>) -> Iterable<R>): List<R> {\n    return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each entry of original map.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapSequence")\npublic inline fun <K, V, R> Map<out K,
V>.flatMap(transform: (Map.Entry<K, V>) -> Sequence<R>): List<R> {\n    return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Appends all
elements yielded from results of [transform] function being invoked on each entry of original map, to the given
[destination].\n *\npublic inline fun <K, V, R, C : MutableCollection<in R>> Map<out K,
V>.flatMapTo(destination: C, transform: (Map.Entry<K, V>) -> Iterable<R>): C {\n    for (element in this) {\n
val list = transform(element)\n        destination.addAll(list)\n    }\n    return destination\n}\n\n/**\n * Appends all
elements yielded from results of [transform] function being invoked on each entry of original map, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapSequenceTo")\npublic inline fun <K, V, R, C :
MutableCollection<in R>> Map<out K, V>.flatMapTo(destination: C, transform: (Map.Entry<K, V>) ->
Sequence<R>): C {\n    for (element in this) {\n        val list = transform(element)\n        destination.addAll(list)\n
    }\n
    return destination\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n *
to each entry in the original map.\n * \n * @sample samples.collections.Maps.Transformations.mapToList\n
*\npublic inline fun <K, V, R> Map<out K, V>.map(transform: (Map.Entry<K, V>) -> R): List<R> {\n    return
mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing only the non-null results of applying
the given [transform] function\n * to each entry in the original map.\n * \n * @sample
samples.collections.Maps.Transformations.mapNotNull\n *\npublic inline fun <K, V, R : Any> Map<out K,
V>.mapNotNull(transform: (Map.Entry<K, V>) -> R?): List<R> {\n    return mapNotNullTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Applies the given [transform] function to each entry in the original map\n * and appends
only the non-null results to the given [destination].\n *\npublic inline fun <K, V, R : Any, C : MutableCollection<in

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R>> Map<out K, V>.mapNotNullTo(destination:
  C, transform: (Map.Entry<K, V>) -> R?): C {\n  forEach { element -> transform(element)?.let {
destination.add(it) } }\n  return destination}\n\n/**\n * Applies the given [transform] function to each entry of
the original map\n * and appends the results to the given [destination].\n */\npublic inline fun <K, V, R, C :
MutableCollection<in R>> Map<out K, V>.mapTo(destination: C, transform: (Map.Entry<K, V>) -> R): C {\n  for
(item in this)\n    destination.add(transform(item))\n  return destination}\n\n/**\n * Returns `true` if all entries
match the given [predicate].\n */\n * @sample samples.collections.Collections.Aggregates.all\n */\npublic inline fun
<K, V> Map<out K, V>.all(predicate: (Map.Entry<K, V>) -> Boolean): Boolean {\n  if (isEmpty()) return true\n
for (element in this) if (!predicate(element)) return false\n  return true}\n\n/**\n * Returns `true` if map has at
least one entry.\n */\n * @sample samples.collections.Collections.Aggregates.any\n
*/\npublic fun <K, V> Map<out K, V>.any(): Boolean {\n  return !isEmpty()}\n\n/**\n * Returns `true` if at
least one entry matches the given [predicate].\n */\n * @sample
samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic inline fun <K, V> Map<out K,
V>.any(predicate: (Map.Entry<K, V>) -> Boolean): Boolean {\n  if (isEmpty()) return false\n  for (element in
this) if (predicate(element)) return true\n  return false}\n\n/**\n * Returns the number of entries in this map.\n
*/\n * @kotlin.internal.InlineOnly\n */\npublic inline fun <K, V> Map<out K, V>.count(): Int {\n  return size}\n\n/**\n
* Returns the number of entries matching the given [predicate].\n */\npublic inline fun <K, V> Map<out K,
V>.count(predicate: (Map.Entry<K, V>) -> Boolean): Int {\n  if (isEmpty()) return 0\n  var count = 0\n  for
(element in this) if (predicate(element)) ++count\n  return count}\n\n/**\n * Performs the given [action] on each
entry.\n */\n * @kotlin.internal.HidesMembers\n */\npublic
inline fun <K, V> Map<out K, V>.forEach(action: (Map.Entry<K, V>) -> Unit): Unit {\n  for (element in this)
action(element)}\n\n/**\n * Returns the first entry yielding the largest value of the given function.\n */\n *
@throws NoSuchElementException if the map is empty.\n */\n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*/\n * @SinceKotlin("1.7")\n */\n * @kotlin.jvm.JvmName("maxByOrThrow")\n */\n * @kotlin.internal.InlineOnly\n */\n *
@Suppress("CONFLICTING_OVERLOADS")\n */\npublic inline fun <K, V, R : Comparable<R>> Map<out K,
V>.maxBy(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V> {\n  return entries.maxBy(selector)}\n\n/**\n
* Returns the first entry yielding the largest value of the given function or `null` if there are no entries.\n */\n *
@sample samples.collections.Collections.Aggregates.maxByOrNull\n
*/\n * @SinceKotlin("1.4")\n */\n * @kotlin.internal.InlineOnly\n */\npublic inline fun <K, V, R : Comparable<R>> Map<out
K, V>.maxByOrNull(selector: (Map.Entry<K, V>)
-> R): Map.Entry<K, V>? {\n  return entries.maxByOrNull(selector)}\n\n/**\n * Returns the largest value
among all values produced by [selector] function\n * applied to each entry in the map.\n */\n * \n * If any of values
produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n * @throws NoSuchElementException
if the map is empty.\n
*/\n * @SinceKotlin("1.4")\n */\n * @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n */\n *
@OverloadResolutionByLambdaReturnType\n */\n * @kotlin.internal.InlineOnly\n */\npublic inline fun <K, V> Map<out K, V>.maxOf(selector:
(Map.Entry<K, V>) -> Double): Double {\n  return entries.maxOf(selector)}\n\n/**\n * Returns the largest value
among all values produced by [selector] function\n * applied to each entry in the map.\n */\n * \n * If any of values
produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n * @throws NoSuchElementException
if the map is empty.\n
*/\n * @SinceKotlin("1.4")\n */\n * @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n */\n *
@OverloadResolutionByLambdaReturnType\n */\n * @kotlin.internal.InlineOnly\n */\npublic
inline fun <K, V> Map<out K, V>.maxOf(selector: (Map.Entry<K, V>) -> Float): Float {\n  return
entries.maxOf(selector)}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n *
applied to each entry in the map.\n */\n * \n * @throws NoSuchElementException if the map is empty.\n
*/\n * @SinceKotlin("1.4")\n */\n * @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n */\n *
@OverloadResolutionByLambdaReturnType\n */\n * @kotlin.internal.InlineOnly\n */\npublic inline fun <K, V, R : Comparable<R>> Map<out K,

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V>.maxOf(selector: (Map.Entry<K, V>) -> R): R {\n  return entries.maxOf(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic\n  inline fun <K, V> Map<out K, V>.maxOfOrNull(selector: (Map.Entry<K, V>) -> Double): Double? {\n  return\n  entries.maxOfOrNull(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector]\n * function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by\n * [selector] function is `NaN`, the returned result is `NaN`.\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K,\nV>.maxOfOrNull(selector: (Map.Entry<K, V>) -> Float): Float? {\n  return\n  entries.maxOfOrNull(selector)\n}\n\n/**\n * Returns the largest value among all values produced by [selector]\n * function\n * applied to each entry in the map or `null` if there are no entries.\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic\n  inline fun <K, V, R : Comparable<R>> Map<out K, V>.maxOfOrNull(selector: (Map.Entry<K, V>) -> R): R? {\n  return\n  entries.maxOfOrNull(selector)\n}\n\n/**\n * Returns the largest value according to the provided\n * [comparator]\n * among all values produced by [selector] function applied to each entry in the map.\n * \n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K,\nV>.maxOfWith(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R {\n  return\n  entries.maxOfWith(comparator, selector)\n}\n\n/**\n * Returns the largest value according to the provided\n * [comparator]\n * among all values produced by [selector] function applied to each\n * entry in the map or `null` if there are no entries.\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K,\nV>.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R? {\n  return\n  entries.maxOfWithOrNull(comparator, selector)\n}\n\n/**\n * Returns the first entry having the largest value\n * according to the provided [comparator].\n * \n * \n * @throws NoSuchElementException if the map is empty.\n */\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@kotlin.internal.InlineOnly\n@Suppress("CONFLICTING_OVERLOADS")\npublic inline fun <K, V> Map<out K, V>.maxWith(comparator:\nComparator<in Map.Entry<K, V>>): Map.Entry<K, V> {\n  return\n  entries.maxWith(comparator)\n}\n\n/**\n * Returns the first entry having the largest value according to the provided [comparator] or `null` if there are no\n * entries.\n */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic\n  inline fun <K, V> Map<out K, V>.maxWithOrNull(comparator: Comparator<in Map.Entry<K, V>>):\nMap.Entry<K, V>? {\n  return\n  entries.maxWithOrNull(comparator)\n}\n\n/**\n * Returns the first entry yielding\n * the smallest value of the given function.\n * \n * \n * @throws NoSuchElementException if the map is empty.\n * \n * \n * @sample samples.collections.Collections.Aggregates.minBy\n */\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minByOrThrow")\n@kotlin.internal.InlineOnly\n@Suppress("CONFLICTING_OVERLOADS")\npublic inline fun <K, V, R : Comparable<R>> Map<out K,\nV>.minBy(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V> {\n  return\n  entries.minBy(selector)\n}\n\n/**\n * Returns the first entry yielding the smallest value of the given function or `null` if there are no entries.\n * \n * \n * @sample samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>>\nMap<out K, V>.minByOrNull(selector: (Map.Entry<K, V>) -> R): Map.Entry<K, V>? {\n  return\n  entries.minByOrNull(selector)\n}\n\n/**\n * Returns the smallest value among all values produced by [selector]

```



function\n \* applied to each entry in the map.\n \* \n \* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n \* \n \* @throws NoSuchElementException if the map is empty.\n

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*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K, V>.minOf(selector:
(Map.Entry<K, V>) -> Double): Double {\n    return entries.minOf(selector)\n}\n\n**\n * Returns the smallest
value among all values produced by [selector] function\n * applied to each entry in the map.\n * \n * If any of values
produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException
if the map is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <K, V> Map<out K, V>.minOf(selector: (Map.Entry<K, V>) -> Float): Float {\n    return
entries.minOf(selector)\n}\n\n**\n * Returns the smallest value among all values produced by [selector] function\n
* applied to each entry in the map.\n * \n * @throws NoSuchElementException if the map is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K,
V>.minOf(selector: (Map.Entry<K, V>) -> R): R {\n    return entries.minOf(selector)\n}\n\n**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each entry in the map or `null` if
there are no entries.\n * \n * If any of values produced by [selector] function is `NaN`,
the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K,
V>.minOfOrNull(selector: (Map.Entry<K, V>) -> Double): Double? {\n    return
entries.minOfOrNull(selector)\n}\n\n**\n * Returns the smallest value among all values produced by [selector]
function\n * applied to each entry in the map or `null` if there are no entries.\n * \n * If any of values produced by
[selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V> Map<out K,
V>.minOfOrNull(selector: (Map.Entry<K, V>) -> Float): Float? {\n    return
entries.minOfOrNull(selector)\n}\n\n**\n * Returns the smallest value among all values produced by [selector]
function\n * applied to each
entry in the map or `null` if there are no entries.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R : Comparable<R>> Map<out K,
V>.minOfOrNull(selector: (Map.Entry<K, V>) -> R): R? {\n    return entries.minOfOrNull(selector)\n}\n\n**\n *
Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each entry in the map.\n * \n * @throws NoSuchElementException if the map is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K,
V>.minOfWith(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R {\n    return
entries.minOfWith(comparator, selector)\n}\n\n**\n * Returns the smallest value according to the provided
[comparator]\n
* among all values produced by [selector] function applied to each entry in the map or `null` if there are no
entries.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <K, V, R> Map<out K,
V>.minOfWithOrNull(comparator: Comparator<in R>, selector: (Map.Entry<K, V>) -> R): R? {\n    return
entries.minOfWithOrNull(comparator, selector)\n}\n\n**\n * Returns the first entry having the smallest value
according to the provided [comparator].\n * \n * @throws NoSuchElementException if the map is empty.\n

```

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*\/n@SinceKotlin("1.7")\/n@kotlin.jvm.JvmName("minWithOrThrow")\/n@kotlin.internal.InlineOnly\/n@Suppress("CONFLICTING_OVERLOADS")\/npublic inline fun <K, V> Map<out K, V>.minWith(comparator: Comparator<in Map.Entry<K, V>>): Map.Entry<K, V> {\/n    return entries.minWith(comparator)\/n}\/n\/n**\/n * Returns the first entry having the smallest value according to the provided [comparator] or `null` if there are no entries.\/n
*\/n@SinceKotlin("1.4")\/n@kotlin.internal.InlineOnly\/npublic inline fun <K, V> Map<out K, V>.minWithOrNull(comparator: Comparator<in Map.Entry<K, V>>): Map.Entry<K, V>? {\/n    return entries.minWithOrNull(comparator)\/n}\/n\/n**\/n * Returns `true` if the map has no entries.\/n *\/n * @sample samples.collections.Collections.Aggregates.none\/n *\/npublic fun <K, V> Map<out K, V>.none(): Boolean {\/n    return isEmpty()\/n}\/n\/n**\/n * Returns `true` if no entries match the given [predicate].\/n *\/n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\/n *\/npublic inline fun <K, V> Map<out K, V>.none(predicate: (Map.Entry<K, V>) -> Boolean): Boolean {\/n    if (isEmpty()) return true\/n    for (element in this) if (predicate(element)) return false\/n    return true\/n}\/n\/n**\/n * Performs the given [action] on each entry and returns the map itself afterwards.\/n *\/n@SinceKotlin("1.1")\/npublic inline fun <K, V, M : Map<out K, V>> M.onEach(action: (Map.Entry<K, V>) -> Unit): M {\/n    return apply { for (element in this) action(element) }\/n}\/n\/n**\/n * Performs the given [action] on each entry, providing sequential index with the entry,\/n * and returns the map itself afterwards.\/n * @param [action] function that takes the index of an entry and the entry itself\/n * and performs the action on the entry.\/n *\/n@SinceKotlin("1.4")\/npublic inline fun <K, V, M : Map<out K, V>> M.onEachIndexed(action: (index: Int, Map.Entry<K, V>) -> Unit): M {\/n    return apply { entries.forEachIndexed(action) }\/n}\/n\/n**\/n * Creates an [Iterable] instance that wraps the original map returning its entries when being iterated.\/n *\/n@kotlin.internal.InlineOnly\/npublic inline fun <K, V> Map<out K, V>.asIterable(): Iterable<Map.Entry<K, V>> {\/n    return entries\/n}\/n\/n**\/n * Creates a [Sequence] instance that wraps the original map returning its entries when being iterated.\/n *\/npublic fun <K, V> Map<out K, V>.asSequence(): Sequence<Map.Entry<K, V>> {\/n    return entries.asSequence()\/n}\/n\/n", "*/n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\/n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\/n *\/npackage kotlin.text\/n\/n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\/n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\/n\/n// 10 mappings totally\/ninternal fun Char.titlecaseImpl(): String {\/n    val uppercase = uppercase()\/n    if (uppercase.length > 1) {\/n        return if (this == '\u0149') uppercase else uppercase[0] + uppercase.substring(1).lowercase()\/n    }\/n    return titlecaseChar().toString()\/n}\/n", "*/n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\/n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\/n *\/npackage kotlin.text\/n\/n**\/n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\/n *\/n@Deprecated("Use lowercaseChar() instead.", ReplaceWith("lowercaseChar()"))\/n@DeprecatedSinceKotlin(warningSince = "1.5")\/n@kotlin.internal.InlineOnly\/npublic actual inline fun Char.toLowerCase(): Char = lowercaseChar()\/n\/n**\/n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\/n *\/n * This function performs one-to-one character mapping.\/n * To support one-to-many character mapping use the [lowercase] function.\/n * If this character has no mapping equivalent, the character itself is returned.\/n *\/n * @sample samples.text.Chars.lowercase\/n
*\/n@SinceKotlin("1.5")\/n@WasExperimental(ExperimentalStdlibApi::class)\/n@kotlin.internal.InlineOnly\/npublic actual inline fun Char.lowercaseChar(): Char = lowercase()[0]\/n\/n**\/n * Converts this character to lower case using Unicode mapping rules of the invariant locale.\/n *\/n * This function supports one-to-many character mapping, thus the length of the returned string can be greater than one.\/n * For example, ``\u0130'.lowercase()`` returns ``\u0069\u0307``,\/n * where ``\u0130`` is the LATIN CAPITAL LETTER I WITH DOT ABOVE character (`\u0130`),\/n * If this character has no lower case mapping, the result of `toString()` of this

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char is returned.\n * \n * @sample samples.text.Chars.lowercase\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
c actual inline fun Char.lowercase(): String = toString().asDynamic().toLowerCase().unsafeCast<String>()\n\n**\n
* Converts this character to upper case using Unicode mapping rules of the invariant locale.\n
*\n@Deprecated("Use uppercaseChar() instead.",
ReplaceWith("uppercaseChar()"))\n@DeprecatedSinceKotlin(warningSince =
"1.5")\n@kotlin.internal.InlineOnly\npublic actual inline fun Char.toUpperCase(): Char =
uppercaseChar()\n\n**\n * Converts this character to upper case using
Unicode mapping rules of the invariant locale.\n * \n * This function performs one-to-one character mapping.\n * To
support one-to-many character mapping use the [uppercase] function.\n * If this character has no mapping
equivalent, the character itself is returned.\n * \n * @sample samples.text.Chars.uppercase\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun
Char.uppercaseChar(): Char {\n    val uppercase = uppercase()\n    return if (uppercase.length > 1) this else
uppercase[0]\n}\n\n**\n * Converts this character to upper case using Unicode mapping rules of the invariant
locale.\n * \n * This function supports one-to-many character mapping, thus the length of the returned string can be
greater than one.\n * For example, ``\u0046\u0046`` returns ``\u0046\u0046``,\n * where ``\u0046`` is the
LATIN SMALL LIGATURE FF character (``\u0046``).\n * If this character has no upper case mapping, the result of
`toString()` of this char
is returned.\n * \n * @sample samples.text.Chars.uppercase\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
c actual inline fun Char.uppercase(): String = toString().asDynamic().toUpperCase().unsafeCast<String>()\n\n**\n
* Converts this character to title case using Unicode mapping rules of the invariant locale.\n * \n * This function
performs one-to-one character mapping.\n * To support one-to-many character mapping use the [titlecase]
function.\n * If this character has no mapping equivalent, the result of calling [uppercaseChar] is returned.\n * \n *
@sample samples.text.Chars.titlecase\n
*\n@SinceKotlin("1.5")\npublic actual fun Char.titlecaseChar(): Char =
titlecaseCharImpl()\n\n**\n * Returns `true` if this character is a Unicode high-surrogate code unit (also known as
leading-surrogate code unit).\n *\npublic actual fun Char.isHighSurrogate(): Boolean = this in
Char.MIN_HIGH_SURROGATE..Char.MAX_HIGH_SURROGATE\n\n**\n
* Returns `true` if this character is a Unicode low-surrogate code unit (also known as trailing-surrogate code unit).\n
*\npublic actual fun Char.isLowSurrogate(): Boolean = this in
Char.MIN_LOW_SURROGATE..Char.MAX_LOW_SURROGATE\n\n**\n * Returns the Unicode general
category of this character.\n *\n@SinceKotlin("1.5")\npublic actual val Char.category: CharCategory\n    get() =
CharCategory.valueOf(getCategoryValue())\n\n**\n * Returns `true` if this character (Unicode code point) is
defined in Unicode.\n * \n * A character is considered to be defined in Unicode if its [category] is not
[CharCategory.UNASSIGNED].\n *\n@SinceKotlin("1.5")\npublic actual fun Char.isDefined(): Boolean {\n    if
(this < "\u0080") {\n        return true\n    }\n    return getCategoryValue() !=
CharCategory.UNASSIGNED.value\n}\n\n**\n * Returns `true` if this character is a letter.\n * \n * A character is
considered to be a letter if its [category] is [CharCategory.UPPERCASE_LETTER],\n *
[CharCategory.LOWERCASE_LETTER],
[CharCategory.TITLECASE_LETTER], [CharCategory.MODIFIER_LETTER], or
[CharCategory.OTHER_LETTER].\n * \n * @sample samples.text.Chars.isLetter\n
*\n@SinceKotlin("1.5")\npublic actual fun Char.isLetter(): Boolean {\n    if (this in 'a'..'z' || this in 'A'..'Z') {\n
return true\n    }\n    if (this < "\u0080") {\n        return false\n    }\n    return isLetterImpl()\n}\n\n**\n
* Returns
`true` if this character is a letter or digit.\n * \n * @see isLetter\n * @see isDigit\n * \n * @sample
samples.text.Chars.isLetterOrDigit\n
*\n@SinceKotlin("1.5")\npublic actual fun Char.isLetterOrDigit(): Boolean
{\n    if (this in 'a'..'z' || this in 'A'..'Z' || this in '0'..'9') {\n        return true\n    }\n    if (this <
"\u0080") {\n        return
false\n    }\n    return isDigitImpl() || isLetterImpl()\n}\n\n**\n * Returns `true` if this character is a digit.\n * \n
* A character is considered to be a digit if its [category] is [CharCategory.DECIMAL_DIGIT_NUMBER].\n

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*\n * @sample samples.text.Chars.isDigit\n *\n@SinceKotlin("1.5")\npublic actual fun Char.isDigit(): Boolean
{\n if (this in '0'..'9') {\n return true\n } \n if (this < "\u0080") {\n return false\n } \n return
isDigitImpl()\n}\n\n/**\n * Returns `true` if this character is upper case.\n *\n * A character is considered to be an
upper case character if its [category] is [CharCategory.UPPERCASE_LETTER],\n * or it has contributory property
`Other_Uppercase` as defined by the Unicode Standard.\n *\n * @sample samples.text.Chars.isUpperCase\n
*\n@SinceKotlin("1.5")\npublic actual fun Char.isUpperCase(): Boolean {\n if (this in 'A'..'Z') {\n return
true\n } \n if (this < "\u0080") {\n return false\n } \n return isUpperCaseImpl()\n}\n\n/**\n * Returns
`true` if this character is lower case.\n *\n * A character is considered to be a lower case character if its [category] is
[CharCategory.LOWERCASE_LETTER],\n * or it has contributory
property `Other_Lowercase` as defined by the Unicode Standard.\n *\n * @sample
samples.text.Chars.isLowerCase\n *\n@SinceKotlin("1.5")\npublic actual fun Char.isLowerCase(): Boolean {\n
if (this in 'a'..'z') {\n return true\n } \n if (this < "\u0080") {\n return false\n } \n return
isLowerCaseImpl()\n}\n\n/**\n * Returns `true` if this character is a title case letter.\n *\n * A character is
considered to be a title case letter if its [category] is [CharCategory.TITLECASE_LETTER].\n *\n * @sample
samples.text.Chars.isTitleCase\n *\n@SinceKotlin("1.5")\npublic actual fun Char.isTitleCase(): Boolean {\n if
(this < "\u0080") {\n return false\n } \n return getCategoryValue() ==
CharCategory.TITLECASE_LETTER.value\n}\n\n/**\n * Returns `true` if this character is an ISO control
character.\n *\n * A character is considered to be an ISO control character if its [category] is
[CharCategory.CONTROL],\n * meaning the Char is in the range
`\u0000'..\u001F` or in the range `\u007F'..\u009F`. \n *\n * @sample samples.text.Chars.isISOControl\n
*\n@SinceKotlin("1.5")\npublic actual fun Char.isISOControl(): Boolean {\n return this <= "\u001F" || this in
"\u007F'..\u009F'\n}\n\n/**\n * Determines whether a character is whitespace according to the Unicode standard.\n
*\n * Returns `true` if the character is whitespace.\n *\n * @sample samples.text.Chars.isWhitespace\n
*\npublic actual
fun Char.isWhitespace(): Boolean = isWhitespaceImpl(), /*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n@package kotlin.text\nimport kotlin.js.RegExp\n\n/**\n * Converts
the characters in the specified array to a string.\n *\n@SinceKotlin("1.2")\n@Deprecated("Use
CharArray.concatToString() instead",
ReplaceWith("chars.concatToString()"))\n@DeprecatedSinceKotlin(warningSince
= "1.4", errorSince = "1.5")\npublic actual fun String(chars: CharArray): String {\n var result = ""\n for
(char in chars) {\n result += char\n } \n return result\n}\n\n/**\n * Converts the characters from a portion of
the specified array to a string.\n *\n * @throws IndexOutOfBoundsException if either [offset] or [length] are less
than zero\n * or `offset + length` is out of [chars] array bounds.\n *\n@SinceKotlin("1.2")\n@Deprecated("Use
CharArray.concatToString(startIndex, endIndex) instead", ReplaceWith("chars.concatToString(offset, offset +
length)"))\n@DeprecatedSinceKotlin(warningSince = "1.4", errorSince = "1.5")\npublic actual fun String(chars:
CharArray, offset: Int, length: Int): String {\n if (offset < 0 || length < 0 || chars.size - offset < length)\n
throw
IndexOutOfBoundsException("size: ${chars.size}; offset: $offset; length: $length")\n var result = ""\n for
(index in offset until offset + length)
{\n result += chars[index]\n } \n return result\n}\n\n/**\n * Concatenates characters in this [CharArray] into
a String.\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun
CharArray.concatToString(): String {\n var result = ""\n for (char in this) {\n result += char\n } \n
return result\n}\n\n/**\n * Concatenates characters in this [CharArray] or its subrange into a String.\n *\n * @param
startIndex the beginning (inclusive) of the subrange of characters, 0 by default.\n * @param endIndex the end
(exclusive) of the subrange of characters, size of this array by default.\n *\n * @throws
IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the size of this array.\n
*\n * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].\n
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic

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actual fun CharArray.concatToString(startIndex: Int = 0, endIndex: Int = this.size): String {
    AbstractList.checkBoundsIndexes(startIndex, endIndex, this.size)
    var result = ""
    for (index in startIndex until endIndex) {
        result += this[index]
    }
    return result
}

/** Returns a [CharArray] containing characters of this string.
 * @SinceKotlin("1.4")
 * @WasExperimental(ExperimentalStdlibApi::class)
 */
public actual fun String.toCharArray(): CharArray {
    return CharArray(length) { get(it) }
}

/** Returns a [CharArray] containing characters of this string or its substring.
 * @param startIndex the beginning (inclusive) of the substring, 0 by default.
 * @param endIndex the end (exclusive) of the substring, length of this string by default.
 * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the length of this string.
 * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].
 */
@SinceKotlin("1.4")
@WasExperimental(ExperimentalStdlibApi::class)
@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
public actual fun String.toCharArray(startIndex: Int = 0, endIndex: Int = this.length): CharArray {
    AbstractList.checkBoundsIndexes(startIndex, endIndex, length)
    return CharArray(endIndex - startIndex) { get(startIndex + it) }
}

/** Decodes a string from the bytes in UTF-8 encoding in this array.
 * Malformed byte sequences are replaced by the replacement char '\uFFFD'.
 */
@SinceKotlin("1.4")
@WasExperimental(ExperimentalStdlibApi::class)
public actual fun ByteArray.decodeToString(): String {
    return decodeUtf8(this, 0, size, false)
}

/** Decodes a string from the bytes in UTF-8 encoding in this array or its subrange.
 * @param startIndex the beginning (inclusive) of the subrange to decode, 0 by default.
 * @param endIndex the end (exclusive) of the subrange to decode, size of this array by default.
 * @param throwOnInvalidSequence specifies whether to throw an exception on malformed byte sequence or replace it by the replacement char '\uFFFD'.
 * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the size of this array.
 * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].
 * @throws CharacterCodingException if the byte array contains malformed UTF-8 byte sequence and [throwOnInvalidSequence] is true.
 */
@SinceKotlin("1.4")
@WasExperimental(ExperimentalStdlibApi::class)
@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
public actual fun ByteArray.decodeToString(
    startIndex: Int = 0,
    endIndex: Int = this.size,
    throwOnInvalidSequence: Boolean = false
): String {
    AbstractList.checkBoundsIndexes(startIndex, endIndex, this.size)
    return decodeUtf8(this, startIndex, endIndex, throwOnInvalidSequence)
}

/** Encodes this string to an array of bytes in UTF-8 encoding.
 * Any malformed char sequence is replaced by the replacement byte sequence.
 */
@SinceKotlin("1.4")
@WasExperimental(ExperimentalStdlibApi::class)
public actual fun String.encodeToArray(): ByteArray {
    return encodeUtf8(this, 0, length, false)
}

/** Encodes this string or its substring to an array of bytes in UTF-8 encoding.
 * @param startIndex the beginning (inclusive) of the substring to encode, 0 by default.
 * @param endIndex the end (exclusive) of the substring to encode, length of this string by default.
 * @param throwOnInvalidSequence specifies whether to throw an exception on malformed char sequence or replace.
 * @throws IndexOutOfBoundsException if [startIndex] is less than zero or [endIndex] is greater than the length of this string.
 * @throws IllegalArgumentException if [startIndex] is greater than [endIndex].
 * @throws CharacterCodingException if this string contains malformed char sequence and [throwOnInvalidSequence] is true.
 */
@SinceKotlin("1.4")
@WasExperimental(ExperimentalStdlibApi::class)
@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
public actual fun String.encodeToArray(
    startIndex: Int = 0,
    endIndex: Int = this.length,
    throwOnInvalidSequence: Boolean = false
): ByteArray {
    AbstractList.checkBoundsIndexes(startIndex, endIndex, length)
    return encodeUtf8(this, startIndex, endIndex, throwOnInvalidSequence)
}

/** Returns a copy of this string converted to upper case using the rules of the default locale.
 * @Deprecated("Use uppercase() instead.", ReplaceWith("uppercase()"))
 * @DeprecatedSinceKotlin(warningSince =

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\"1.5\")\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toUpperCase(): String =
asDynamic().toUpperCase()\n\n/**\n * Returns a copy of this string converted to upper case using Unicode mapping
rules of the invariant locale.\n * This function supports one-to-many and many-to-one character mapping,\n * thus the length of the returned string can be different from the length of the original string.\n * \n * @sample
samples.text.Strings.uppercase\n
*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
actual inline fun String.uppercase(): String = asDynamic().toUpperCase()\n\n/**\n * Returns a copy of this string
converted to lower case using the rules of the default locale.\n */\n@Deprecated(\"Use lowercase() instead.\",
ReplaceWith(\"lowercase()\"))\n@DeprecatedSinceKotlin(warningSince =
\"1.5\")\n@kotlin.internal.InlineOnly\npublic actual inline fun String.toLowerCase(): String =
asDynamic().toLowerCase()\n\n/**\n * Returns a copy of this string converted to lower case using Unicode
mapping rules of the invariant locale.\n * This function supports one-to-many and many-to-one character
mapping,\n * thus the length of the returned string can be different from the length of the original string.\n * \n *
@sample samples.text.Strings.lowercase\n
*/\n@SinceKotlin(\"1.5\")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
actual inline fun String.toLowerCase(): String = asDynamic().toLowerCase()\n\n@kotlin.internal.InlineOnly\ninternal
actual inline fun String.nativeIndexOf(str: String, fromIndex: Int): Int = asDynamic().indexOf(str,
fromIndex)\n\n@kotlin.internal.InlineOnly\ninternal actual inline fun String.nativeLastIndexOf(str: String,
fromIndex: Int): Int = asDynamic().lastIndexOf(str,
fromIndex)\n\n@kotlin.internal.InlineOnly\n@kotlin.js.JsPolyfill(\"\"\n\nif (typeof String.prototype.startsWith ===
\"undefined\") {\n    Object.defineProperty(String.prototype, \"startsWith\", {\n        value: function (searchString,
position) {\n            position = position || 0;\n            return this.lastIndexOf(searchString, position) === position;\n
        }\n    });\n}\n\n\"\"\n\n)\ninternal inline fun String.nativeStartsWith(s: String, position: Int): Boolean =
asDynamic().startsWith(s,
position)\n\n@kotlin.internal.InlineOnly\n@kotlin.js.JsPolyfill(\"\"\n\nif (typeof String.prototype.endsWith ===
\"undefined\") {\n    Object.defineProperty(String.prototype, \"endsWith\", {\n        value: function (searchString,
position) {\n            var subjectString = this.toString();\n            if (position === undefined || position >
subjectString.length) {\n                position = subjectString.length;\n            }\n            position -=
searchString.length;\n            var lastIndex = subjectString.indexOf(searchString, position);\n            return lastIndex
!==- 1 && lastIndex === position;\n        }\n    });\n}\n\n\"\"\n\n)\n\ninternal inline fun String.nativeEndsWith(s: String):
Boolean = asDynamic().endsWith(s)\n\n@kotlin.internal.InlineOnly\npublic actual inline fun
String.substring(startIndex: Int): String = asDynamic().substring(startIndex)\n\n@kotlin.internal.InlineOnly\npublic
actual inline fun String.substring(startIndex: Int, endIndex: Int): String = asDynamic().substring(startIndex,
endIndex)\n\n@Deprecated(\"Use String.plus() instead\", ReplaceWith(\"this +
str\"))\n@DeprecatedSinceKotlin(warningSince = \"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun
String.concat(str: String): String = asDynamic().concat(str)\n\n@Deprecated(\"Use Regex.findAll() instead or
invoke matches() on String dynamically:
this.asDynamic().match(regex)\")\n@DeprecatedSinceKotlin(warningSince =
\"1.6\")\n@kotlin.internal.InlineOnly\npublic inline fun String.match(regex: String): Array<String>? =
asDynamic().match(regex)\n\n//native public fun String.trim(): String\n\n//TODO: String.replace to implement
effective trimLeading and trimTrailing\n\n@kotlin.internal.InlineOnly\ninternal inline fun
String.nativeReplace(pattern: RegExp, replacement: String): String = asDynamic().replace(pattern,
replacement)\n\n/**\n * Compares two strings lexicographically, optionally ignoring case differences.\n * \n * If
[ignoreCase] is true, the result of `Char.toUpperCaseChar().toLowerCaseChar()`
on each character is compared.\n
*/\n@SinceKotlin(\"1.2\")\n@Suppress(\"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS\")\npublic
actual fun String.compareTo(other: String, ignoreCase: Boolean = false): Int {\n    if (ignoreCase) {\n        val n1 =
this.length\n        val n2 = other.length\n        val min = minOf(n1, n2)\n        if (min == 0) return n1 - n2\n        for

```

```

(index in 0 until min) {\n        var thisChar = this[index]\n        var otherChar = other[index]\n        if
(thisChar != otherChar) {\n        thisChar = thisChar.uppercaseChar()\n        otherChar =
otherChar.uppercaseChar()\n        if (thisChar != otherChar) {\n        thisChar =
thisChar.lowercaseChar()\n        otherChar = otherChar.lowercaseChar()\n        if (thisChar !=
otherChar) {\n        return thisChar.compareTo(otherChar)\n        }\n        }\n        }\n
}\n
return n1 - n2\n } else {\n    return compareTo(other)\n } }\n\n/*\n * Returns `true` if the contents of
this char sequence are equal to the contents of the specified [other],\n * i.e. both char sequences contain the same
number of the same characters in the same order.\n * @sample samples.text.Strings.contentEquals\n
*\n *\n */\n @SinceKotlin("1.5")\n public actual infix fun CharSequence?.contentEquals(other: CharSequence?): Boolean =
contentEqualsImpl(other)\n\n/*\n * Returns `true` if the contents of this char sequence are equal to the contents of
the specified [other], optionally ignoring case difference.\n * @param ignoreCase `true` to ignore character case
when comparing contents.\n * @sample samples.text.Strings.contentEquals\n *\n *\n */\n @SinceKotlin("1.5")\n public
actual fun CharSequence?.contentEquals(other: CharSequence?, ignoreCase: Boolean): Boolean {\n    return if
(ignoreCase)\n        this.contentEqualsIgnoreCaseImpl(other)\n    else\n        this.contentEqualsImpl(other)\n }\n\nprivate
val STRING_CASE_INSENSITIVE_ORDER = Comparator<String> { a, b -> a.compareTo(b, ignoreCase = true)
}\n\n@SinceKotlin("1.2")\n public actual val String.Companion.CASE_INSENSITIVE_ORDER:
Comparator<String>\n    get() = STRING_CASE_INSENSITIVE_ORDER\n\n/*\n * Copyright 2010-2021
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n *\n */\n @file:kotlin.jvm.JvmMultifileClass\n @file:kotlin.jvm.JvmName("CharsKt")\n\npackage kotlin.text\n\n/*\n *
Returns the numeric value of the decimal digit that this Char represents.\n * Throws an exception if this Char is
not a valid decimal digit.\n * A Char is considered to represent a decimal digit if [isDigit] is true for the Char.\n
*\n * In this case, the Unicode decimal digit value of the character is returned.\n * @sample
samples.text.Chars.digitToInt\n
*\n *\n */\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public
fun Char.digitToInt(): Int {\n    return digitOf(this, 10).also {\n        if (it < 0) throw
IllegalArgumentException("Char $this is not a decimal digit")\n    } }\n\n/*\n * Returns the numeric value of the
digit that this Char represents in the specified [radix].\n * Throws an exception if the [radix] is not in the range
`2..36` or if this Char is not a valid digit in the specified [radix].\n * A Char is considered to represent a digit in
the specified [radix] if at least one of the following is true:\n * - [isDigit] is `true` for the Char and the Unicode
decimal digit value of the character is less than the specified [radix]. In this case the decimal digit value is
returned.\n * - The Char is one of the uppercase Latin letters 'A' through 'Z' and its [code] is less than `radix +
'A'.code - 10`. In this case, `this.code - 'A'.code + 10` is returned.\n * - The Char is one of the lowercase Latin
letters 'a' through 'z' and
its [code] is less than `radix + 'a'.code - 10`. In this case, `this.code - 'a'.code + 10` is returned.\n * - The Char is one
of the fullwidth Latin capital letters "\uFF21" through "\uFF3A" and its [code] is less than `radix + 0xFF21 - 10`. In
this case, `this.code - 0xFF21 + 10` is returned.\n * - The Char is one of the fullwidth Latin small letters "\uFF41"
through "\uFF5A" and its [code] is less than `radix + 0xFF41 - 10`. In this case, `this.code - 0xFF41 + 10` is
returned.\n * @sample samples.text.Chars.digitToInt\n
*\n *\n */\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun Char.digitToInt(radix:
Int): Int {\n    return digitToIntOrNull(radix) ?: throw IllegalArgumentException("Char $this is not a digit in the
given radix=$radix")\n }\n\n/*\n * Returns the numeric value of the decimal digit that this Char represents, or
`null` if this Char is not a valid decimal digit.\n * A Char is considered to represent a decimal digit if [isDigit]
is true for the Char.\n * In this case, the Unicode decimal digit value of the character is returned.\n * @sample
samples.text.Chars.digitToIntOrNull\n
*\n *\n */\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun

```

```

Char.digitToIntOrNull(): Int? {\n    return digitOf(this, 10).takeIf { it >= 0 }\n}\n\n/>\n * Returns the numeric
value of the digit that this Char represents in the specified [radix], or `null` if this Char is not a valid digit in the
specified [radix].\n * Throws an exception if the [radix] is not in the range `2..36`.\n * A Char is considered to
represent a digit in the specified [radix] if at least one of the following is true:\n * - [isDigit] is `true` for the Char
and the Unicode decimal digit value of the character is less than the specified [radix]. In this case the decimal digit
value is returned.\n * - The Char is one of the uppercase Latin letters 'A' through 'Z' and its [code] is less than `radix
+ 'A'.code - 10`. In this case,
`this.code - 'A'.code + 10` is returned.\n * - The Char is one of the lowercase Latin letters 'a' through 'z' and its
[code] is less than `radix + 'a'.code - 10`. In this case, `this.code - 'a'.code + 10` is returned.\n * - The Char is one of
the fullwidth Latin capital letters '\uFF21' through '\uFF3A' and its [code] is less than `radix + 0xFF21 - 10`. In this
case, `this.code - 0xFF21 + 10` is returned.\n * - The Char is one of the fullwidth Latin small letters '\uFF41'
through '\uFF5A' and its [code] is less than `radix + 0xFF41 - 10`. In this case, `this.code - 0xFF41 + 10` is
returned.\n *
@\n * @sample samples.text.Chars.digitToIntOrNull\n
*\n\n/>\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun
Char.digitToIntOrNull(radix: Int): Int? {\n    checkRadix(radix)\n    return digitOf(this, radix).takeIf { it >= 0
}\n}\n\n/>\n * Returns the Char that represents this decimal digit.\n * Throws an exception if this value is not in the
range `0..9`.\n
*\n * If this value is in `0..9`, the decimal digit Char with code `0'.code + this` is returned.\n *
@\n * @sample
samples.text.Chars.digitToChar\n
*\n\n/>\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun Int.digitToChar(): Char
{\n    if (this in 0..9) {\n        return '0' + this\n    }\n    throw IllegalArgumentException("\nInt $this is not a decimal
digit")\n}\n\n/>\n * Returns the Char that represents this numeric digit value in the specified [radix].\n * Throws
an exception if the [radix] is not in the range `2..36` or if this value is not in the range `0 until radix`.\n * If this
value is less than `10`, the decimal digit Char with code `0'.code + this` is returned.\n * Otherwise, the uppercase
Latin letter with code `A'.code + this - 10` is returned.\n *
@\n * @sample samples.text.Chars.digitToChar\n
*\n\n/>\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun Int.digitToChar(radix:
Int): Char {\n    if (radix !in 2..36)
{\n        throw IllegalArgumentException("Invalid radix: $radix. Valid radix values are in range 2..36")\n    }\n    if
(this < 0 || this >= radix) {\n        throw IllegalArgumentException("\nDigit $this does not represent a valid digit in
radix $radix")\n    }\n    return if (this < 10) {\n        '0' + this\n    } else {\n        'A' + this - 10\n    }\n}\n\n/>\n *
Converts this character to lower case using Unicode mapping rules of the invariant locale.\n *
@\n * @Deprecated("Use lowercaseChar() instead.", ReplaceWith("lowercaseChar()"))\n @DeprecatedSinceKotlin(warningSince =
"1.5")\n public expect fun Char.toLowerCase(): Char\n\n/>\n * Converts this character to lower case using
Unicode mapping rules of the invariant locale.\n * This function performs one-to-one character mapping.\n * To
support one-to-many character mapping use the [lowercase] function.\n * If this character has no mapping
equivalent, the character itself is returned.\n *
@\n * @sample samples.text.Chars.lowercase\n
*\n\n/>\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public expect fun
Char.lowercaseChar(): Char\n\n/>\n * Converts this character to lower case using Unicode mapping rules of the
invariant locale.\n * This function supports one-to-many character mapping, thus the length of the returned
string can be greater than one.\n * For example, `'\u0130'.lowercase()` returns `'\u0069\u0307'`,\n * where
`'\u0130` is the LATIN CAPITAL LETTER I WITH DOT ABOVE character (`\u0130`).\n * If this character has
no lower case mapping, the result of `toString()` of this char is returned.\n *
@\n * @sample
samples.text.Chars.lowercase\n
*\n\n/>\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalStdlibApi::class)\n public expect fun
Char.lowercase(): String\n\n/>\n * Converts this character to upper case using Unicode mapping rules of the
invariant locale.\n *
@\n * @Deprecated("Use uppercaseChar() instead.",
ReplaceWith("uppercaseChar()"))\n @DeprecatedSinceKotlin(warningSince

```



```

= \"1.5\")\npublic expect fun Char.toUpperCase(): Char\n\n/**\n * Converts this character to upper case using
Unicode mapping rules of the invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To
support one-to-many character mapping use the [uppercase] function.\n * If this character has no mapping
equivalent, the character itself is returned.\n *\n * @sample samples.text.Chars.uppercase\n
*/\n\n@SinceKotlin(\"1.5\")\n\n@WasExperimental(ExperimentalStdlibApi::class)\n\npublic expect fun
Char.toUpperCaseChar(): Char\n\n/**\n * Converts this character to upper case using Unicode mapping rules of the
invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned
string can be greater than one.\n * For example, `'\uFB00'.uppercase()` returns `'\u0046\u0046'`,\n * where
`\uFB00` is the LATIN SMALL LIGATURE FF character (`\ufb00`).\n * If this character has no upper case
mapping, the result of `toString()`
of this char is returned.\n *\n * @sample samples.text.Chars.uppercase\n
*/\n\n@SinceKotlin(\"1.5\")\n\n@WasExperimental(ExperimentalStdlibApi::class)\n\npublic expect fun
Char.toUpperCase(): String\n\n/**\n * Converts this character to title case using Unicode mapping rules of the
invariant locale.\n *\n * This function performs one-to-one character mapping.\n * To support one-to-many
character mapping use the [titlecase] function.\n * If this character has no mapping equivalent, the result of calling
[uppercaseChar] is returned.\n *\n * @sample samples.text.Chars.titlecase\n
*/\n\n@SinceKotlin(\"1.5\")\n\npublic
expect fun Char.titlecaseChar(): Char\n\n/**\n * Converts this character to title case using Unicode mapping rules of
the invariant locale.\n *\n * This function supports one-to-many character mapping, thus the length of the returned
string can be greater than one.\n * For example, `'\uFB00'.titlecase()` returns `'\u0046\u0066'`,\n * where
`\uFB00` is the LATIN SMALL LIGATURE
FF character (`\ufb00`).\n * If this character has no title case mapping, the result of [uppercase] is returned
instead.\n *\n * @sample samples.text.Chars.titlecase\n
*/\n\n@SinceKotlin(\"1.5\")\n\npublic fun Char.titlecase():
String = titlecaseImpl()\n\n/**\n * Concatenates this Char and a String.\n *\n * @sample samples.text.Chars.plus\n
*/\n\n@kotlin.internal.InlineOnly\n\npublic inline operator fun Char.plus(other: String): String = this.toString() +
other\n\n/**\n * Returns `true` if this character is equal to the [other] character, optionally ignoring character case.\n
*\n * Two characters are considered equal ignoring case if `Char.toUpperCaseChar().toLowerCaseChar()` on each
character produces the same result.\n *\n * @param ignoreCase `true` to ignore character case when comparing
characters. By default `false`.\n *\n * @sample samples.text.Chars.equals\n
*/\n\npublic fun Char.equals(other: Char,
ignoreCase: Boolean = false): Boolean {\n    if (this == other) return true\n    if (!ignoreCase)
return false\n\n    val thisUpper = this.toUpperCaseChar()\n    val otherUpper = other.toUpperCaseChar()\n\n    return
thisUpper == otherUpper || thisUpper.toLowerCaseChar() == otherUpper.toLowerCaseChar()\n}\n\n/**\n * Returns `true`
if this character is a Unicode surrogate code unit.\n */\n\npublic fun Char.isSurrogate(): Boolean = this in
Char.MIN_SURROGATE..Char.MAX_SURROGATE\n\n/**\n * Returns the Unicode general category of this
character.\n */\n\n@SinceKotlin(\"1.5\")\n\npublic expect val Char.category: CharCategory\n\n/**\n * Returns `true` if
this character (Unicode code point) is defined in Unicode.\n *\n * A character is considered to be defined in Unicode
if its [category] is not [CharCategory.UNASSIGNED].\n */\n\n@SinceKotlin(\"1.5\")\n\npublic expect fun
Char.isDefined(): Boolean\n\n/**\n * Returns `true` if this character is a letter.\n *\n * A character is considered to
be a letter if its [category] is [CharCategory.UPPERCASE_LETTER],\n *\n * [CharCategory.LOWERCASE_LETTER], [CharCategory.TITLECASE_LETTER],
[CharCategory.MODIFIER_LETTER], or [CharCategory.OTHER_LETTER].\n *\n * @sample
samples.text.Chars.isLetter\n
*/\n\n@SinceKotlin(\"1.5\")\n\npublic expect fun Char.isLetter(): Boolean\n\n/**\n * Returns `true` if this character is a letter or digit.\n
*\n * @see isLetter\n * @see isDigit\n *\n * @sample
samples.text.Chars.isLetterOrDigit\n
*/\n\n@SinceKotlin(\"1.5\")\n\npublic expect fun Char.isLetterOrDigit():
Boolean\n\n/**\n * Returns `true` if this character is a digit.\n *\n * A character is considered to be a digit if its
[category] is [CharCategory.DECIMAL_DIGIT_NUMBER].\n *\n * @sample samples.text.Chars.isDigit\n
*/\n\n@SinceKotlin(\"1.5\")\n\npublic expect fun Char.isDigit(): Boolean\n\n/**\n * Returns `true` if this character is
upper case.\n *\n * A character is considered to be an upper case character if its [category] is
[CharCategory.UPPERCASE_LETTER],\n *\n * or it has contributory property `Other_Uppercase` as defined by the

```

```

Unicode Standard.\n *\n * @sample samples.text.Chars.isUpperCase\n
*/\n@SinceKotlin("1.5")\npublic expect fun Char.isUpperCase(): Boolean\n\n/**\n * Returns `true` if this character is lower case.\n *\n * A character is considered to be a lower case character if its [category] is [CharCategory.LOWERCASE_LETTER],\n * or it has contributory property `Other_Lowercase` as defined by the Unicode Standard.\n *\n * @sample samples.text.Chars.isLowerCase\n */\n@SinceKotlin("1.5")\npublic expect fun Char.isLowerCase(): Boolean\n\n/**\n * Returns `true` if this character is a title case letter.\n *\n * A character is considered to be a title case letter if its [category] is [CharCategory.TITLECASE_LETTER].\n *\n * @sample samples.text.Chars.isTitleCase\n */\n@SinceKotlin("1.5")\npublic expect fun Char.isTitleCase(): Boolean\n\n/**\n * Returns `true` if this character is an ISO control character.\n *\n * A character is considered to be an ISO control character if its [category] is [CharCategory.CONTROL],\n * meaning the Char is in the range ``\u0000..\u001F`` or in the range ``\u007F..\u009F``.\n *\n * @sample samples.text.Chars.isISOControl\n */\n@SinceKotlin("1.5")\npublic expect fun Char.isISOControl(): Boolean\n\n/**\n * Determines whether a character is whitespace according to the Unicode standard.\n * Returns `true` if the character is whitespace.\n *\n * @sample samples.text.Chars.isWhitespace\n */\npublic expect fun Char.isWhitespace(): Boolean\n"/>\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\n/**\n * Creates a Char with the specified [code], or throws an exception if the [code] is out of `Char.MIN_VALUE.code`..`Char.MAX_VALUE.code`.\n *\n * If the program that calls this function is written in a way that only valid [code] is passed as the argument,\n * using the overload that takes a [UShort] argument is preferable (`Char(intValue.toUShort())`).\n *\n * That overload doesn't check validity of the argument, and may improve program performance when the function is called routinely inside a loop.\n *\n * @sample samples.text.Chars.charFromCode\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Char(code: Int): Char {\n    if (code < Char.MIN_VALUE.code || code > Char.MAX_VALUE.code) {\n        throw IllegalArgumentException("Invalid Char code: $code")\n    }\n    return code.toChar()\n}\n\n/**\n * Creates a Char with the specified [code].\n *\n * @sample samples.text.Chars.charFromCode\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("NO_ACTUAL_FOR_EXPECT")\npublic expect fun Char(code: UShort): Char\n\n/**\n * Returns the code of this Char.\n *\n * Code of a Char is the value it was constructed with, and the UTF-16 code unit corresponding to this Char.\n *\n * @sample samples.text.Chars.code\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\n@Suppress("DEPRECATION")\npublic inline val Char.code: Int get() = this.toInt()\n"/>\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("SequencesKt")\n\npackage kotlin.sequences\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.random.*\n\n/**\n * Returns `true` if [element] is found in the sequence.\n *\n * The operation is _terminal_.\n *\n * @public operator fun <kotlin.internal.OnlyInputTypes T> Sequence<T>.contains(element: T): Boolean {\n    return indexOf(element) >= 0\n}\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this sequence.\n *\n * The operation is _terminal_.\n *\n * @sample samples.collections.Collections.Elements.elementAt\n */\npublic fun <T> Sequence<T>.elementAt(index: Int): T {\n    return elementAtOrElse(index) {\n        throw IndexOutOfBoundsException("Sequence doesn't contain element at index $index.")\n    }\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this sequence.\n *\n * The operation is _terminal_.\n *\n * @sample samples.collections.Collections.Elements.elementAtOrElse\n */\npublic fun <T>

```

```

Sequence<T>.elementAtOrElse(index: Int, defaultValue: (Int) -> T): T {
    if (index < 0)
        return
        defaultValue(index)
    val iterator = iterator()
    var count = 0
    while (iterator.hasNext()) {
        val element = iterator.next()
        if (index == count++)
            return element
    }
    return
    defaultValue(index)
}

```

\* Returns an element at the given [index] or `null` if the [index] is out of bounds of this sequence.

\* The operation is \_terminal\_.

@sample samples.collections.Collections.Elements.elementAtOrNull

```

fun <T> Sequence<T>.elementAtOrNull(index: Int): T? {
    if (index < 0)
        return null
    val iterator =
        iterator()
    var count = 0
    while (iterator.hasNext()) {
        val element = iterator.next()
        if (index ==
            count++)
            return element
    }
    return null
}

```

\* Returns the first element matching the given [predicate], or `null` if no such element was found.

\* The operation is \_terminal\_.

@sample samples.collections.Collections.Elements.find

```

@kotlin.internal.InlineOnly
public inline fun <T>
Sequence<T>.find(predicate: (T) -> Boolean): T? {
    return firstOrNull(predicate)
}

```

\* Returns the last element matching the given [predicate], or `null` if no such element was found.

\* The operation is \_terminal\_.

@sample samples.collections.Collections.Elements.find

```

@kotlin.internal.InlineOnly
public inline fun <T>
Sequence<T>.findLast(predicate: (T) -> Boolean): T? {
    return lastOrNull(predicate)
}

```

\* Returns the first element.

\* The operation is \_terminal\_.

@throws NoSuchElementException if the sequence is empty.

```

fun <T> Sequence<T>.first(): T {
    val iterator = iterator()
    if (!iterator.hasNext())
        throw NoSuchElementException("Sequence is empty.")
    return iterator.next()
}

```

\* Returns the first element matching the given [predicate].

@throws [NoSuchElementException] if no such element is found.

\* The operation is \_terminal\_.

```

fun <T> Sequence<T>.first(predicate: (T) -> Boolean): T {
    for
        (element in this)
        if (predicate(element))
            return element
    throw NoSuchElementException("Sequence contains no
        element matching
        the predicate.")
}

```

\* Returns the first non-null value produced by [transform] function being applied to elements of this sequence in iteration order,

or throws [NoSuchElementException] if no non-null value was produced.

\* The operation is \_terminal\_.

@sample samples.collections.Collections.Transformations.firstNotNullOf

```

@SinceKotlin("1.5")
@kotlin.internal.InlineOnly
public inline fun <T, R : Any>
Sequence<T>.firstNotNullOf(transform: (T) -> R?): R {
    return firstNotNullOfOrNull(transform) ?: throw
        NoSuchElementException("No element of the sequence was transformed to a non-null value.")
}

```

\* Returns the first non-null value produced by [transform] function being applied to elements of this sequence in iteration order,

or `null` if no non-null value was produced.

\* The operation is \_terminal\_.

@sample samples.collections.Collections.Transformations.firstNotNullOf

```

@SinceKotlin("1.5")
@kotlin.internal.InlineOnly
public
inline fun <T, R : Any> Sequence<T>.firstNotNullOfOrNull(transform: (T) -> R?): R? {
    for (element in this) {
        val result = transform(element)
        if (result != null)
            return result
    }
    return
    null
}

```

\* Returns the first element, or `null` if the sequence is empty.

\* The operation is \_terminal\_.

```

fun <T> Sequence<T>.firstOrNull(): T? {
    val iterator = iterator()
    if (!iterator.hasNext())
        return null
    return iterator.next()
}

```

\* Returns the first element matching the given [predicate], or `null` if element was not found.

\* The operation is \_terminal\_.

```

fun <T> Sequence<T>.firstOrNull(predicate: (T) -> Boolean): T? {
    for (element in this)
        if (predicate(element))
            return element
    return null
}

```

\* Returns first index of [element], or -1 if the sequence does not contain element.

\* The operation is \_terminal\_.

```

@kotlin.internal.OnlyInputTypes T
fun <T> Sequence<T>.indexOf(element: T): Int {
    var index = 0
    for (item in
        this) {
        checkIndexOverflow(index)
        if (element == item)
            return index
        index++
    }
    return -1
}

```

\* Returns index of the first element matching the given [predicate], or -1 if the sequence does not contain such element.

\* The operation is \_terminal\_.

```

fun <T> Sequence<T>.indexOfFirst(predicate: (T) -> Boolean): Int {
    var index = 0
    for (item in this) {

```

```

checkIndexOverflow(index)\n    if (predicate(item))\n        return index\n    index++\n } \n return -
1\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the sequence does not
contain such element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T>
Sequence<T>.indexOfLast(predicate: (T) -> Boolean): Int {\n    var lastIndex = -1\n    var index = 0\n    for (item in
this) {\n        checkIndexOverflow(index)\n        if (predicate(item))\n            lastIndex = index\n            index++\n
}\n    return lastIndex\n}\n\n/**\n * Returns the last element.\n *\n * The operation is _terminal_.\n *\n * @throws
NoSuchElementException if the sequence is empty.\n *\n * @sample
samples.collections.Collections.Elements.last\n */\npublic fun <T> Sequence<T>.last(): T {\n    val iterator =
iterator()\n    if (!iterator.hasNext())\n        throw NoSuchElementException("Sequence is empty.")\n    var last =
iterator.next()\n    while (iterator.hasNext())\n        last = iterator.next()\n    return last\n}\n\n/**\n * Returns the last
element matching the given [predicate].\n *\n * The operation is _terminal_.\n *\n * @throws
NoSuchElementException if no such element is found.\n *\n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Sequence<T>.last(predicate: (T) ->
Boolean): T {\n    var last: T? = null\n    var found = false\n
    for (element in this) {\n        if (predicate(element)) {\n            last = element\n            found = true\n        }\n
    }\n    if (!found) throw NoSuchElementException("Sequence contains no element matching the predicate.")\n
    @Suppress("UNCHECKED_CAST")\n    return last as T\n}\n\n/**\n * Returns last index of [element], or -1 if the
sequence does not contain element.\n *\n * The operation is _terminal_.\n */\npublic fun
<@kotlin.internal.OnlyInputTypes T> Sequence<T>.lastIndexOf(element: T): Int {\n    var lastIndex = -1\n    var
index = 0\n    for (item in this) {\n        checkIndexOverflow(index)\n        if (element == item)\n            lastIndex =
index\n            index++\n    }\n    return lastIndex\n}\n\n/**\n * Returns the last element, or `null` if the sequence is
empty.\n *\n * The operation is _terminal_.\n *\n * @sample samples.collections.Collections.Elements.last\n
*/\npublic fun <T> Sequence<T>.lastOrNull(): T? {\n    val iterator = iterator()\n
    if (!iterator.hasNext())\n        return null\n    var last = iterator.next()\n    while (iterator.hasNext())\n        last =
iterator.next()\n    return last\n}\n\n/**\n * Returns the last element matching the given [predicate], or `null` if no
such element was found.\n *\n * The operation is _terminal_.\n *\n * @sample
samples.collections.Collections.Elements.last\n */\npublic inline fun <T> Sequence<T>.lastOrNull(predicate: (T) ->
Boolean): T? {\n    var last: T? = null\n    for (element in this) {\n        if (predicate(element)) {\n            last =
element\n        }\n    }\n    return last\n}\n\n/**\n * Returns the single element, or throws an exception if the
sequence is empty or has more than one element.\n *\n * The operation is _terminal_.\n */\npublic fun <T>
Sequence<T>.single(): T {\n    val iterator = iterator()\n    if (!iterator.hasNext())\n        throw
NoSuchElementException("Sequence is empty.")\n    val single = iterator.next()\n    if (iterator.hasNext())\n        throw
IllegalArgumentException("Sequence has more than one element.")\n    return single\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception if there is no or more than one
matching element.\n *\n * The operation is _terminal_.\n */\npublic inline fun <T> Sequence<T>.single(predicate:
(T) -> Boolean): T {\n    var single: T? = null\n    var found = false\n    for (element in this) {\n        if
(predicate(element)) {\n            if (found) throw IllegalArgumentException("Sequence contains more than one
matching element.")\n            single = element\n            found = true\n        }\n    }\n    if (!found) throw
NoSuchElementException("Sequence contains no element matching the predicate.")\n
    @Suppress("UNCHECKED_CAST")\n    return single as T\n}\n\n/**\n * Returns single element, or `null` if the
sequence is empty or has more than one element.\n *\n * The operation is _terminal_.\n */\npublic fun <T>
Sequence<T>.singleOrNull():
T? {\n    val iterator = iterator()\n    if (!iterator.hasNext())\n        return null\n    val single = iterator.next()\n    if
(iterator.hasNext())\n        return null\n    return single\n}\n\n/**\n * Returns the single element matching the given
[predicate], or `null` if element was not found or more than one element was found.\n *\n * The operation is
_terminal_.\n */\npublic inline fun <T> Sequence<T>.singleOrNull(predicate: (T) -> Boolean): T? {\n    var single:
T? = null\n    var found = false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return
null\n            single = element\n            found = true\n        }\n    }\n    if (!found) return null\n    return

```

```

single\n}\n\n/**\n * Returns a sequence containing all elements except first [n] elements.\n * \n * The operation is
_intermediate_ and _stateless_.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\npublic fun <T> Sequence<T>.drop(n: Int): Sequence<T> {\n    require(n >= 0) { \n"Requested element count $n
is less than zero." }\n    return when {\n        n == 0 -> this\n        this is DropTakeSequence -> this.drop(n)\n
else -> DropSequence(this, n)\n    }\n}\n\n/**\n * Returns a sequence containing all elements except first elements
that satisfy the given [predicate].\n * \n * The operation is _intermediate_ and _stateless_.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\npublic fun <T> Sequence<T>.dropWhile(predicate: (T
-> Boolean): Sequence<T> {\n    return DropWhileSequence(this, predicate)\n}\n\n/**\n * Returns a sequence
containing only elements matching the given [predicate].\n * \n * The operation is _intermediate_ and _stateless_.\n
*\n * @sample samples.collections.Collections.Filtering.filter\n
*\npublic fun <T> Sequence<T>.filter(predicate:
(T -> Boolean): Sequence<T> {\n    return FilteringSequence(this, true, predicate)\n}\n\n/**\n
* Returns a sequence containing only elements matching the given [predicate].\n * @param [predicate] function
that takes the index of an element and the element itself\n * and returns the result of predicate evaluation on the
element.\n * \n * The operation is _intermediate_ and _stateless_.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n
*\npublic fun <T> Sequence<T>.filterIndexed(predicate:
(index: Int, T) -> Boolean): Sequence<T> {\n    // TODO: Rewrite with generalized MapFilterIndexingSequence\n
return TransformingSequence(FilteringSequence(IndexingSequence(this), true, { predicate(it.index, it.value) } ), {
it.value })\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n * @param
[predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate
evaluation on the element.\n * \n * The operation is _terminal_.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n
*\npublic inline fun <T, C : MutableCollection<in T>> Sequence<T>.filterIndexedTo(destination: C, predicate:
(index: Int, T) -> Boolean): C {\n    forEachIndexed { index, element ->\n        if (predicate(index, element))
destination.add(element)\n    }\n    return destination\n}\n\n/**\n * Returns a sequence containing all elements that
are instances of specified type parameter R.\n * \n * The operation is _intermediate_ and _stateless_.\n * \n *
@sample samples.collections.Collections.Filtering.filterIsInstance\n
*\npublic inline fun <reified R>
Sequence<*>.filterIsInstance(): Sequence<@kotlin.internal.NoInfer R> {\n
@Suppress("UNCHECKED_CAST")\n    return filter { it is R } as Sequence<R>\n}\n\n/**\n * Appends all
elements that are instances of specified type parameter R to the given [destination].\n * \n * The operation is
_terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterIsInstanceTo\n
*\npublic inline
fun <reified R, C : MutableCollection<in R>> Sequence<*>.filterIsInstanceTo(destination: C): C {\n    for (element
in this) if (element is R) destination.add(element)\n    return destination\n}\n\n/**\n * Returns a sequence containing
all elements not matching the given [predicate].\n * \n * The operation is _intermediate_ and _stateless_.\n * \n *
@sample samples.collections.Collections.Filtering.filter\n
*\npublic fun <T> Sequence<T>.filterNot(predicate: (T
-> Boolean): Sequence<T> {\n    return FilteringSequence(this, false, predicate)\n}\n\n/**\n * Returns a sequence
containing all elements that are not `null`.\n * \n * The operation is _intermediate_ and _stateless_.\n * \n * @sample
samples.collections.Collections.Filtering.filterNotNull\n
*\npublic fun <T : Any> Sequence<T?>.filterNotNull():
Sequence<T> {\n    @Suppress("UNCHECKED_CAST")\n    return filterNot { it == null } as
Sequence<T>\n}\n\n/**\n * Appends all elements that are not `null` to the given [destination].\n * \n
* \n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Filtering.filterNotNullTo\n
*\npublic fun <C : MutableCollection<in T>, T : Any> Sequence<T?>.filterNotNullTo(destination: C): C {\n    for
(element in this) if (element != null) destination.add(element)\n    return destination\n}\n\n/**\n * Appends all
elements not matching the given [predicate] to the given [destination].\n * \n * The operation is _terminal_.\n * \n *
@sample samples.collections.Collections.Filtering.filterTo\n
*\npublic inline fun <T, C : MutableCollection<in
T>> Sequence<T>.filterNotTo(destination: C, predicate: (T) -> Boolean): C {\n    for (element in this) if
(!predicate(element)) destination.add(element)\n    return destination\n}\n\n/**\n * Appends all elements matching
the given [predicate] to the given [destination].\n * \n * The operation is _terminal_.\n * \n * @sample

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samples.collections.Collections.Filtering.filterTo\n *\npublic inline fun <T, C : MutableCollection<in T>>
Sequence<T>.filterTo(destination: C, predicate: (T) -> Boolean): C {\n  for (element in this) if
(predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Returns a sequence containing
first [n] elements.\n *\n * The operation is _intermediate_ and _stateless_.\n *\n * @throws
IllegalArgumentException if [n] is negative.\n *\n * @sample
samples.collections.Collections.Transformations.take\n *\npublic fun <T> Sequence<T>.take(n: Int): Sequence<T>
{\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return when {\n    n == 0 ->
emptySequence()\n    this is DropTakeSequence -> this.take(n)\n    else -> TakeSequence(this, n)\n  }\n}\n\n/**\n * Returns a sequence containing first elements satisfying the given [predicate].\n *\n * The operation
is _intermediate_ and _stateless_.\n *\n * @sample samples.collections.Collections.Transformations.take\n
*\npublic fun <T> Sequence<T>.takeWhile(predicate: (T) -> Boolean): Sequence<T>
{\n  return TakeWhileSequence(this, predicate)\n}\n\n/**\n * Returns a sequence that yields elements of this
sequence sorted according to their natural sort order.\n *\n * The sort is _stable_. It means that equal elements
preserve their order relative to each other after sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n
*\npublic fun <T : Comparable<T>> Sequence<T>.sorted(): Sequence<T> {\n  return object : Sequence<T> {\n
  override fun iterator(): Iterator<T> {\n    val sortedList = this@sorted.toMutableList()\n
sortedList.sort()\n    return sortedList.iterator()\n  } }\n}\n\n/**\n * Returns a sequence that yields
elements of this sequence sorted according to natural sort order of the value returned by specified [selector]
function.\n *\n * The sort is _stable_. It means that equal elements preserve their order relative to each other after
sorting.\n *\n * The operation is _intermediate_ and _stateful_.\n
*\n * @sample samples.collections.Collections.Sorting.sortedBy\n *\npublic inline fun <T, R : Comparable<R>>
Sequence<T>.sortedBy(crossinline selector: (T) -> R?): Sequence<T> {\n  return
sortedWith(compareBy(selector))\n}\n\n/**\n * Returns a sequence that yields elements of this sequence sorted
descending according to natural sort order of the value returned by specified [selector] function.\n *\n * The sort is
_stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation
is _intermediate_ and _stateful_.\n *\npublic inline fun <T, R : Comparable<R>>
Sequence<T>.sortedByDescending(crossinline selector: (T) -> R?): Sequence<T> {\n  return
sortedWith(compareByDescending(selector))\n}\n\n/**\n * Returns a sequence that yields elements of this sequence
sorted descending according to their natural sort order.\n *\n * The sort is _stable_. It means that equal elements
preserve their order relative to each other after sorting.\n
*\n * The operation is _intermediate_ and _stateful_.\n *\npublic fun <T : Comparable<T>>
Sequence<T>.sortedDescending(): Sequence<T> {\n  return sortedWith(reverseOrder())\n}\n\n/**\n * Returns a
sequence that yields elements of this sequence sorted according to the specified [comparator].\n *\n * The sort is
_stable_. It means that equal elements preserve their order relative to each other after sorting.\n *\n * The operation
is _intermediate_ and _stateful_.\n *\npublic fun <T> Sequence<T>.sortedWith(comparator: Comparator<in T>):
Sequence<T> {\n  return object : Sequence<T> {\n    override fun iterator(): Iterator<T> {\n      val
sortedList = this@sortedWith.toMutableList()\n      sortedList.sortWith(comparator)\n      return
sortedList.iterator()\n    } }\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform]
function\n * applied to elements of the given sequence.\n *\n * If any of two pairs would have the same
key the last one gets added to the map.\n *\n * The returned map preserves the entry iteration order of the original
sequence.\n *\n * The operation is _terminal_.\n *\n * @sample
samples.collections.Collections.Transformations.associate\n *\npublic inline fun <T, K, V>
Sequence<T>.associate(transform: (T) -> Pair<K, V>): Map<K, V> {\n  return associateTo(LinkedHashMap<K,
V>(), transform)\n}\n\n/**\n * Returns a [Map] containing the elements from the given sequence indexed by the
key\n * returned from [keySelector] function applied to each element.\n *\n * If any two elements would have the
same key returned by [keySelector] the last one gets added to the map.\n *\n * The returned map preserves the entry
iteration order of the original sequence.\n *\n * The operation is _terminal_.\n *\n * @sample
samples.collections.Collections.Transformations.associateBy\n *\npublic inline fun <T, K>

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Sequence<T>.associateBy(keySelector: (T) -> K): Map<K, T> {
    return associateByTo(LinkedHashMap<K, T>(), keySelector)
}

Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to elements of the given sequence.
If any two elements would have the same key returned by [keySelector] the last one gets added to the map.
The returned map preserves the entry iteration order of the original sequence.
The operation is _terminal_.
@sample
samples.collections.Collections.Transformations.associateByWithValueTransform

public inline fun <T, K, V> Sequence<T>.associateBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, V> {
    return associateByTo(LinkedHashMap<K, V>(), keySelector, valueTransform)
}

Populates and returns the [destination] mutable map with key-value pairs, where key is provided by the [keySelector] function applied to each element of the given sequence and value is the element itself.
If any two elements would have the same key returned by [keySelector] the last one gets added to the map.
The operation is _terminal_.
@sample
samples.collections.Collections.Transformations.associateByTo

public inline fun <T, K, M : MutableMap<in K, in T>> Sequence<T>.associateByTo(destination: M, keySelector: (T) -> K): M {
    for (element in this) {
        destination.put(keySelector(element), element)
    }
    return destination
}

Populates and returns the [destination] mutable map with key-value pairs, where key is provided by the [keySelector] function and value is provided by the [valueTransform] function applied to elements of the given sequence.
If any two elements would have the same key returned by [keySelector] the last one gets added to the map.
The operation is _terminal_.
@sample
samples.collections.Collections.Transformations.associateByToWithValueTransform

public inline fun <T, K, V, M : MutableMap<in K, in V>> Sequence<T>.associateByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {
    for (element in this) {
        destination.put(keySelector(element), valueTransform(element))
    }
    return destination
}

Populates and returns the [destination] mutable map with key-value pairs provided by [transform] function applied to each element of the given sequence.
If any of two pairs would have the same key the last one gets added to the map.
The operation is _terminal_.
@sample
samples.collections.Collections.Transformations.associateTo

public inline fun <T, K, V, M : MutableMap<in K, in V>> Sequence<T>.associateTo(destination: M, transform: (T) -> Pair<K, V>): M {
    for (element in this) {
        destination += transform(element)
    }
    return destination
}

Returns a [Map] where keys are elements from the given sequence and values are produced by the [valueSelector] function applied to each element.
If any two elements are equal, the last one gets added to the map.
The returned map preserves the entry iteration order of the original sequence.
The operation is _terminal_.
@sample
samples.collections.Collections.Transformations.associateWith

@SinceKotlin("1.3")
public inline fun <K, V> Sequence<K>.associateWith(valueSelector: (K) -> V): Map<K, V> {
    val result = LinkedHashMap<K, V>()
    return associateWithTo(result, valueSelector)
}

Populates and returns the [destination] mutable map with key-value pairs for each element of the given sequence, where key is the element itself and value is provided by the [valueSelector] function applied to that key.
If any two elements are equal, the last one overwrites the former value in the map.
The operation is _terminal_.
@sample
samples.collections.Collections.Transformations.associateWithTo

@SinceKotlin("1.3")
public inline fun <K, V, M : MutableMap<in K, in V>> Sequence<K>.associateWithTo(destination: M, valueSelector: (K) -> V): M {
    for (element in this) {
        destination.put(element, valueSelector(element))
    }
    return destination
}

Appends all elements to the given [destination] collection.
The operation is _terminal_.
public fun <T, C : MutableCollection<in T>> Sequence<T>.toCollection(destination: C): C {
    for (item in this) {
        destination.add(item)
    }
    return destination
}

Returns a new [HashSet] of all elements.
The operation is _terminal_.
public fun <T> Sequence<T>.toHashSet(): HashSet<T> {
    return toCollection(HashSet<T>())
}

Returns a [List] containing all elements.
The operation is

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_terminal_.\n *^/npublic fun <T> Sequence<T>.toList(): List<T> {\n  return
this.toMutableList().optimizeReadOnlyList()\n}\n/n/**\n * Returns a new [MutableList] filled with all elements of
this sequence.\n *\n * The operation
is_terminal_.\n *^/npublic fun <T> Sequence<T>.toMutableList(): MutableList<T> {\n  return
toCollection(ArrayList<T>())\n}\n/n/**\n * Returns a [Set] of all elements.\n *\n * The returned set preserves the
element iteration order of the original sequence.\n *\n * The operation is_terminal_.\n *^/npublic fun <T>
Sequence<T>.toSet(): Set<T> {\n  return toCollection(LinkedHashSet<T>())\n}\n/n/**\n *
Returns a single sequence of all elements from results of [transform] function being invoked on each element of
original sequence.\n *\n * The operation is_intermediate_ and _stateless_.\n *\n * @sample
samples.collections.Collections.Transformations.flatMap\n
*^/n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIterable")\npublic fun <T, R>
Sequence<T>.flatMap(transform: (T) -> Iterable<R>): Sequence<R> {\n  return FlatteningSequence(this,
transform, Iterable<R>::iterator)\n}\n/n/**\n
* Returns a single sequence of all elements from results of [transform] function being invoked on each element of
original sequence.\n *\n * The operation is_intermediate_ and _stateless_.\n *\n * @sample
samples.collections.Collections.Transformations.flatMap\n
*^/npublic fun <T, R> Sequence<T>.flatMap(transform:
(T) -> Sequence<R>): Sequence<R> {\n  return FlatteningSequence(this, transform,
Sequence<R>::iterator)\n}\n/n/**\n * Returns a single sequence of all elements yielded from results of [transform]
function being invoked on each element\n * and its index in the original sequence.\n *\n * The operation is
_intermediate_ and _stateless_.\n *\n * @sample
samples.collections.Collections.Transformations.flatMapIndexed\n
*^/n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\npublic fun <T, R>
Sequence<T>.flatMapIndexed(transform:
(index: Int, T) -> Iterable<R>): Sequence<R> {\n  return flatMapIndexed(this, transform,
Iterable<R>::iterator)\n}\n/n/**\n * Returns a single sequence of all elements yielded from results of [transform]
function being invoked on each element\n * and its index in the original sequence.\n *\n * The operation is
_intermediate_ and _stateless_.\n *\n * @sample
samples.collections.Collections.Transformations.flatMapIndexed\n
*^/n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedSequence")\npublic fun <T, R>
Sequence<T>.flatMapIndexed(transform: (index: Int, T) -> Sequence<R>): Sequence<R> {\n  return
flatMapIndexed(this, transform, Sequence<R>::iterator)\n}\n/n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original sequence, to the given
[destination].\n *\n * The operation is_terminal_.\n
*^/n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npublic
c
inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapIndexedTo(destination: C, transform: (index:
Int, T) -> Iterable<R>): C {\n  var index = 0\n  for (element in this) {\n    val list =
transform(checkIndexOverflow(index++), element)\n    destination.addAll(list)\n  }\n  return
destination\n}\n/n/**\n * Appends all elements yielded from results of [transform] function being invoked on each
element\n * and its index in the original sequence, to the given [destination].\n *\n * The operation is_terminal_.\n
*^/n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedSequenceTo")\n@kotlin.internal.InlineOnly\npublic
inline fun <T, R, C : MutableCollection<in

```



```

R>> Sequence<T>.flatMapIndexedTo(destination: C, transform: (index: Int, T) -> Sequence<R>): C {
    var index = 0
    for (element in this) {
        val list = transform(checkIndexOverflow(index++), element)
        destination.addAll(list)
    }
    return destination
}
Append all elements yielded from results of [transform] function being invoked on each element of original sequence, to the given [destination].
The operation is _terminal_.

@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@kotlin.jvm.JvmName("flatMapIterableTo")
public inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapTo(destination: C, transform: (T) -> Iterable<R>): C {
    for (element in this) {
        val list = transform(element)
        destination.addAll(list)
    }
    return destination
}
Append all elements yielded from results of [transform] function being invoked on each element of original sequence, to the given [destination].
The operation is _terminal_.

public inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.flatMapTo(destination: C, transform: (T) -> Sequence<R>): C {
    for (element in this) {
        val list = transform(element)
        destination.addAll(list)
    }
    return destination
}
Groups elements of the original sequence by the key returned by the given [keySelector] function applied to each element and returns a map where each group key is associated with a list of corresponding elements.
The returned map preserves the entry iteration order of the keys produced from the original sequence.
The operation is _terminal_.

@sample
samples.collections.Collections.Transformations.groupBy
public inline fun <T, K> Sequence<T>.groupBy(keySelector: (T) -> K): Map<K, List<T>> {
    return groupByTo(LinkedHashMap<K, MutableList<T>>(), keySelector)
}
Groups values returned by the [valueTransform] function applied to each element of the original sequence by the key returned by the given [keySelector] function applied to the element and returns a map where each group key is associated with a list of corresponding values.
The returned map preserves the entry iteration order of the keys produced from the original sequence.
The operation is _terminal_.

@sample
samples.collections.Collections.Transformations.groupByKeysAndValues
public inline fun <T, K, V> Sequence<T>.groupBy(keySelector: (T) -> K, valueTransform: (T) -> V): Map<K, List<V>> {
    return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)
}
Groups elements of the original sequence by the key returned by the given [keySelector] function applied to each element and puts to the [destination] map each group key associated with a list of corresponding elements.
The returned map preserves the entry iteration order of the keys produced from the original sequence.
The operation is _terminal_.

@sample
samples.collections.Collections.Transformations.groupByKeysAndValues
public inline fun <T, K, V, M : MutableMap<in K, MutableList<T>>> Sequence<T>.groupByTo(destination: M, keySelector: (T) -> K): M {
    for (element in this) {
        val key = keySelector(element)
        val list = destination.getOrPut(key) { ArrayList<T>() }
        list.add(element)
    }
    return destination
}
Groups values returned by the [valueTransform] function applied to each element of the original sequence by the key returned by the given [keySelector] function applied to the element and puts to the [destination] map each group key associated with a list of corresponding values.
The returned map preserves the entry iteration order of the keys produced from the original sequence.
The operation is _terminal_.

@sample
samples.collections.Collections.Transformations.groupByKeysAndValues
public inline fun <T, K, V, M : MutableMap<in K, MutableList<V>>> Sequence<T>.groupByTo(destination: M, keySelector: (T) -> K, valueTransform: (T) -> V): M {
    for (element in this) {
        val key = keySelector(element)
        val list = destination.getOrPut(key) { ArrayList<V>() }
        list.add(valueTransform(element))
    }
    return destination
}
Creates a [Grouping] source from a sequence to be used later with one of group-and-fold operations using the specified [keySelector] function to extract a key from each element.
The operation is _intermediate_ and _stateless_.

@sample
samples.collections.Grouping.groupingByEachCount
@SinceKotlin("1.1")
public inline fun <T, K> Sequence<T>.groupingBy(crossinline keySelector: (T) -> K): Grouping<T, K> {
    return object : Grouping<T, K> {
        override fun sourceIterator(): Iterator<T> = this@groupingBy.iterator()
        override fun keyOf(element: T): K = keySelector(element)
    }
}
Returns a sequence containing the results of

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applying

the given [transform] function\n \* to each element in the original sequence.\n \*\n \* The operation is `_intermediate_` and `_stateless_`.\n \*\n \* @sample samples.collections.Collections.Transformations.map\n \*\n \* public fun <T, R> Sequence<T>.map(transform: (T) -> R): Sequence<R> {\n \* return TransformingSequence(this, transform)\n \* }\n \*\n \* Returns a sequence containing the results of applying the given [transform] function\n \* to each element and its index in the original sequence.\n \*\n \* @param [transform] function that takes the index of an element and the element itself\n \* and returns the result of the transform applied to the element.\n \*\n \* The operation is `_intermediate_` and `_stateless_`.\n \*\n \* public fun <T, R> Sequence<T>.mapIndexed(transform: (index: Int, T) -> R): Sequence<R> {\n \* return TransformingIndexedSequence(this, transform)\n \* }\n \*\n \* Returns a sequence containing only the non-null results of applying the given [transform] function\n \* to each element and its index

in the original sequence.\n \*\n \* @param [transform] function that takes the index of an element and the element itself\n \* and returns the result of the transform applied to the element.\n \*\n \* The operation is `_intermediate_` and `_stateless_`.\n \*\n \* public fun <T, R : Any> Sequence<T>.mapIndexedNotNull(transform: (index: Int, T) -> R?): Sequence<R> {\n \* return TransformingIndexedSequence(this, transform).filterNotNull()\n \* }\n \*\n \* Applies the given [transform] function to each element and its index in the original sequence\n \* and appends only the non-null results to the given [destination].\n \*\n \* @param [transform] function that takes the index of an element and the element itself\n \* and returns the result of the transform applied to the element.\n \*\n \* The operation is `_terminal_`.\n \*\n \* public inline fun <T, R : Any, C : MutableCollection<in R>> Sequence<T>.mapIndexedNotNullTo(destination: C, transform: (index: Int, T) -> R?): C {\n \* forEachIndexed { index, element -> transform(index,

element)?.let { destination.add(it) } }\n \* return destination\n \* }\n \*\n \* Applies the given [transform] function to each element and its index in the original sequence\n \* and appends the results to the given [destination].\n \*\n \* @param [transform] function that takes the index of an element and the element itself\n \* and returns the result of the transform applied to the element.\n \*\n \* The operation is `_terminal_`.\n \*\n \* public inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.mapIndexedTo(destination: C, transform: (index: Int, T) -> R): C {\n \* var index = 0\n \* for (item in this)\n \* destination.add(transform(checkIndexOverflow(index++), item))\n \* return destination\n \* }\n \*\n \* Returns a sequence containing only the non-null results of applying the given [transform] function\n \* to each element in the original sequence.\n \*\n \* The operation is `_intermediate_` and `_stateless_`.\n \*\n \* @sample samples.collections.Collections.Transformations.mapNotNull\n \*\n \* public fun <T, R : Any> Sequence<T>.mapNotNull(transform: (T) -> R?): Sequence<R> {\n \* return TransformingSequence(this, transform).filterNotNull()\n \* }\n \*\n \* Applies the given [transform] function to each element in the original sequence\n \* and appends only the non-null results to the given [destination].\n \*\n \* The operation is `_terminal_`.\n \*\n \* public inline fun <T, R : Any, C : MutableCollection<in R>> Sequence<T>.mapNotNullTo(destination: C, transform: (T) -> R?): C {\n \* forEach { element -> transform(element)?.let { destination.add(it) } }\n \* return destination\n \* }\n \*\n \* Applies the given [transform] function to each element of the original sequence\n \* and appends the results to the given [destination].\n \*\n \* The operation is `_terminal_`.\n \*\n \* public inline fun <T, R, C : MutableCollection<in R>> Sequence<T>.mapTo(destination: C, transform: (T) -> R): C {\n \* for (item in this)\n \* destination.add(transform(item))\n \* return destination\n \* }\n \*\n \* Returns a sequence that wraps each element of the original sequence\n \* into an [IndexedValue] containing the index of that element and the element itself.\n \*\n \* The operation is `_intermediate_` and `_stateless_`.\n \*\n \* public fun <T> Sequence<T>.withIndex(): Sequence<IndexedValue<T>> {\n \* return IndexingSequence(this)\n \* }\n \*\n \* Returns a sequence containing only distinct elements from the given sequence.\n \*\n \* Among equal elements of the given sequence, only the first one will be present in the resulting sequence.\n \*\n \* The elements in the resulting sequence are in the same order as they were in the source sequence.\n \*\n \* The operation is `_intermediate_` and `_stateful_`.\n \*\n \* @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n \*\n \* public fun <T> Sequence<T>.distinct(): Sequence<T> {\n \* return this.distinctBy { it }\n \* }\n \*\n \* Returns a sequence

containing only elements from the given sequence\n \* having distinct keys returned by the given [selector] function.\n \* \n \* Among elements of the given sequence with equal keys, only the first one will be present in the resulting sequence.\n \* The elements in the resulting sequence are in the same order as they were in the source sequence.\n \* \n \* The operation is \_intermediate\_ and \_stateful\_.\n \* \n \* @sample samples.collections.Collections.Transformations.distinctAndDistinctBy\n \* \npublic fun <T, K> Sequence<T>.distinctBy(selector: (T) -> K): Sequence<T> {\n return DistinctSequence(this, selector)\n}\n\n/\*\*\n \* Returns a new [MutableSet] containing all distinct elements from the given sequence.\n \* \n \* The returned set preserves the element iteration order of the original sequence.\n \* \n \* The operation is \_terminal\_.\n \* \npublic fun <T> Sequence<T>.toMutableSet(): MutableSet<T> {\n val set = LinkedHashSet<T>()\n for (item in this) set.add(item)\n return set\n}\n\n/\*\*\n \* Returns `true` if all elements match the given [predicate].\n \* \n \* The operation is \_terminal\_.\n \* \n \* @sample samples.collections.Collections.Aggregates.all\n \* \npublic inline fun <T> Sequence<T>.all(predicate: (T) -> Boolean): Boolean {\n for (element in this) if (!predicate(element)) return false\n return true\n}\n\n/\*\*\n \* Returns `true` if sequence has at least one element.\n \* \n \* The operation is \_terminal\_.\n \* \n \* @sample samples.collections.Collections.Aggregates.any\n \* \npublic fun <T> Sequence<T>.any(): Boolean {\n return iterator().hasNext()\n}\n\n/\*\*\n \* Returns `true` if at least one element matches the given [predicate].\n \* \n \* The operation is \_terminal\_.\n \* \n \* @sample samples.collections.Collections.Aggregates.anyWithPredicate\n \* \npublic inline fun <T> Sequence<T>.any(predicate: (T) -> Boolean): Boolean {\n for (element in this) if (predicate(element)) return true\n return false\n}\n\n/\*\*\n \* Returns the number of elements in this sequence.\n \* \n \* The operation is \_terminal\_.\n \* \npublic fun <T> Sequence<T>.count(): Int {\n var count = 0\n for (element in this) checkCountOverflow(++count)\n return count\n}\n\n/\*\*\n \* Returns the number of elements matching the given [predicate].\n \* \n \* The operation is \_terminal\_.\n \* \npublic inline fun <T> Sequence<T>.count(predicate: (T) -> Boolean): Int {\n var count = 0\n for (element in this) if (predicate(element)) checkCountOverflow(++count)\n return count\n}\n\n/\*\*\n \* Accumulates value starting with [initial] value and applying [operation] from left to right\n \* to current accumulator value and each element.\n \* \n \* Returns the specified [initial] value if the sequence is empty.\n \* \n \* @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n \* \n \* The operation is \_terminal\_.\n \* \npublic inline fun <T, R> Sequence<T>.fold(initial: R, operation: (acc: R, T) -> R): R {\n var accumulator = initial\n for (element in this) accumulator = operation(accumulator, element)\n return accumulator\n}\n\n/\*\*\n \* Accumulates value starting with [initial] value and applying [operation] from left to right\n \* to current accumulator value and each element with its index in the original sequence.\n \* \n \* Returns the specified [initial] value if the sequence is empty.\n \* \n \* @param [operation] function that takes the index of an element, current accumulator value\n \* and the element itself, and calculates the next accumulator value.\n \* \n \* The operation is \_terminal\_.\n \* \npublic inline fun <T, R> Sequence<T>.foldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): R {\n var index = 0\n var accumulator = initial\n for (element in this) accumulator = operation(checkIndexOverflow(index++), accumulator, element)\n return accumulator\n}\n\n/\*\*\n \* Performs the given [action] on each element.\n \* \n \* The operation is \_terminal\_.\n \* \npublic inline fun <T> Sequence<T>.forEach(action: (T) -> Unit): Unit {\n for (element in this) action(element)\n}\n\n/\*\*\n \* Performs the given [action] on each element, providing sequential index with the element.\n \* \n \* @param [action] function that takes the index of an element and the element itself\n \* and performs the action on the element.\n \* \n \* The operation is \_terminal\_.\n \* \npublic inline fun <T> Sequence<T>.forEachIndexed(action: (index: Int, T) -> Unit): Unit {\n var index = 0\n for (item in this) action(checkIndexOverflow(index++), item)\n}\n\n/\*\*\n \* Returns the largest element.\n \* \n \* If any of elements is `NaN` returns `NaN`.\n \* \n \* The operation is \_terminal\_.\n \* \n \* @throws NoSuchElementException if the sequence is empty.\n \* \n \* \n \* @SinceKotlin("1.7")\n \* @kotlin.jvm.JvmName("maxOrThrow")\n \* @Suppress("CONFLICTING\_OVERLOADS")\n \* \npublic fun Sequence<Double>.max(): Double {\n val iterator = iterator()\n if (!iterator.hasNext()) throw NoSuchElementException()\n var max = iterator.next()\n while (iterator.hasNext()) {\n val e =

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iterator.next()\n
    max = maxOf(max, e)\n    }\n    return max\n}\n\n/**\n * Returns the largest element.\n * \n * If any of elements is\n `NaN` returns `NaN`.\n * \n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the\n sequence is empty.\n\n*/\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun Sequence<Float>.max(): Float {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw\n NoSuchElementException()\n    var max = iterator.next()\n    while (iterator.hasNext()) {\n        val e =\n iterator.next()\n        max = maxOf(max, e)\n    }\n    return max\n}\n\n/**\n * Returns the largest element.\n * \n * The operation is _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n\n*/\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun <T : Comparable<T>> Sequence<T>.max(): T {\n    val iterator = iterator()\n    if\n (!iterator.hasNext()) throw\n NoSuchElementException()\n    var max = iterator.next()\n    while (iterator.hasNext()) {\n        val e =\n iterator.next()\n        if (max < e) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first element yielding the\n largest value of the given function.\n * \n * The operation is _terminal_.\n * \n * @throws NoSuchElementException\n if the sequence is empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n\n*/\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow")\n@Suppress("CONFLICTING_OVERLOADS")\npublic inline fun <T, R : Comparable<R>> Sequence<T>.maxBy(selector: (T) -> R): T {\n    val iterator\n = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var maxElem = iterator.next()\n    if\n (!iterator.hasNext()) return maxElem\n    var maxValue = selector(maxElem)\n    do {\n        val e = iterator.next()\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    while (iterator.hasNext())\n    return maxElem\n}\n\n/**\n * Returns the first element yielding the largest value\n of the given function or `null` if there are no elements.\n * \n * The operation is _terminal_.\n * \n * @sample\n samples.collections.Collections.Aggregates.maxByOrNull\n\n*/\n@SinceKotlin("1.4")\npublic inline fun <T, R : Comparable<R>> Sequence<T>.maxByOrNull(selector: (T) -> R): T? {\n    val iterator = iterator()\n    if\n (!iterator.hasNext()) return null\n    var maxElem = iterator.next()\n    if (!iterator.hasNext()) return maxElem\n    var\n maxValue = selector(maxElem)\n    do {\n        val e = iterator.next()\n        val v = selector(e)\n        if (maxValue <\n v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    while (iterator.hasNext())\n    return\n maxElem\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to\n each element in the sequence.\n * \n * If any of values produced by [selector] function\n is `NaN`, the returned result is `NaN`.\n * \n * The operation is _terminal_.\n * \n * @throws\n NoSuchElementException if the sequence is empty.\n\n*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOf(selector: (T) ->\n Double): Double {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw\n NoSuchElementException()\n    var\n maxValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all\n values produced by [selector] function\n * applied to each element in the sequence.\n * \n * If any of values\n produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * The operation is _terminal_.\n * \n * @throws\n NoSuchElementException if the sequence is empty.\n\n*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOf(selector: (T) ->\n Float): Float {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw\n NoSuchElementException()\n    var\n maxValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all\n values produced by [selector] function\n * applied to each element in the sequence.\n * \n * The operation is\n _terminal_.\n * \n * @throws NoSuchElementException if the sequence is empty.\n\n*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

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ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>>
Sequence<T>.maxOf(selector: (T) -> R): R {\n
    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var maxValue =
selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if (maxValue <
v) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all
values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no
elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`. \n * \n * The
operation is _terminal_.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOrNull(selector:
(T) -> Double): Double? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var maxValue =
selector(iterator.next())\n    while (iterator.hasNext())
{\n        val v = selector(iterator.next())\n        maxValue = maxOf(maxValue, v)\n    }\n    return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each element in the sequence or `null` if there are no elements.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`. \n * \n * The operation is _terminal_.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.maxOrNull(selector:
(T) -> Float): Float? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var maxValue =
selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        maxValue =
maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n * \n * The
operation is _terminal_.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>>
Sequence<T>.maxOrNull(selector: (T) -> R): R? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return
null\n    var maxValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v =
selector(iterator.next())\n        if (maxValue < v) {\n            maxValue = v\n        }\n    }\n    return
maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values
produced by [selector] function applied to each element in the sequence.\n * \n * @throws
NoSuchElementException if the sequence is empty.\n * \n * The operation is _terminal_.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <T, R> Sequence<T>.maxOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n    val
iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var maxValue =
selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if
(comparator.compare(maxValue, v) < 0) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n *
Returns the largest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each element in the sequence or `null` if there are no elements.\n * \n * The operation is
_terminal_.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R>
Sequence<T>.maxOfOrNull(comparator:
Comparator<in R>, selector: (T) -> R): R? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n
var maxValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n
if (comparator.compare(maxValue, v) < 0) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n *
Returns the largest element or `null` if there are no elements.\n * \n * If any of elements is `NaN` returns `NaN`. \n *
\n * The operation is _terminal_.\n
*\n@SinceKotlin("1.4")\npublic fun Sequence<Double>.maxOrNull():

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Double? {
    val iterator = iterator()
    if (!iterator.hasNext()) return null
    var max = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        max = maxOf(max, e)
    }
    return max
}

Returns the largest element or `null` if there are no elements.
If any of elements is `NaN` returns `NaN`.
The operation is _terminal_.
@SinceKotlin("1.4")
public fun Sequence<Float>.maxOrNull(): Float? {
    val iterator = iterator()
    if (!iterator.hasNext()) return null
    var max = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        max = maxOf(max, e)
    }
    return max
}

Returns the largest element or `null` if there are no elements.
The operation is _terminal_.
@SinceKotlin("1.4")
public fun <T : Comparable<T>> Sequence<T>.maxOrNull(): T? {
    val iterator = iterator()
    if (!iterator.hasNext()) return null
    var max = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        if (max < e) max = e
    }
    return max
}

Returns the first element having the largest value according to the provided [comparator].
The operation is _terminal_.
@throws NoSuchElementException if the sequence is empty.
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("maxWithOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public fun <T> Sequence<T>.maxWith(comparator: Comparator<in T>): T {
    val iterator = iterator()
    if (!iterator.hasNext()) throw NoSuchElementException()
    var max = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        if (comparator.compare(max, e) < 0) max = e
    }
    return max
}

Returns the first element having the largest value according to the provided [comparator] or `null` if there are no elements.
The operation is _terminal_.
@SinceKotlin("1.4")
public fun <T> Sequence<T>.maxWithOrNull(comparator: Comparator<in T>): T? {
    val iterator = iterator()
    if (!iterator.hasNext()) return null
    var max = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        if (comparator.compare(max, e) < 0) max = e
    }
    return max
}

Returns the smallest element.
If any of elements is `NaN` returns `NaN`.
The operation is _terminal_.
@throws NoSuchElementException if the sequence is empty.
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public fun Sequence<Double>.min(): Double {
    val iterator = iterator()
    if (!iterator.hasNext()) throw NoSuchElementException()
    var min = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        min = minOf(min, e)
    }
    return min
}

Returns the smallest element.
If any of elements is `NaN` returns `NaN`.
The operation is _terminal_.
@throws NoSuchElementException if the sequence is empty.
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public fun Sequence<Float>.min(): Float {
    val iterator = iterator()
    if (!iterator.hasNext()) throw NoSuchElementException()
    var min = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        min = minOf(min, e)
    }
    return min
}

Returns the smallest element.
The operation is _terminal_.
@throws NoSuchElementException if the sequence is empty.
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public fun <T : Comparable<T>> Sequence<T>.min(): T {
    val iterator = iterator()
    if (!iterator.hasNext()) throw NoSuchElementException()
    var min = iterator.next()
    while (iterator.hasNext()) {
        val e = iterator.next()
        if (min > e) min = e
    }
    return min
}

Returns the first element yielding the smallest value of the given function.
The operation is _terminal_.
@throws NoSuchElementException if the sequence is empty.
@sample
samples.collections.Collections.Aggregates.minBy
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <T, R : Comparable<R>> Sequence<T>.minBy(selector: (T) -> R): T {
    val iterator = iterator()
    if (!iterator.hasNext()) throw NoSuchElementException()
    var minElem = iterator.next()
    if (!iterator.hasNext()) return minElem
    var minValue = selector(minElem)
    do {
        val e = iterator.next()
        val v =

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selector(e)\n    if (minValue > v) {\n        minElem = e\n        minValue = v\n    }\n } while
(iterator.hasNext())\n return minElem\n}\n\n/**\n * Returns the first element yielding the smallest value of the
given function or `null` if there are no elements.\n *\n * The operation is _terminal_.\n *\n * @sample
samples.collections.Collections.Aggregates.minByOrNull\n */\n@SinceKotlin("1.4")\npublic inline fun <T, R :
Comparable<R>> Sequence<T>.minByOrNull(selector: (T) -> R): T? {\n    val iterator = iterator()\n    if
(!iterator.hasNext()) return null\n    var minElem = iterator.next()\n    if (!iterator.hasNext())
return minElem\n    var minValue = selector(minElem)\n    do {\n        val e = iterator.next()\n        val v =
selector(e)\n        if (minValue > v) {\n            minElem = e\n            minValue = v\n        }\n    } while
(iterator.hasNext())\n    return minElem\n}\n\n/**\n * Returns the smallest value among all values produced by
[selector] function\n * applied to each element in the sequence.\n *\n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n *\n * @throws
NoSuchElementException if the sequence is empty.\n
*\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOf(selector: (T) ->
Double): Double {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var
minValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n
minValue = minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the sequence.\n *\n * If any of values produced by [selector] function is `NaN`, the returned result
is `NaN`.\n *\n * The operation is _terminal_.\n *\n * @throws NoSuchElementException if the sequence is
empty.\n
*\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOf(selector: (T) ->
Float): Float {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var
minValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n
minValue = minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the
smallest value among all values produced by [selector] function\n * applied to each element in the sequence.\n *\n * The operation is _terminal_.\n *\n * @throws NoSuchElementException if the sequence is empty.\n
*\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T, R : Comparable<R>>
Sequence<T>.minOf(selector: (T) -> R): R {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw
NoSuchElementException()\n    var minValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v
= selector(iterator.next())\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return
minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
each element in the sequence or `null` if there are no elements.\n *\n * If any of values produced by [selector]
function is `NaN`,
the returned result is `NaN`.\n *\n * The operation is _terminal_.\n
*\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.minOfOrNull(selector:
(T) -> Double): Double? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var minValue =
selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        minValue =
minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n *\n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n *\n * The operation is _terminal_.\n
*\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <T> Sequence<T>.minOfOrNull(selector: (T) -> Float): Float? {\n    val iterator = iterator()\n    if
(!iterator.hasNext()) return null\n    var minValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n

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val v = selector(iterator.next())\n    minValue = minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the sequence or `null` if there are no elements.\n * \n * The operation is _terminal_.\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T, R : Comparable<R>>\n Sequence<T>.minOfOrNull(selector: (T) -> R): R? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return\n    null\n    var minValue = selector(iterator.next())\n    while (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return\n    minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the sequence.\n * \n * @throws\n NoSuchElementException if the sequence is empty.\n * \n * The operation is _terminal_.\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T, R>\n Sequence<T>.minOfWith(comparator: Comparator<in R>, selector: (T) -> R): R {\n    val iterator = iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var minValue = selector(iterator.next())\n    while\n    (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if (comparator.compare(minValue, v) > 0) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]\n * function applied to each element in the sequence or `null` if there are no elements.\n * \n * The operation is\n _terminal_.\n *\n @SinceKotlin("1.4")\n @OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n @OverloadResolution\n ByLambdaReturnType\n @kotlin.internal.InlineOnly\n public inline fun <T, R>\n Sequence<T>.minOfWithOrNull(comparator: Comparator<in R>, selector: (T) -> R): R? {\n    val iterator =\n    iterator()\n    if (!iterator.hasNext()) return null\n    var minValue = selector(iterator.next())\n    while\n    (iterator.hasNext()) {\n        val v = selector(iterator.next())\n        if (comparator.compare(minValue, v) > 0) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest element or `null` if there are\n no elements.\n * \n * If any of elements is `NaN` returns `NaN`.\n * \n * The operation is _terminal_.\n *\n @SinceKotlin("1.4")\n public\n fun Sequence<Double>.minOrNull(): Double? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var min = iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        min = minOf(min, e)\n    }\n    return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * If any of\n elements is `NaN` returns `NaN`.\n * \n * The operation is _terminal_.\n *\n @SinceKotlin("1.4")\n public fun\n Sequence<Float>.minOrNull(): Float? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var\n    min = iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        min = minOf(min, e)\n    }\n    return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n * \n * The operation is\n _terminal_.\n *\n @SinceKotlin("1.4")\n public fun <T : Comparable<T>> Sequence<T>.minOrNull(): T? {\n    val\n    iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var min = iterator.next()\n    while (iterator.hasNext()) {\n        val e =\n        iterator.next()\n        if (min > e) min = e\n    }\n    return min\n}\n\n/**\n * Returns the first element having the\n smallest value according to the provided [comparator].\n * \n * The operation is _terminal_.\n * \n * @throws\n NoSuchElementException if the sequence is empty.\n *\n @SinceKotlin("1.7")\n @kotlin.jvm.JvmName("minWithOrThrow")\n @Suppress("CONFLICTING_OVERLOADS")\n public fun <T> Sequence<T>.minWith(comparator: Comparator<in T>): T {\n    val\n    iterator =\n    iterator()\n    if (!iterator.hasNext()) throw NoSuchElementException()\n    var min = iterator.next()\n    while\n    (iterator.hasNext()) {\n        val e = iterator.next()\n        if (comparator.compare(min, e) > 0) min = e\n    }\n    return\n    min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator] or\n `null` if there are no elements.\n * \n * The

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operation is _terminal_.\n * \n * @SinceKotlin("\1.4")\npublic fun <T> Sequence<T>.minWithOrNull(comparator:
Comparator<in T>): T? {\n    val iterator = iterator()\n    if (!iterator.hasNext()) return null\n    var min =
iterator.next()\n    while (iterator.hasNext()) {\n        val e = iterator.next()\n        if (comparator.compare(min, e) >
0) min = e\n    }\n    return min\n}\n\n\n * Returns `true` if the sequence has no elements.\n * \n * The operation is
_terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.none\n * \n * \npublic fun <T>
Sequence<T>.none(): Boolean {\n    return !iterator().hasNext()\n}\n\n\n * Returns `true` if no elements match
the given [predicate].\n * \n * The operation is _terminal_.\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n * \n * \npublic inline fun <T>
Sequence<T>.none(predicate: (T) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return
false\n    return true\n}\n\n\n * Returns
a sequence which performs the given [action] on each element of the original sequence as they pass through it.\n * \n
* The operation is _intermediate_ and _stateless_.\n * \n * @SinceKotlin("\1.1")\npublic fun <T>
Sequence<T>.onEach(action: (T) -> Unit): Sequence<T> {\n    return map {\n        action(it)\n        it\n
}\n}\n\n\n * Returns a sequence which performs the given [action] on each element of the original sequence as
they pass through it.\n * @param [action] function that takes the index of an element and the element itself\n * and
performs the action on the element.\n * \n * The operation is _intermediate_ and _stateless_.\n
* \n * @SinceKotlin("\1.4")\npublic fun <T> Sequence<T>.onEachIndexed(action: (index: Int, T) -> Unit):
Sequence<T> {\n    return mapIndexed { index, element ->\n        action(index, element)\n        element\n
}\n}\n\n\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to
current accumulator value
and each element.\n * \n * Throws an exception if this sequence is empty. If the sequence can be empty in an
expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param
[operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator
value.\n * \n * The operation is _terminal_.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n
* \n * \npublic inline fun <S, T : S> Sequence<T>.reduce(operation: (acc: S, T) -> S): S {\n    val iterator =
this.iterator()\n    if (!iterator.hasNext()) throw UnsupportedOperationException("\Empty sequence can't be
reduced.")\n    var accumulator: S = iterator.next()\n    while (iterator.hasNext()) {\n        accumulator =
operation(accumulator, iterator.next())\n    }\n    return accumulator\n}\n\n\n * Accumulates value starting with
the first element and applying [operation] from left to right\n * to current accumulator value and each
element with its index in the original sequence.\n * \n * Throws an exception if this sequence is empty. If the
sequence can be empty in an expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator
value and the element itself,\n * and calculates the next accumulator value.\n * \n * The operation is _terminal_.\n
* \n * @sample samples.collections.Collections.Aggregates.reduce\n * \n * \npublic inline fun <S, T : S>
Sequence<T>.reduceIndexed(operation: (index: Int, acc: S, T) -> S): S {\n    val iterator = this.iterator()\n    if
(!iterator.hasNext()) throw UnsupportedOperationException("\Empty sequence can't be reduced.")\n    var index =
1\n    var accumulator: S = iterator.next()\n    while (iterator.hasNext()) {\n        accumulator =
operation(checkIndexOverflow(index++), accumulator, iterator.next())\n    }\n    return accumulator\n}\n\n\n *
Accumulates value starting with the first element and applying [operation] from left to right\n * to current
accumulator value and each element with its index in the original sequence.\n * \n * Returns `null` if the sequence
is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the
element itself,\n * and calculates the next accumulator value.\n * \n * The operation is _terminal_.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n * \n * @SinceKotlin("\1.4")\npublic inline fun <S, T : S>
Sequence<T>.reduceIndexedOrNull(operation: (index: Int, acc: S, T) -> S): S? {\n    val iterator = this.iterator()\n
if (!iterator.hasNext()) return null\n    var index = 1\n    var accumulator: S = iterator.next()\n    while
(iterator.hasNext()) {\n        accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())\n
}\n    return accumulator\n}\n\n\n * Accumulates value starting with the first

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element and applying [operation] from left to right\n \* to current accumulator value and each element.\n \* \n \* Returns `null` if the sequence is empty.\n \* \n \* @param [operation] function that takes current accumulator value and an element,\n \* and calculates the next accumulator value.\n \* \n \* The operation is `_terminal_`.\n \* \n \* @sample samples.collections.Collections.Aggregates.reduceOrNull\n

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*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <S, T : S>\nSequence<T>.reduceOrNull(operation: (acc: S, T) -> S): S? {\n    val iterator = this.iterator()\n    if (!iterator.hasNext()) return null\n    var accumulator: S = iterator.next()\n    while (iterator.hasNext()) {\n        accumulator = operation(accumulator, iterator.next())\n    }\n    return accumulator\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * The [initial] value should also be immutable (or should not be mutated)\n * as it may be passed to [operation] function later because of sequence's lazy nature.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n
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*\n@SinceKotlin("1.4")\npublic fun <T, R>\nSequence<T>.runningFold(initial: R, operation: (acc: R, T) -> R): Sequence<R> {\n    return sequence {\n        yield(initial)\n        var accumulator = initial\n        for (element in this@runningFold) {\n            accumulator = operation(accumulator, element)\n            yield(accumulator)\n        }\n    }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original sequence and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * The [initial] value should also be immutable (or should not be mutated)\n * as it may be passed to [operation] function later because of sequence's lazy nature.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n
```

```
*\n@SinceKotlin("1.4")\npublic fun <T, R>\nSequence<T>.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): Sequence<R> {\n    return sequence {\n        yield(initial)\n        var index = 0\n        var accumulator = initial\n        for (element in this@runningFoldIndexed) {\n            accumulator = operation(checkIndexOverflow(index++), accumulator, element)\n            yield(accumulator)\n        }\n    }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * \n * @param [operation] function that takes current accumulator value and the element, and calculates the next accumulator value.\n * \n * The operation is _intermediate_ and _stateless_.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
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*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <S, T : S>\nSequence<T>.runningReduce(operation: (acc: S, T) -> S): Sequence<S> {\n    return sequence {\n        val iterator = iterator()\n        if (iterator.hasNext()) {\n            var accumulator: S = iterator.next()\n            yield(accumulator)\n            while (iterator.hasNext()) {\n                accumulator = operation(accumulator, iterator.next())\n                yield(accumulator)\n            }\n        }\n    }\n}\n\n/**\n * Returns a sequence containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original sequence and current accumulator value that starts with the first element of this sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting sequence.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the
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element itself, and calculates the next accumulator value.
 * The operation is _intermediate_ and _stateless_.
 * @sample samples.collections.Collections.Aggregates.runningReduce
 * Since Kotlin("1.4")
public fun
<S, T : S> Sequence<T>.runningReduceIndexed(operation: (index: Int, acc: S, T) -> S): Sequence<S> {
    return
    sequence {
        val iterator = iterator()
        if (iterator.hasNext()) {
            var accumulator: S =
            iterator.next()
            yield(accumulator)
            var index = 1
            while (iterator.hasNext()) {
                accumulator = operation(checkIndexOverflow(index++), accumulator, iterator.next())
                yield(accumulator)
            }
        }
    }
}
 * Returns a sequence containing successive accumulation
values generated by applying [operation] from left to right
 * to each element and current accumulator value that
starts with [initial] value.
 * Note that `acc` value passed to [operation]
function should not be mutated;
 * otherwise it would affect the previous value in resulting sequence.
 * The
[initial] value should also be immutable (or should not be mutated)
 * as it may be passed to [operation] function
later because of sequence's lazy nature.
 * @param [operation] function that takes current accumulator value
and an element, and calculates the next accumulator value.
 * The operation is _intermediate_ and
_stateless_.
 * @sample samples.collections.Collections.Aggregates.scan
 * Since Kotlin("1.4")
 * WasExperimental(ExperimentalStdlibApi::class)
public fun <T, R>
Sequence<T>.scan(initial: R, operation: (acc: R, T) -> R): Sequence<R> {
    return runningFold(initial,
operation)
}
 * Returns a sequence containing successive accumulation values generated by applying
[operation] from left to right
 * to each element, its index in the original sequence and current accumulator value
that starts with [initial] value.
 *
 * Note that `acc` value passed to [operation] function should not be mutated;
 * otherwise it would affect the
previous value in resulting sequence.
 * The [initial] value should also be immutable (or should not be mutated)
 * as it may be passed to [operation] function later because of sequence's lazy nature.
 * @param [operation]
function that takes the index of an element, current accumulator value
 * and the element itself, and calculates the
next accumulator value.
 * The operation is _intermediate_ and _stateless_.
 * @sample
samples.collections.Collections.Aggregates.scan
 * Since Kotlin("1.4")
 * WasExperimental(ExperimentalStdlibApi::class)
public fun <T, R>
Sequence<T>.scanIndexed(initial: R, operation: (index: Int, acc: R, T) -> R): Sequence<R> {
    return
runningFoldIndexed(initial, operation)
}
 * Returns the sum of all values produced by [selector] function
applied to each element in the sequence.
 * The operation is _terminal_.
 * @Deprecated("Use sumOf instead.")
ReplaceWith("this.sumOf(selector)")
 * @DeprecatedSinceKotlin(warningSince = "1.5")
public inline fun <T>
Sequence<T>.sumBy(selector: (T) -> Int): Int {
    var sum: Int = 0
    for (element in this) {
        sum +=
selector(element)
    }
    return sum
}
 * Returns the sum of all values produced by [selector] function
applied to each element in the sequence.
 * The operation is _terminal_.
 * @Deprecated("Use sumOf
instead.", ReplaceWith("this.sumOf(selector)"))
 * @DeprecatedSinceKotlin(warningSince = "1.5")
public inline
fun <T> Sequence<T>.sumByDouble(selector: (T) -> Double): Double {
    var sum: Double = 0.0
    for (element
in this) {
        sum += selector(element)
    }
    return sum
}
 * Returns the sum of all values produced
by [selector] function applied to each element in the sequence.
 * The operation is _terminal_.
 * Since Kotlin("1.4")
 * OptIn(kotlin.experimental.ExperimentalTypeInference::class)
 * @OverloadResolution
ByLambdaReturnType
 * kotlin.jvm.JvmName("sumOfDouble")
 * kotlin.internal.InlineOnly
public
inline fun <T> Sequence<T>.sumOf(selector: (T) -> Double): Double {
    var sum: Double = 0.toDouble()
    for
(element in this) {
        sum += selector(element)
    }
    return sum
}
 * Returns the sum of all values
produced by [selector] function applied to each element in the sequence.
 * The operation is _terminal_.
 * Since Kotlin("1.4")
 * OptIn(kotlin.experimental.ExperimentalTypeInference::class)
 * @OverloadResolution
ByLambdaReturnType
 * kotlin.jvm.JvmName("sumOfInt")
 * kotlin.internal.InlineOnly
public inline fun <T>
Sequence<T>.sumOf(selector: (T) -> Int): Int {
    var sum: Int = 0.toInt()
    for (element in this) {
        sum +=
selector(element)
    }
    return sum
}
 * Returns the sum of all values produced by [selector] function
applied to each element in the sequence.
 * The operation

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is _terminal_.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
<T> Sequence<T>.sumOf(selector: (T) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this)
{\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the sequence.\n * \n * The operation is _terminal_.\n
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType
s::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> UInt): UInt {\n
var sum: UInt = 0.toUInt()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the sequence.\n * \n * The
operation is _terminal_.\n
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedType
pes::class)\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.sumOf(selector: (T) -> ULong):
ULong {\n    var sum: ULong = 0.toULong()\n    for (element in this) {\n        sum += selector(element)\n    }\n
return sum\n}\n\n/**\n * Returns an original collection containing all the non-`null` elements, throwing an
[IllegalArgumentException] if there are any `null` elements.\n * \n * The operation is _intermediate_ and
_stateless_.\n * \n * public fun <T : Any> Sequence<T?.>.requireNonNulls(): Sequence<T> {\n    return map { it ?\n
throw IllegalArgumentException("null element found in $this.") }\n}\n\n/**\n * Splits this sequence
into a sequence of lists each not exceeding the given [size].\n * \n * The last list in the resulting sequence may have
fewer elements than the given [size].\n * \n * @param size the number of elements to take in each list, must be
positive and can be greater than the number of elements in this sequence.\n * \n * The operation is _intermediate_
and _stateful_.\n * \n * @sample samples.collections.Collections.Transformations.chunked\n
*\n@SinceKotlin("1.2")\npublic fun <T> Sequence<T>.chunked(size: Int): Sequence<List<T>> {\n    return
windowed(size, size, partialWindows = true)\n}\n\n/**\n * Splits this sequence into several lists each not exceeding
the given [size]\n * and applies the given [transform] function to an each.\n * \n * @return sequence of results of the
[transform] applied to an each list.\n * \n * Note that the list passed to the [transform] function is ephemeral and is
valid only inside that function.\n * \n * You should not store it or allow it to escape in some way, unless
you made a snapshot of it.\n * \n * The last list may have fewer elements than the given [size].\n * \n * @param size the
number of elements to take in each list, must be positive and can be greater than the number of elements in this
sequence.\n * \n * The operation is _intermediate_ and _stateful_.\n * \n * @sample
samples.text.Strings.chunkedTransform\n
*\n@SinceKotlin("1.2")\npublic fun <T, R>
Sequence<T>.chunked(size: Int, transform: (List<T>) -> R): Sequence<R> {\n    return windowed(size, size,
partialWindows = true, transform = transform)\n}\n\n/**\n * Returns a sequence containing all elements of the
original sequence without the first occurrence of the given [element].\n * \n * The operation is _intermediate_ and
_stateless_.\n * \n * public operator fun <T> Sequence<T>.minus(element: T): Sequence<T> {\n    return object:
Sequence<T> {\n        override fun iterator(): Iterator<T> {\n            var removed = false\n            return
this@minus.filter { if (!removed && it == element)
{\n                removed = true; false } else true }.iterator()\n        }\n    }\n}\n\n/**\n * Returns a sequence containing all
elements of original sequence except the elements contained in the given [elements] array.\n * \n * Note that the
source sequence and the array being subtracted are iterated only when an `iterator` is requested from\n * the
resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n * \n * Before
Kotlin 1.6, the [elements] array may have been converted to a [HashSet] to speed up the operation, thus the elements
were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive
invocations.\n * \n * On JVM, you can enable this behavior back with the system property
`kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n * \n * The operation is _intermediate_ and

```

```

_stateful_.\n *\npublic operator fun <T> Sequence<T>.minus(elements: Array<out T>): Sequence<T> {\n  if
(elements.isEmpty()) return this\n  return object: Sequence<T> {\n    override fun iterator(): Iterator<T> {\n
    val other = elements.convertToSetForSetOperation()\n    return this@minus.filterNot { it in other
}.iterator()\n    }\n  }\n}\n\n/**\n * Returns a sequence containing all elements of original sequence except the
elements contained in the given [elements] collection.\n * \n * Note that the source sequence and the collection
being subtracted are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of
them between successive calls to `iterator` may affect the result.\n * \n * Before Kotlin 1.6, the [elements] collection
may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n * a
correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM,
you can enable this behavior back with the system property `kotlin.collections.convert_arg_to_set_in_removeAll`
set to `true`.\n *\n * The operation is _intermediate_ and _stateful_.\n *\npublic operator fun <T>
Sequence<T>.minus(elements: Iterable<T>): Sequence<T> {\n  return object: Sequence<T> {\n    override fun
iterator(): Iterator<T> {\n    val other = elements.convertToSetForSetOperation()\n    if (other.isEmpty())\n
return this@minus.iterator()\n    else\n    return this@minus.filterNot { it in other }.iterator()\n
}\n  }\n}\n\n/**\n * Returns a sequence containing all elements of original sequence except the elements
contained in the given [elements] sequence.\n * \n * Note that the source sequence and the sequence being
subtracted are iterated only when an `iterator` is requested from\n * the resulting sequence. Changing any of them
between successive calls to `iterator` may affect the result.\n * \n * The operation is _intermediate_ for this sequence
and _terminal_ and _stateful_
for the [elements] sequence.\n * \n * Before Kotlin 1.6, the [elements] sequence may have been converted to a
[HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable implementation
of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this behavior back
with the system property `kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n *\npublic operator
fun <T> Sequence<T>.minus(elements: Sequence<T>): Sequence<T> {\n  return object: Sequence<T> {\n
override fun iterator(): Iterator<T> {\n    val other = elements.convertToSetForSetOperation()\n    if
(other.isEmpty())\n    return this@minus.iterator()\n    else\n    return this@minus.filterNot { it
in other }.iterator()\n    }\n  }\n}\n\n/**\n * Returns a sequence containing all elements of the original sequence
without the first occurrence of the given [element].\n *\n * The operation is _intermediate_ and _stateless_.\n *\n@kotlin.internal.InlineOnly\npublic inline fun <T>
Sequence<T>.minusElement(element: T): Sequence<T> {\n  return minus(element)\n}\n\n/**\n * Splits the
original sequence into pair of lists,\n * where *first* list contains elements for which [predicate] yielded `true`,\n *
while *second* list contains elements for which [predicate] yielded `false`.\n * \n * The operation is _terminal_.\n *
\n * @sample samples.collections.Sequences.Transformations.partition\n *\npublic inline fun <T>
Sequence<T>.partition(predicate: (T) -> Boolean): Pair<List<T>, List<T>> {\n  val first = ArrayList<T>()\n  val
second = ArrayList<T>()\n  for (element in this) {\n    if (predicate(element)) {\n      first.add(element)\n
}\n    else {\n      second.add(element)\n    }\n  }\n  return Pair(first, second)\n}\n\n/**\n * Returns a sequence
containing all elements of the original sequence and then the given [element].\n *\n * The operation is _intermediate_ and _stateless_.\n *\npublic operator fun <T> Sequence<T>.plus(element: T):
Sequence<T> {\n  return sequenceOf(this, sequenceOf(element)).flatten()\n}\n\n/**\n * Returns a sequence
containing all elements of original sequence and then all elements of the given [elements] array.\n * \n * Note that
the source sequence and the array being added are iterated only when an `iterator` is requested from\n * the resulting
sequence. Changing any of them between successive calls to `iterator` may affect the result.\n * \n * The operation is
_intermediate_ and _stateless_.\n *\npublic operator fun <T> Sequence<T>.plus(elements: Array<out T>):
Sequence<T> {\n  return this.plus(elements.asList())\n}\n\n/**\n * Returns a sequence containing all elements of
original sequence and then all elements of the given [elements] collection.\n * \n * Note that the source sequence
and the collection being added are iterated only when an `iterator` is requested from\n * the
resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n * \n * The
operation is _intermediate_ and _stateless_.\n *\npublic operator fun <T> Sequence<T>.plus(elements:

```

Iterable<T>): Sequence<T> {\n return sequenceOf(this, elements.asSequence()).flatten()\n}\n\n/\*\*\n \* Returns a sequence containing all elements of original sequence and then all elements of the given [elements] sequence.\n \* \n \* Note that the source sequence and the sequence being added are iterated only when an `iterator` is requested from\n \* the resulting sequence. Changing any of them between successive calls to `iterator` may affect the result.\n \* \n \* The operation is \_intermediate\_ and \_stateless\_.\n \*/\n\npublic operator fun <T> Sequence<T>.plus(elements: Sequence<T>): Sequence<T> {\n return sequenceOf(this, elements).flatten()\n}\n\n/\*\*\n \* Returns a sequence containing all elements of the original sequence and then the given [element].\n \* \n \* The operation is \_intermediate\_ and \_stateless\_.\n \*/\n\n@kotlin.internal.InlineOnly\npublic inline fun <T> Sequence<T>.plusElement(element: T): Sequence<T> {\n return plus(element)\n}\n\n/\*\*\n \* Returns a sequence of snapshots of the window of the given [size]\n \* sliding along this sequence with the given [step], where each\n \* snapshot is a list.\n \* \n \* Several last lists may have fewer elements than the given [size].\n \* \n \* Both [size] and [step] must be positive and can be greater than the number of elements in this sequence.\n \* \n \* @param size the number of elements to take in each window\n \* @param step the number of elements to move the window forward by on an each step, by default 1\n \* @param partialWindows controls whether or not to keep partial windows in the end if any,\n \* by default `false` which means partial windows won't be preserved\n \* \n \* @sample samples.collections.Sequences.Transformations.takeWindows\n \*/\n\n@SinceKotlin("1.2")\npublic fun <T> Sequence<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false): Sequence<List<T>> {\n return windowedSequence(size, step, partialWindows, reuseBuffer = false)\n}\n\n/\*\*\n \* Returns a sequence of results of applying the given [transform] function to\n \* an each list representing a view over the window of the given [size]\n \* sliding along this sequence with the given [step].\n \* \n \* Note that the list passed to the [transform] function is ephemeral and is valid only inside that function.\n \* \n \* You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n \* \n \* Several last lists may have fewer elements than the given [size].\n \* \n \* Both [size] and [step] must be positive and can be greater than the number of elements in this sequence.\n \* \n \* @param size the number of elements to take in each window\n \* @param step the number of elements to move the window forward by on an each step, by default 1\n \* @param partialWindows controls whether or not to keep partial windows in the end if any,\n \* by default `false` which means partial windows won't be preserved\n \* \n \* @sample samples.collections.Sequences.Transformations.averageWindows\n \*/\n\n@SinceKotlin("1.2")\npublic fun <T, R> Sequence<T>.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (List<T>) -> R): Sequence<R> {\n return windowedSequence(size, step, partialWindows, reuseBuffer = true).map(transform)\n}\n\n/\*\*\n \* Returns a sequence of values built from the elements of `this` sequence and the [other] sequence with the same index.\n \* \n \* The resulting sequence ends as soon as the shortest input sequence ends.\n \* \n \* The operation is \_intermediate\_ and \_stateless\_.\n \* \n \* @sample samples.collections.Sequences.Transformations.zip\n \*/\n\npublic infix fun <T, R> Sequence<T>.zip(other: Sequence<R>): Sequence<Pair<T, R>> {\n return MergingSequence(this, other) { t1, t2 -> t1 to t2 }\n}\n\n/\*\*\n \* Returns a sequence of values built from the elements of `this` sequence and the [other] sequence with the same index\n \* using the provided [transform] function applied to each pair of elements.\n \* \n \* The resulting sequence ends as soon as the shortest input sequence ends.\n \* \n \* The operation is \_intermediate\_ and \_stateless\_.\n \* \n \* @sample samples.collections.Sequences.Transformations.zipWithTransform\n \*/\n\npublic fun <T, R, V> Sequence<T>.zip(other: Sequence<R>, transform: (a: T, b: R) -> V): Sequence<V> {\n return MergingSequence(this, other, transform)\n}\n\n/\*\*\n \* Returns a sequence of pairs of each two adjacent elements in this sequence.\n \* \n \* The returned sequence is empty if this sequence contains less than two elements.\n \* \n \* The operation is \_intermediate\_ and \_stateless\_.\n \* \n \* @sample samples.collections.Collections.Transformations.zipWithNext\n \*/\n\n@SinceKotlin("1.2")\npublic fun <T> Sequence<T>.zipWithNext(): Sequence<Pair<T, T>> {\n return zipWithNext { a, b -> a to b }\n}\n\n/\*\*\n \* Returns a sequence containing the results

of applying the given [transform] function to an each pair of two adjacent elements in this sequence. The returned sequence is empty if this sequence contains less than two elements. The operation is \_intermediate\_ and \_stateless\_.

```
@sample
samples.collections.Collections.Transformations.zipWithNextToFindDeltas
public fun <T, R> Sequence<T>.zipWithNext(transform: (a: T, b: T) -> R): Sequence<R> {
    return sequence result@
    {
        val iterator = iterator()
        if (!iterator.hasNext()) return@result
        var current = iterator.next()
        while (iterator.hasNext()) {
            val next = iterator.next()
            yield(transform(current, next))
            current = next
        }
    }
}

```

Appends the string from all the elements separated using [separator] and using the given [prefix] and [postfix] if supplied. If the collection could be huge, you can specify a non-negative value

of [limit], in which case only the first [limit] elements will be appended, followed by the [truncated] string (which defaults to "..."). The operation is \_terminal\_.

```
@sample
samples.collections.Collections.Transformations.joinTo
public fun <T, A : Appendable>
Sequence<T>.joinTo(buffer: A, separator: CharSequence = "\", \"", prefix: CharSequence = "\"\", postfix:
CharSequence = "\"\", limit: Int = -1, truncated: CharSequence = "...\", transform: ((T) -> CharSequence)? = null): A
{
    buffer.append(prefix)
    var count = 0
    for (element in this) {
        if (++count > 1)
            buffer.append(separator)
        if (limit < 0 || count <= limit) {
            buffer.appendElement(element, transform)
        } else break
    }
    if (limit >= 0 && count > limit) buffer.append(truncated)
    buffer.append(postfix)
    return buffer
}

```

Creates a string from all the elements separated using [separator] and using the given [prefix] and [postfix]

if supplied. If the collection could be huge, you can specify a non-negative value of [limit], in which case only the first [limit] elements will be appended, followed by the [truncated] string (which defaults to "..."). The operation is \_terminal\_.

```
@sample
samples.collections.Collections.Transformations.joinToString
public fun <T> Sequence<T>.joinToString(separator: CharSequence = "\", \"", prefix: CharSequence = "\"\",
postfix: CharSequence = "\"\", limit: Int = -1, truncated: CharSequence = "...\", transform: ((T) -> CharSequence)? =
null): String {
    return joinTo(StringBuilder(), separator, prefix, postfix, limit, truncated,
transform).toString()
}

```

Creates an [Iterable] instance that wraps the original sequence returning its elements when being iterated.

```
public fun <T> Sequence<T>.asIterable(): Iterable<T> {
    return Iterable {
        this.iterator()
    }
}

```

Returns this sequence as a [Sequence].

```
@kotlin.internal.InlineOnly
public inline fun <T> Sequence<T>.asSequence(): Sequence<T> {
    return this
}

```

Returns an average value of elements in the sequence. The operation is \_terminal\_.

```
@kotlin.jvm.JvmName("averageOfByte")
public fun Sequence<Byte>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        checkCountOverflow(++count)
    }
    return if (count == 0) Double.NaN else sum / count
}

```

Returns an average value of elements in the sequence. The operation is \_terminal\_.

```
@kotlin.jvm.JvmName("averageOfShort")
public fun Sequence<Short>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        checkCountOverflow(++count)
    }
    return if (count == 0) Double.NaN else sum / count
}

```

Returns an average value of elements in the sequence. The operation is \_terminal\_.

```
@kotlin.jvm.JvmName("averageOfInt")
public fun Sequence<Int>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        checkCountOverflow(++count)
    }
    return if (count == 0) Double.NaN else sum / count
}

```

Returns an average value of elements in the sequence. The operation is \_terminal\_.

```
@kotlin.jvm.JvmName("averageOfLong")
public fun Sequence<Long>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
        checkCountOverflow(++count)
    }
    return if (count == 0) Double.NaN else sum / count
}

```

Returns an average value of elements in the sequence. The operation is \_terminal\_.

```
@kotlin.jvm.JvmName("averageOfFloat")
public fun Sequence<Float>.average(): Double {
    var sum: Double = 0.0
    var count: Int = 0
    for (element in this) {
        sum += element
    }
}

```

```

    checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n *
Returns an average value of elements in the sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("averageOfDouble")\npublic fun Sequence<Double>.average(): Double {\n    var sum:
Double = 0.0\n    var count: Int = 0\n    for (element in this) {\n        sum += element\n
    }\n    checkCountOverflow(++count)\n    }\n    return if (count == 0) Double.NaN else sum / count\n}\n\n/**\n * Returns
the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("sumOfByte")\npublic fun Sequence<Byte>.sum(): Int {\n    var sum: Int = 0\n    for
(element in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the
sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("sumOfShort")\npublic fun
Sequence<Short>.sum(): Int {\n    var sum: Int = 0\n    for (element
in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the
sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("sumOfInt")\npublic fun
Sequence<Int>.sum(): Int {\n    var sum: Int = 0\n    for (element in this) {\n        sum += element\n    }\n    return
sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("sumOfLong")\npublic fun Sequence<Long>.sum(): Long {\n    var sum: Long = 0L\n
for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in
the sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("sumOfFloat")\npublic fun
Sequence<Float>.sum(): Float {\n    var sum: Float = 0.0f\n    for (element in this) {\n        sum += element\n    }\n
return sum\n}\n\n/**\n * Returns the sum of all elements in the sequence.\n *\n * The operation is _terminal_.\n
*/\n\n@kotlin.jvm.JvmName("sumOfDouble")\npublic fun Sequence<Double>.sum(): Double {\n    var sum:
Double = 0.0\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n"/**\n * Copyright 2010-
2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("SetsKt")\n\n\npackage
kotlin.collections\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n\nimport kotlin.random.*\nimport
kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n\n/**\n * Returns a set containing all elements of the original
set except the given [element].\n *\n * The returned set preserves the element iteration order of the original set.\n
*/\n\npublic operator fun <T> Set<T>.minus(element:
T): Set<T> {\n    val result = LinkedHashSet<T>(mapCapacity(size))\n    var removed = false\n    return
this.filterTo(result) { if (!removed && it == element) { removed = true; false } else true }\n}\n\n/**\n * Returns a
set containing all elements of the original set except the elements contained in the given [elements] array.\n *\n * The
returned set preserves the element iteration order of the original set.\n *\n * Before Kotlin 1.6, the [elements]
array may have been converted to a [HashSet] to speed up the operation, thus the elements were required to have\n *
a correct and stable implementation of `hashCode()` that didn't change between successive invocations.\n * On
JVM, you can enable this behavior back with the system property
`kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\n\npublic operator fun <T>
Set<T>.minus(elements: Array<out T>): Set<T> {\n    val result = LinkedHashSet<T>(this)\n
result.removeAll(elements)\n    return result\n}\n\n/**\n * Returns a set containing all elements of the original set
except the elements contained in the given [elements] collection.\n *\n * The returned set preserves the element
iteration order of the original set.\n *\n * Before Kotlin 1.6, the [elements] collection may have been converted to
a [HashSet] to speed up the operation, thus the elements were required to have\n * a correct and stable
implementation of `hashCode()` that didn't change between successive invocations.\n * On JVM, you can enable this
behavior back with the system property
`kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n */\n\npublic operator fun <T>
Set<T>.minus(elements: Iterable<T>): Set<T> {\n    val other = elements.convertToSetForSetOperationWith(this)\n
if (other.isEmpty())\n        return this.toSet()\n    if (other is Set)\n        return
this.filterNotTo(LinkedHashSet<T>()) { it in other }\n    val result = LinkedHashSet<T>(this)\n

```



```

result.removeAll(other)\n    return result\n}\n\n/**\n
 * Returns a set containing all elements of the original set except the elements contained in the given [elements]
sequence.\n * \n * The returned set preserves the element iteration order of the original set.\n * \n * Before Kotlin
1.6, the [elements] sequence may have been converted to a [HashSet] to speed up the operation, thus the elements
were required to have\n * a correct and stable implementation of `hashCode()` that didn't change between successive
invocations.\n * On JVM, you can enable this behavior back with the system property
`kotlin.collections.convert_arg_to_set_in_removeAll` set to `true`.\n * \n\npublic operator fun <T>
Set<T>.minus(elements: Sequence<T>): Set<T> {\n    val result = LinkedHashSet<T>(this)\n
result.removeAll(elements)\n    return result\n}\n\n/**\n
 * Returns a set containing all elements of the original set
except the given [element].\n * \n * The returned set preserves the element iteration order of the original set.\n
\n * \n\n@kotlin.internal.InlineOnly\npublic
inline fun <T> Set<T>.minusElement(element: T): Set<T> {\n    return minus(element)\n}\n\n/**\n
 * Returns a set
containing all elements of the original set and then the given [element] if it isn't already in this set.\n * \n * The
returned set preserves the element iteration order of the original set.\n * \n\npublic operator fun <T>
Set<T>.plus(element: T): Set<T> {\n    val result = LinkedHashSet<T>(mapCapacity(size + 1))\n
result.addAll(this)\n    result.add(element)\n    return result\n}\n\n/**\n
 * Returns a set containing all elements of the
original set and the given [elements] array,\n * which aren't already in this set.\n * \n * The returned set preserves
the element iteration order of the original set.\n * \n\npublic operator fun <T> Set<T>.plus(elements: Array<out T>):
Set<T> {\n    val result = LinkedHashSet<T>(mapCapacity(this.size + elements.size))\n    result.addAll(this)\n
result.addAll(elements)\n    return result\n}\n\n/**\n
 * Returns a set containing all
elements of the original set and the given [elements] collection,\n * which aren't already in this set.\n * The returned
set preserves the element iteration order of the original set.\n * \n\npublic operator fun <T> Set<T>.plus(elements:
Iterable<T>): Set<T> {\n    val result = LinkedHashSet<T>(mapCapacity(elements.collectionSizeOrNull()?.let {
this.size + it } ?: this.size * 2))\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n
 * Returns a set containing all elements of the original set and the given [elements] sequence,\n * which aren't already
in this set.\n * \n * The returned set preserves the element iteration order of the original set.\n * \n\npublic operator fun
<T> Set<T>.plus(elements: Sequence<T>): Set<T> {\n    val result = LinkedHashSet<T>(mapCapacity(this.size *
2))\n    result.addAll(this)\n    result.addAll(elements)\n    return result\n}\n\n/**\n
 * Returns a set containing all
elements of the original set and then the given [element] if
it isn't already in this set.\n * \n * The returned set preserves the element iteration order of the original set.\n
\n * \n\n@kotlin.internal.InlineOnly\npublic inline fun <T> Set<T>.plusElement(element: T): Set<T> {\n    return
plus(element)\n}\n\n", "/*\n
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contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
\n * \n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("StringsKt")\n\npackage
kotlin.text\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.random.*\n\n/**\n
 * Returns a
character at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this char
sequence.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n * \n\npublic expect fun
CharSequence.elementAt(index:
Int): Char\n\n/**\n
 * Returns a character at the given [index] or the result of calling the [defaultValue] function if
the [index] is out of bounds of this char sequence.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n * \n\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.elementAtOrElse(index: Int, defaultValue: (Int) -> Char): Char {\n    return if (index >= 0 && index
<= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n
 * Returns a character at the given [index] or `null` if
the [index] is out of bounds of this char sequence.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n * \n\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.elementAtOrNull(index: Int): Char? {\n    return this.getOrNull(index)\n}\n\n/**\n
 * Returns the first

```

```

character matching the given [predicate], or `null` if no such character was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n * \n * @kotlin.internal.InlineOnly\npublic
inline fun CharSequence.find(predicate: (Char) -> Boolean): Char? {\n    return firstOrNull(predicate)\n}\n\n/**\n *
Returns the last character matching the given [predicate], or `null` if no such character was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n * \n * @kotlin.internal.InlineOnly\npublic inline fun
CharSequence.findLast(predicate: (Char) -> Boolean): Char? {\n    return lastOrNull(predicate)\n}\n\n/**\n *
Returns the first character.\n * \n * @throws NoSuchElementException if the char sequence is empty.\n * \n * public
fun CharSequence.first(): Char {\n    if (isEmpty())\n        throw NoSuchElementException("Char sequence is
empty.")\n    return this[0]\n}\n\n/**\n * Returns the first character matching the given [predicate].\n * @throws
[NoSuchElementException] if no such character is found.\n * \n * public inline fun CharSequence.first(predicate:
(Char) -> Boolean): Char {\n    for (element in this) if (predicate(element)) return
element\n    throw NoSuchElementException("Char sequence contains no character matching the
predicate.")\n}\n\n/**\n * Returns the first non-null value produced by [transform] function being applied to
characters of this char sequence in iteration order,\n * or throws [NoSuchElementException] if no non-null value
was produced.\n * \n * @sample samples.collections.Collections.Transformations.firstNotNullOf\n
* \n * @SinceKotlin("1.5")\n * @kotlin.internal.InlineOnly\n * public inline fun <R : Any>
CharSequence.firstNotNullOf(transform: (Char) -> R?): R {\n    return firstNotNullOfOrNull(transform) ?: throw
NoSuchElementException("No element of the char sequence was transformed to a non-null value.")\n}\n\n/**\n *
Returns the first non-null value produced by [transform] function being applied to characters of this char sequence in
iteration order,\n * or `null` if no non-null value was produced.\n * \n * @sample
samples.collections.Collections.Transformations.firstNotNullOf\n
* \n * @SinceKotlin("1.5")\n * @kotlin.internal.InlineOnly\n * public
inline fun <R : Any> CharSequence.firstNotNullOfOrNull(transform: (Char) -> R?): R? {\n    for (element in this)
{\n        val result = transform(element)\n        if (result != null) {\n            return result\n        }\n    }\n    return
null\n}\n\n/**\n * Returns the first character, or `null` if the char sequence is empty.\n * \n * public fun
CharSequence.firstOrNull(): Char? {\n    return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first
character matching the given [predicate], or `null` if character was not found.\n * \n * public inline fun
CharSequence.firstOrNull(predicate: (Char) -> Boolean): Char? {\n    for (element in this) if (predicate(element))
return element\n    return null\n}\n\n/**\n * Returns a character at the given [index] or the result of calling the
[defaultValue] function if the [index] is out of bounds of this char sequence.\n
* \n * @kotlin.internal.InlineOnly\n * public inline fun CharSequence.getOrElse(index:
Int, defaultValue: (Int) -> Char): Char {\n    return if (index >= 0 && index <= lastIndex) get(index) else
defaultValue(index)\n}\n\n/**\n * Returns a character at the given [index] or `null` if the [index] is out of bounds of
this char sequence.\n * \n * @sample samples.collections.Collections.Elements.getOrElse\n * \n * public fun
CharSequence.getOrElse(index: Int): Char? {\n    return if (index >= 0 && index <= lastIndex) get(index) else
null\n}\n\n/**\n * Returns index of the first character matching the given [predicate], or -1 if the char sequence does
not contain such character.\n * \n * public inline fun CharSequence.indexOfFirst(predicate: (Char) -> Boolean): Int {\n
    for (index in indices) {\n        if (predicate(this[index])) {\n            return index\n        }\n    }\n    return -
1\n}\n\n/**\n * Returns index of the last character matching the given [predicate], or -1 if the char sequence does
not contain such character.\n * \n * public inline fun CharSequence.indexOfLast(predicate:
(Char) -> Boolean): Int {\n    for (index in indices.reversed()) {\n        if (predicate(this[index])) {\n            return
index\n        }\n    }\n    return -1\n}\n\n/**\n * Returns the last character.\n * \n * @throws
NoSuchElementException if the char sequence is empty.\n * \n * @sample samples.text.Strings.last\n * \n * public fun
CharSequence.last(): Char {\n    if (isEmpty())\n        throw NoSuchElementException("Char sequence is
empty.")\n    return this[lastIndex]\n}\n\n/**\n * Returns the last character matching the given [predicate].\n * \n *
@throws NoSuchElementException if no such character is found.\n * \n * @sample samples.text.Strings.last\n
* \n * public inline fun CharSequence.last(predicate: (Char) -> Boolean): Char {\n    for (index in
this.indices.reversed()) {\n        val element = this[index]\n        if (predicate(element)) return element\n    }\n
}

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throw NoSuchElementException("Char sequence contains no character matching the predicate.")\n}\n\n/**\n * Returns the last character, or `null` if the char sequence is empty.\n * \n * @sample samples.text.Strings.last\n */\npublic fun CharSequence.lastOrNull(): Char? {\n    return if (isEmpty()) null else this[length - 1]\n}\n\n/**\n * Returns the last character matching the given [predicate], or `null` if no such character was found.\n * \n * @sample\n samples.text.Strings.last\n */\npublic inline fun CharSequence.lastOrNull(predicate: (Char) -> Boolean): Char? {\n    for (index in this.indices.reversed()) {\n        val element = this[index]\n        if (predicate(element)) return element\n    }\n    return null\n}\n\n/**\n * Returns a random character from this char sequence.\n * \n * @throws\n NoSuchElementException if this char sequence is empty.\n */\n\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.random(): Char {\n    return random(Random)\n}\n\n/**\n * Returns a random character from this char sequence using the specified\n source of randomness.\n * \n * @throws NoSuchElementException if this char sequence is empty.\n */\n\n@SinceKotlin("1.3")\npublic fun\n CharSequence.random(random: Random): Char {\n    if (isEmpty())\n        throw NoSuchElementException("Char\n sequence is empty.")\n    return get(random.nextInt(length))\n}\n\n/**\n * Returns a random character from this\n char sequence, or `null` if this char sequence is empty.\n */\n\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun CharSequence.randomOrNull(): Char? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a\n random character from this char sequence using the specified source of randomness, or `null` if this char sequence is\n empty.\n */\n\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun\n CharSequence.randomOrNull(random: Random): Char? {\n    if (isEmpty())\n        return null\n    return\n get(random.nextInt(length))\n}\n\n/**\n * Returns the single character,\n or throws an exception if the char sequence is empty or has more than one character.\n */\n\npublic fun\n CharSequence.single(): Char {\n    return when (length) {\n        0 -> throw NoSuchElementException("Char\n sequence is empty.")\n        1 -> this[0]\n        else -> throw IllegalArgumentException("Char sequence has more\n than one element.")\n    }\n}\n\n/**\n * Returns the single character matching the given [predicate], or throws\n exception if there is no or more than one matching character.\n */\n\npublic inline fun CharSequence.single(predicate:\n (Char) -> Boolean): Char {\n    var single: Char? = null\n    var found = false\n    for (element in this) {\n        if\n (predicate(element)) {\n            if (found) throw IllegalArgumentException("Char sequence contains more than one\n matching element.")\n            single = element\n            found = true\n        }\n    }\n    if (!found) throw\n NoSuchElementException("Char sequence contains no character matching the predicate.")\n}\n\n@Suppress("UNCHECKED_CAST")\nreturn single as Char\n}\n\n/**\n * Returns single character, or `null`\n if the char sequence is empty or has more than one character.\n */\n\npublic fun CharSequence.singleOrNull(): Char?\n {\n    return if (length == 1) this[0] else null\n}\n\n/**\n * Returns the single character matching the given\n [predicate], or `null` if character was not found or more than one character was found.\n */\n\npublic inline fun\n CharSequence.singleOrNull(predicate: (Char) -> Boolean): Char? {\n    var single: Char? = null\n    var found =\n false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) return null\n            single =\n element\n            found = true\n        }\n    }\n    if (!found) return null\n    return single\n}\n\n/**\n * Returns a\n subsequence of this char sequence with the first [n] characters removed.\n * \n * @throws\n IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.drop\n */\n\npublic fun CharSequence.drop(n: Int): CharSequence {\n    require(n >= 0) { "Requested character count $n is\n less than zero." }\n    return subSequence(n.coerceAtMost(length), length)\n}\n\n/**\n * Returns a string with the\n first [n] characters removed.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample\n samples.text.Strings.drop\n */\n\npublic fun String.drop(n: Int): String {\n    require(n >= 0) { "Requested character\n count $n is less than zero." }\n    return substring(n.coerceAtMost(length))\n}\n\n/**\n * Returns a subsequence of\n this char sequence with the last [n] characters removed.\n * \n * @throws IllegalArgumentException if [n] is\n negative.\n * \n * @sample samples.text.Strings.drop\n */\n\npublic fun CharSequence.dropLast(n: Int):\n CharSequence {\n    require(n >= 0) { "Requested character count $n is less than zero." }\n    return take((length -\n n).coerceAtLeast(0))\n}\n\n/**\n * Returns a string with the last [n] characters removed.\n * \n * \n */

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* @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.drop\n */\npublic
fun String.dropLast(n: Int): String {\n    require(n >= 0) {\n        "Requested character count $n is less than zero."
    }\n    return take((length - n).coerceAtLeast(0))\n}\n\n/**\n * Returns a subsequence of this char sequence containing all
characters except last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun CharSequence.dropLastWhile(predicate: (Char) -> Boolean): CharSequence {\n    for (index in
lastIndex downTo 0)\n        if (!predicate(this[index]))\n            return subSequence(0, index + 1)\n    return
""\n}\n\n/**\n * Returns a string containing all characters except last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun String.dropLastWhile(predicate: (Char) ->
Boolean): String {\n    for (index in lastIndex downTo 0)\n        if (!predicate(this[index]))\n            return
substring(0, index + 1)\n    return ""\n}\n\n/**\n * Returns a subsequence of this char sequence
containing all characters except first characters that satisfy the given [predicate].\n * \n * @sample
samples.text.Strings.drop\n */\npublic inline fun CharSequence.dropWhile(predicate: (Char) -> Boolean):
CharSequence {\n    for (index in this.indices)\n        if (!predicate(this[index]))\n            return subSequence(index,
length)\n    return ""\n}\n\n/**\n * Returns a string containing all characters except first characters that satisfy the
given [predicate].\n * \n * @sample samples.text.Strings.drop\n */\npublic inline fun String.dropWhile(predicate:
(Char) -> Boolean): String {\n    for (index in this.indices)\n        if (!predicate(this[index]))\n            return
substring(index)\n    return ""\n}\n\n/**\n * Returns a char sequence containing only those characters from the
original char sequence that match the given [predicate].\n * \n * @sample samples.text.Strings.filter\n */\npublic inline fun CharSequence.filter(predicate: (Char) ->
Boolean): CharSequence {\n    return filterTo(StringBuilder(), predicate)\n}\n\n/**\n * Returns a string containing
only those characters from the original string that match the given [predicate].\n * \n * @sample
samples.text.Strings.filter\n */\npublic inline fun String.filter(predicate: (Char) -> Boolean): String {\n    return
filterTo(StringBuilder(), predicate).toString()\n}\n\n/**\n * Returns a char sequence containing only those
characters from the original char sequence that match the given [predicate].\n * @param [predicate] function that
takes the index of a character and the character itself\n * and returns the result of predicate evaluation on the
character.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun
CharSequence.filterIndexed(predicate: (index: Int, Char) -> Boolean): CharSequence {\n    return
filterIndexedTo(StringBuilder(),
predicate)\n}\n\n/**\n * Returns a string containing only those characters from the original string that match the
given [predicate].\n * @param [predicate] function that takes the index of a character and the character itself\n * and
returns the result of predicate evaluation on the character.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n */\npublic inline fun String.filterIndexed(predicate: (index:
Int, Char) -> Boolean): String {\n    return filterIndexedTo(StringBuilder(), predicate).toString()\n}\n\n/**\n *
Appends all characters matching the given [predicate] to the given [destination].\n * @param [predicate] function
that takes the index of a character and the character itself\n * and returns the result of predicate evaluation on the
character.\n * \n * @sample samples.collections.Collections.Filtering.filterIndexedTo\n */\npublic inline fun <C :
Appendable> CharSequence.filterIndexedTo(destination: C, predicate: (index: Int, Char) -> Boolean):
C {\n    forEachIndexed { index, element ->\n        if (predicate(index, element)) destination.append(element)\n    }\n    return destination\n}\n\n/**\n * Returns a char sequence containing only those characters from the original
char sequence that do not match the given [predicate].\n * \n * @sample samples.text.Strings.filterNot\n */\npublic
inline fun CharSequence.filterNot(predicate: (Char) -> Boolean): CharSequence {\n    return
filterNotTo(StringBuilder(), predicate)\n}\n\n/**\n * Returns a string containing only those characters from the
original string that do not match the given [predicate].\n * \n * @sample samples.text.Strings.filterNot\n */\npublic
inline fun String.filterNot(predicate: (Char) -> Boolean): String {\n    return filterNotTo(StringBuilder(),
predicate).toString()\n}\n\n/**\n * Appends all characters not matching the given [predicate] to the given
[destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n */\npublic inline fun
<C : Appendable> CharSequence.filterNotTo(destination: C, predicate: (Char) -> Boolean): C {\n    for (element in
this) if (!predicate(element)) destination.append(element)\n    return destination\n}\n\n/**\n * Appends all characters

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matching the given [predicate] to the given [destination].\n \* \n \* @sample

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samples.collections.Collections.Filtering.filterTo\n * \n public inline fun <C : Appendable>
CharSequence.filterTo(destination: C, predicate: (Char) -> Boolean): C {\n   for (index in 0 until length) {\n     val
element = get(index)\n     if (predicate(element)) destination.append(element)\n   }\n   return
destination}\n\n/**\n * Returns a char sequence containing characters of the original char sequence at the
specified range of [indices].\n * \n public fun CharSequence.slice(indices: IntRange): CharSequence {\n   if
(indices.isEmpty()) return ""\n   return subSequence(indices)\n}\n\n/**\n * Returns a string containing characters
of the original string at the specified
range of [indices].\n * \n public fun String.slice(indices: IntRange): String {\n   if (indices.isEmpty()) return ""\n
return substring(indices)\n}\n\n/**\n * Returns a char sequence containing characters of the original char sequence
at specified [indices].\n * \n public fun CharSequence.slice(indices: Iterable<Int>): CharSequence {\n   val size =
indices.collectionSizeOrDefault(10)\n   if (size == 0) return ""\n   val result = StringBuilder(size)\n   for (i in
indices) {\n     result.append(get(i))\n   }\n   return result}\n\n/**\n * Returns a string containing characters of
the original string at specified [indices].\n * \n @kotlin.internal.InlineOnly\n public inline fun String.slice(indices:
Iterable<Int>): String {\n   return (this as CharSequence).slice(indices).toString()\n}\n\n/**\n * Returns a
subsequence of this char sequence containing the first [n] characters from this char sequence, or the entire char
sequence if this char sequence is shorter.\n * \n *
@throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n * \n public fun
CharSequence.take(n: Int): CharSequence {\n   require(n >= 0) { "Requested character count $n is less than zero." }\n
return subSequence(0, n.coerceAtMost(length))\n}\n\n/**\n * Returns a string containing the first [n]
characters from this string, or the entire string if this string is shorter.\n * \n * @throws IllegalArgumentException if
[n] is negative.\n * \n * @sample samples.text.Strings.take\n * \n public fun String.take(n: Int): String {\n   require(n
>= 0) { "Requested character count $n is less than zero." }\n   return substring(0,
n.coerceAtMost(length))\n}\n\n/**\n * Returns a subsequence of this char sequence containing the last [n]
characters from this char sequence, or the entire char sequence if this char sequence is shorter.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n * \n public fun
CharSequence.takeLast(n:
Int): CharSequence {\n   require(n >= 0) { "Requested character count $n is less than zero." }\n   val length =
length\n   return subSequence(length - n.coerceAtMost(length), length)\n}\n\n/**\n * Returns a string containing
the last [n] characters from this string, or the entire string if this string is shorter.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample samples.text.Strings.take\n * \n public fun
String.takeLast(n: Int): String {\n   require(n >= 0) { "Requested character count $n is less than zero." }\n   val
length = length\n   return substring(length - n.coerceAtMost(length))\n}\n\n/**\n * Returns a subsequence of this
char sequence containing last characters that satisfy the given [predicate].\n * \n * @sample
samples.text.Strings.take\n * \n public inline fun CharSequence.takeLastWhile(predicate: (Char) -> Boolean):
CharSequence {\n   for (index in lastIndex downTo 0) {\n     if (!predicate(this[index])) {\n
return subSequence(index + 1, length)\n     }\n   }\n   return subSequence(0, length)\n}\n\n/**\n * Returns
a string containing last characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.take\n * \n
public inline fun String.takeLastWhile(predicate: (Char) -> Boolean): String {\n   for (index in lastIndex
downTo 0) {\n     if (!predicate(this[index])) {\n       return substring(index + 1)\n     }\n   }\n   return
this}\n\n/**\n * Returns a subsequence of this char sequence containing the first characters that satisfy the given
[predicate].\n * \n * @sample samples.text.Strings.take\n * \n public inline fun CharSequence.takeWhile(predicate:
(Char) -> Boolean): CharSequence {\n   for (index in 0 until length)\n     if (!predicate(get(index))) {\n
return subSequence(0, index)\n     }\n   return subSequence(0, length)\n}\n\n/**\n * Returns a string containing
the first characters that satisfy the given [predicate].\n * \n * @sample samples.text.Strings.take\n * \n public
inline fun String.takeWhile(predicate: (Char) -> Boolean):
String {\n   for (index in 0 until length)\n     if (!predicate(get(index))) {\n       return substring(0, index)\n
}\n   return this}\n\n/**\n * Returns a char sequence with characters in reversed order.\n * \n public fun

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CharSequence.reversed(): CharSequence {\n  return StringBuilder(this).reverse()\n}\n\n/**\n * Returns a string with characters in reversed order.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.reversed(): String {\n  return (this as CharSequence).reversed().toString()\n}\n\n/**\n * Returns a [Map] containing key-value pairs provided by [transform] function\n * applied to characters of the given char sequence.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associate\n */\npublic inline fun <K, V> CharSequence.associate(transform: (Char) -> Pair<K, V>): Map<K, V> {\n  val capacity = mapCapacity(length).coerceAtLeast(16)\n  return associateTo(LinkedHashMap<K, V>(capacity), transform)\n}\n\n/**\n * Returns a [Map] containing the characters from the given char sequence indexed by the key\n * returned from [keySelector] function applied to each character.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associateBy\n */\npublic inline fun <K> CharSequence.associateBy(keySelector: (Char) -> K): Map<K, Char> {\n  val capacity = mapCapacity(length).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, Char>(capacity), keySelector)\n}\n\n/**\n * Returns a [Map] containing the values provided by [valueTransform] and indexed by [keySelector] functions applied to characters of the given char sequence.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associateByWithValueTransform\n */\npublic inline fun <K, V> CharSequence.associateBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, V> {\n  val capacity = mapCapacity(length).coerceAtLeast(16)\n  return associateByTo(LinkedHashMap<K, V>(capacity), keySelector, valueTransform)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function applied to each character of the given char sequence\n * and value is the character itself.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.text.Strings.associateByTo\n */\npublic inline fun <K, M : MutableMap<in K, in Char>> CharSequence.associateByTo(destination: M, keySelector: (Char) -> K): M {\n  for (element in this) {\n    destination.put(keySelector(element), element)\n  }\n  return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs,\n * where key is provided by the [keySelector] function and\n * and value is provided by the [valueTransform] function applied to characters of the given char sequence.\n * \n * If any two characters would have the same key returned by [keySelector] the last one gets added to the map.\n * \n * @sample samples.text.Strings.associateByToWithValueTransform\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharSequence.associateByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {\n  for (element in this) {\n    destination.put(keySelector(element), valueTransform(element))\n  }\n  return destination\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-value pairs\n * provided by [transform] function applied to each character of the given char sequence.\n * \n * If any of two pairs would have the same key the last one gets added to the map.\n * \n * @sample samples.text.Strings.associateTo\n */\npublic inline fun <K, V, M : MutableMap<in K, in V>> CharSequence.associateTo(destination: M, transform: (Char) -> Pair<K, V>): M {\n  for (element in this) {\n    destination += transform(element)\n  }\n  return destination\n}\n\n/**\n * Returns a [Map] where keys are characters from the given char sequence and values are\n * produced by the [valueSelector] function applied to each character.\n * \n * If any two characters are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order of the original char sequence.\n * \n * @sample samples.text.Strings.associateWith\n */\n@SinceKotlin("1.3")\npublic inline fun <V> CharSequence.associateWith(valueSelector: (Char) -> V): Map<Char, V> {\n  val result = LinkedHashMap<Char, V>(mapCapacity(length).coerceAtMost(128)).coerceAtLeast(16)\n  return associateWithTo(result, valueSelector)\n}\n\n/**\n * Populates and returns the [destination] mutable map with key-

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value pairs for each character of the given char sequence, \n \* where key is the character itself and value is provided by the [valueSelector] function applied to that key. \n \* \n \* If any two characters are equal, the last one overwrites the former value in the map. \n \* \n \* @sample samples.text.Strings.associateWithTo

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*\n@SinceKotlin("1.3")\npublic inline fun <V, M : MutableMap<in Char, in V>>
CharSequence.associateWithTo(destination: M, valueSelector: (Char) -> V): M {\n for (element in this) {\n
destination.put(element, valueSelector(element))\n } \n return destination\n}\n\n/**\n * Appends all characters to
the given [destination] collection.\n */\npublic fun
<C : MutableCollection<in Char>> CharSequence.toCollection(destination: C): C {\n for (item in this) {\n
destination.add(item)\n } \n return destination\n}\n\n/**\n * Returns a new [HashSet] of all characters.\n
*/\npublic fun CharSequence.toHashSet(): HashSet<Char> {\n return
toCollection(HashSet<Char>(mapCapacity(length.coerceAtMost(128))))\n}\n\n/**\n * Returns a [List] containing
all characters.\n */\npublic fun CharSequence.toList(): List<Char> {\n return when (length) {\n 0 ->
emptyList()\n 1 -> listOf(this[0])\n else -> this.toMutableList()\n } \n}\n\n/**\n * Returns a new
[MutableList] filled with all characters of this char sequence.\n */\npublic fun CharSequence.toMutableList():
MutableList<Char> {\n return toCollection(ArrayList<Char>(length))\n}\n\n/**\n * Returns a [Set] of all
characters.\n * \n * The returned set preserves the element iteration order of the original char sequence.\n
*/\npublic fun CharSequence.toSet(): Set<Char>
{\n return when (length) {\n 0 -> emptySet()\n 1 -> setOf(this[0])\n else ->
toCollection(LinkedHashSet<Char>(mapCapacity(length.coerceAtMost(128))))\n } \n}\n\n/**\n * Returns a single
list of all elements yielded from results of [transform] function being invoked on each character of original char
sequence.\n * \n * @sample samples.collections.Collections.Transformations.flatMap\n */\npublic inline fun <R>
CharSequence.flatMap(transform: (Char) -> Iterable<R>): List<R> {\n return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each character\n * and its index in the original char sequence.\n * \n * @sample
samples.collections.Collections.Transformations.flatMapIndexed\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterable")\n@kotlin.internal.InlineOnly\npublic
inline fun <R> CharSequence.flatMapIndexed(transform: (index: Int, Char) -> Iterable<R>): List<R> {\n return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each character\n * and its index in the original char sequence, to the given
[destination].\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("flatMapIndexedIterableTo")\n@kotlin.internal.InlineOnly\npublic
c inline fun <R, C : MutableCollection<in R>> CharSequence.flatMapIndexedTo(destination: C, transform: (index:
Int, Char) -> Iterable<R>): C {\n var index = 0\n for (element in this) {\n val list = transform(index++,
element)\n destination.addAll(list)\n } \n return destination\n}\n\n/**\n * Appends all elements yielded from
results of [transform] function being invoked on each character
of original char sequence, to the given [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>>
CharSequence.flatMapTo(destination: C, transform: (Char) -> Iterable<R>): C {\n for (element in this) {\n val
list = transform(element)\n destination.addAll(list)\n } \n return destination\n}\n\n/**\n * Groups characters
of the original char sequence by the key returned by the given [keySelector] function\n * applied to each character
and returns a map where each group key is associated with a list of corresponding characters.\n * \n * The returned
map preserves the entry iteration order of the keys produced from the original char sequence.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n */\npublic inline fun <K>
CharSequence.groupBy(keySelector: (Char) -> K): Map<K, List<Char>> {\n return
groupByTo(LinkedHashMap<K, MutableList<Char>>(), keySelector)\n}\n\n/**\n * Groups values returned by the
[valueTransform] function

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applied to each character of the original char sequence\n \* by the key returned by the given [keySelector] function applied to the character\n \* and returns a map where each group key is associated with a list of corresponding values.\n \* \n \* The returned map preserves the entry iteration order of the keys produced from the original char sequence.\n \* \n \* @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n \*/\npublic inline fun <K, V> CharSequence.groupBy(keySelector: (Char) -> K, valueTransform: (Char) -> V): Map<K, List<V>> {\n return groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/\*\*\n \* Groups characters of the original char sequence by the key returned by the given [keySelector] function\n \* applied to each character and puts to the [destination] map each group key associated with a list of corresponding characters.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupBy\n \*/\npublic inline fun <K, M : MutableMap<in K, MutableList<Char>>> CharSequence.groupByTo(destination: M, keySelector: (Char) -> K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<Char>() }\n list.add(element)\n }\n return destination\n}\n\n/\*\*\n \* Groups values returned by the [valueTransform] function applied to each character of the original char sequence\n \* by the key returned by the given [keySelector] function applied to the character\n \* and puts to the [destination] map each group key associated with a list of corresponding values.\n \* \n \* @return The [destination] map.\n \* \n \* @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n \*/\npublic inline fun <K, V, M : MutableMap<in K, MutableList<V>>> CharSequence.groupByTo(destination: M, keySelector: (Char) -> K, valueTransform: (Char) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) { ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return destination\n}\n\n/\*\*\n \* Creates a [Grouping] source from a char sequence to be used later with one of group-and-fold operations\n \* using the specified [keySelector] function to extract a key from each character.\n \* \n \* @sample samples.collections.Grouping.groupingByEachCount\n \*/\n@SinceKotlin("1.1")\npublic inline fun <K> CharSequence.groupingBy(crossinline keySelector: (Char) -> K): Grouping<Char, K> {\n return object : Grouping<Char, K> {\n override fun sourceIterator(): Iterator<Char> = this@groupingBy.iterator()\n override fun keyOf(element: Char): K = keySelector(element)\n }\n}\n\n/\*\*\n \* Returns a list containing the results of applying the given [transform] function\n \* to each character in the original char sequence.\n \* \n \* @sample samples.text.Strings.map\n \*/\npublic inline fun <R> CharSequence.map(transform: (Char) -> R): List<R> {\n return mapTo(ArrayList<R>(length), transform)\n}\n\n/\*\*\n \* Returns a list containing the results of applying the given [transform] function\n \* to each character and its index in the original char sequence.\n \* \n \* @param [transform] function that takes the index of a character and the character itself\n \* and returns the result of the transform applied to the character.\n \*/\npublic inline fun <R> CharSequence.mapIndexed(transform: (index: Int, Char) -> R): List<R> {\n return mapIndexedTo(ArrayList<R>(length), transform)\n}\n\n/\*\*\n \* Returns a list containing only the non-null results of applying the given [transform] function\n \* to each character and its index in the original char sequence.\n \* \n \* @param [transform] function that takes the index of a character and the character itself\n \* and returns the result of the transform applied to the character.\n \*/\npublic inline fun <R : Any> CharSequence.mapIndexedNotNull(transform: (index: Int, Char) -> R?): List<R> {\n return mapIndexedNotNullTo(ArrayList<R>(), transform)\n}\n\n/\*\*\n \* Applies the given [transform] function to each character and its index in the original char sequence\n \* and appends only the non-null results to the given [destination].\n \* \n \* @param [transform] function that takes the index of a character and the character itself\n \* and returns the result of the transform applied to the character.\n \*/\npublic inline fun <R : Any, C : MutableCollection<in R>> CharSequence.mapIndexedNotNullTo(destination: C, transform: (index: Int, Char) -> R?): C {\n forEachIndexed { index, element -> transform(index, element)?.let { destination.add(it) } }\n return destination\n}\n\n/\*\*\n \* Applies the given [transform] function to each character and its index in the original char sequence\n \* and appends the results to the given [destination].\n \* \n \* @param [transform] function that takes the index of a character and the character itself\n \* and returns the result of the



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transform applied to the character.\n */\npublic inline fun <R, C : MutableCollection<in R>>\nCharSequence.mapIndexedTo(destination: C, transform: (index: Int, Char) -> R): C {\n    var index = 0\n    for (item in this)\n        destination.add(transform(index++, item))\n    return destination\n}\n\n/**\n * Returns a list\n * containing only the non-null results of applying the given [transform] function\n * to each character in the original\n * char sequence.\n */\n @sample samples.collections.Collections.Transformations.mapNotNull\n */\npublic inline\nfun <R : Any> CharSequence.mapNotNull(transform: (Char) -> R?): List<R> {\n    return\n    mapNotNullTo(ArrayList<R>(), transform)\n}\n\n/**\n * Applies the given [transform] function to each character\n * in the original char sequence\n * and appends only the non-null results to the given [destination].\n */\npublic inline\nfun <R : Any, C : MutableCollection<in R>> CharSequence.mapNotNullTo(destination: C, transform: (Char) ->\nR?): C {\n    forEach {\n        element -> transform(element)?.let { destination.add(it) }\n    }\n    return destination\n}\n\n/**\n * Applies the given\n * [transform] function to each character of the original char sequence\n * and appends the results to the given\n * [destination].\n */\npublic inline fun <R, C : MutableCollection<in R>> CharSequence.mapTo(destination: C,\ntransform: (Char) -> R): C {\n    for (item in this)\n        destination.add(transform(item))\n    return\n    destination\n}\n\n/**\n * Returns a lazy [Iterable] that wraps each character of the original char sequence\n * into an\n * [IndexedValue] containing the index of that character and the character itself.\n */\npublic fun\nCharSequence.withIndex(): Iterable<IndexedValue<Char>> {\n    return IndexingIterable { iterator() }\n}\n\n/**\n * Returns `true` if all characters match the given [predicate].\n */\n @sample\nsamples.collections.Collections.Aggregates.all\n */\npublic inline fun CharSequence.all(predicate: (Char) ->\nBoolean): Boolean {\n    for (element in\n    this) if (!predicate(element)) return false\n    return true\n}\n\n/**\n * Returns `true` if char sequence has at least\n * one character.\n */\n @sample samples.collections.Collections.Aggregates.any\n */\npublic fun\nCharSequence.any(): Boolean {\n    return !isEmpty()\n}\n\n/**\n * Returns `true` if at least one character matches\n * the given [predicate].\n */\n @sample samples.collections.Collections.Aggregates.anyWithPredicate\n */\npublic\ninline fun CharSequence.any(predicate: (Char) -> Boolean): Boolean {\n    for (element in this) if\n    (predicate(element)) return true\n    return false\n}\n\n/**\n * Returns the length of this char sequence.\n */\n @kotlin.internal\n */\npublic inline fun CharSequence.count(): Int {\n    return length\n}\n\n/**\n * Returns the number of characters matching the given [predicate].\n */\npublic inline fun\nCharSequence.count(predicate: (Char) -> Boolean): Int {\n    var count = 0\n    for (element in this) if\n    (predicate(element)) ++count\n    return\n    count\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to\n * current accumulator value and each character.\n */\n @sample\n */\n /**\n * Returns the specified [initial] value if the char sequence is\n * empty.\n */\n @param [operation] function that takes current accumulator value and a character, and calculates the\n * next accumulator value.\n */\npublic inline fun <R> CharSequence.fold(initial: R, operation: (acc: R, Char) -> R): R\n{\n    var accumulator = initial\n    for (element in this) accumulator = operation(accumulator, element)\n    return\n    accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to\n * right\n * to current accumulator value and each character with its index in the original char sequence.\n */\n @sample\n */\n /**\n * Returns the specified [initial] value if the char sequence is empty.\n */\n @param [operation] function that takes\n * the index of a character, current accumulator value\n * and the character\n * itself, and calculates the next accumulator value.\n */\npublic inline fun <R> CharSequence.foldIndexed(initial: R,\noperation: (index: Int, acc: R, Char) -> R): R {\n    var index = 0\n    var accumulator = initial\n    for (element in\n    this) accumulator = operation(index++, accumulator, element)\n    return accumulator\n}\n\n/**\n * Accumulates\n * value starting with [initial] value and applying [operation] from right to left\n * to each character and current\n * accumulator value.\n */\n @sample\n */\n /**\n * Returns the specified [initial] value if the char sequence is empty.\n */\n @param\n * [operation] function that takes a character and current accumulator value, and calculates the next accumulator\n * value.\n */\npublic inline fun <R> CharSequence.foldRight(initial: R, operation: (Char, acc: R) -> R): R {\n    var\n    index = lastIndex\n    var accumulator = initial\n    while (index >= 0) {\n        accumulator = operation(get(index--),\n        accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value
```

starting with [initial] value and applying [operation] from right to left to each character with its index in the original char sequence and current accumulator value.

`CharSequence.foldRightIndexed(initial: R, operation: (index: Int, Char, acc: R) -> R): R` {  
`var index = lastIndex`  
`var accumulator = initial`  
`while (index >= 0) {`  
`accumulator = operation(index, get(index), accumulator)`  
`--index`  
`}`  
`return accumulator`  
}

`CharSequence.foldRight` Performs the given [action] on each character.

`CharSequence.forEach(action: (Char) -> Unit): Unit` {  
`for (element in this) action(element)`  
}

`CharSequence.forEachIndexed(action: (index: Int, Char) -> Unit): Unit` {  
`var index = 0`  
`for (item in this) action(index++, item)`  
}

`CharSequence.max()` Returns the largest character.

`CharSequence.maxBy(selector: (Char) -> R): Char` {  
`if (isEmpty()) throw NoSuchElementException()`  
`var max = this[0]`  
`for (i in 1..lastIndex) {`  
`val e = this[i]`  
`if (max < e) max = e`  
`}`  
`return max`  
}

`CharSequence.maxByOrNull(selector: (Char) -> R): Char?` {  
`if (isEmpty()) return null`  
`var maxElem = this[0]`  
`val lastIndex = this.lastIndex`  
`if (lastIndex == 0) return maxElem`  
`var maxValue = selector(maxElem)`  
`for (i in 1..lastIndex) {`  
`val e = this[i]`  
`val v = selector(e)`  
`if (maxValue < v) {`  
`maxElem = e`  
`maxValue = v`  
`}`  
`}`  
`return maxElem`  
}

`CharSequence.maxOf(selector: (Char) -> Double): Double` {  
`if (isEmpty()) throw NoSuchElementException()`  
`var maxValue = selector(this[0])`  
`for (i in 1..lastIndex) {`  
`val v = selector(this[i])`  
`maxValue = maxOf(maxValue, v)`  
`}`  
`return maxValue`  
}

`CharSequence.maxOf(selector: (Char) -> Float): Float` {  
`if (isEmpty()) throw NoSuchElementException()`  
`var maxValue = selector(this[0])`  
`for (i in 1..lastIndex) {`  
`val v = selector(this[i])`  
`maxValue = maxOf(maxValue, v)`  
`}`  
`return maxValue`  
}

```

if the char sequence is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
CharSequence.maxOf(selector: (Char) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (maxValue < v) {\n
maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value among all values
produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no
characters.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.maxOfOrNull(selector:
(Char) -> Double): Double? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in
1..lastIndex) {\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to
each character in the char sequence or `null` if there are no characters.\n * \n * If any of values produced by
[selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.maxOfOrNull(selector:
(Char) -> Float): Float? {\n if (isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in
1..lastIndex) {\n val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value
among all values produced by [selector] function\n * applied to each character in the char sequence or `null` if there
are no characters.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
CharSequence.maxOfOrNull(selector: (Char) -> R): R? {\n if (isEmpty()) return null\n var maxValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (maxValue < v) {\n
maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the provided
[comparator]\n * among all values produced by [selector] function applied to each character in the char sequence.\n
*\n * @throws NoSuchElementException if the char sequence is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun <R> CharSequence.maxOfWith(comparator: Comparator<in R>, selector: (Char) -> R): R {\n if
(isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n
return maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all
values produced by [selector] function applied to each character in the char sequence or `null` if there are no
characters.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>
CharSequence.maxOfWithOrNull(comparator: Comparator<in R>, selector: (Char) -> R): R? {\n if (isEmpty())
return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n
return maxValue\n}\n\n/**\n * Returns the largest character or `null` if there are no characters.\n
*\n@SinceKotlin("1.4")\npublic fun CharSequence.maxOrNull(): Char? {\n if (isEmpty()) return null\n var
max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (max < e) max = e\n }\n return
max\n}\n\n/**\n * Returns the first character having the largest value according to the provided [comparator].\n * \n
* @throws NoSuchElementException if the char sequence is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxWithOrThrow")\n@Suppress("CONFLICTING_OVER

```

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LOADS`)
public fun CharSequence.maxWith(comparator: Comparator<in Char>): Char {
    if (isEmpty())
        throw NoSuchElementException()
    var max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (comparator.compare(max, e) < 0)
            max = e
    }
    return max
}
// Returns the first character having the largest value according to the
// provided [comparator] or `null` if there are no characters.
@SinceKotlin("1.4")
public fun
CharSequence.maxWithOrNull(comparator: Comparator<in Char>): Char? {
    if (isEmpty()) return null
    var
max = this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (comparator.compare(max, e) < 0) max = e
    }
    return max
}
// Returns the smallest character.
// @throws NoSuchElementException if the
// char sequence is empty.
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minOrThrow")
@Suppress("CONFLICTING_OVERLOA
DS")
public fun CharSequence.min(): Char {
    if (isEmpty()) throw NoSuchElementException()
    var min =
this[0]
    for (i in 1..lastIndex) {
        val e = this[i]
        if (min > e) min = e
    }
    return min
}
// Returns the first character yielding the smallest value of the given function.
// @throws NoSuchElementException if the char sequence is empty.
// @sample
samples.collections.Collections.Aggregates.minBy
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@Suppress("CONFLICTING_OVERLO
ADS")
public inline fun <R : Comparable<R>> CharSequence.minBy(selector: (Char) -> R): Char {
    if
(isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if
(lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e =
this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}
// Returns the first character yielding the smallest value of the given function or
// `null` if there are no characters.
// @sample samples.collections.Collections.Aggregates.minByOrNull
@SinceKotlin("1.4")
public inline fun <R : Comparable<R>>
CharSequence.minByOrNull(selector: (Char) -> R): Char? {
    if (isEmpty()) return null
    var minElem =
this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue =
selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v)
{
            minElem = e
            minValue = v
        }
    }
    return minElem
}
// Returns the smallest
// value among all values produced by [selector] function
// applied to each character in the char sequence.
// If
// any of values produced by [selector] function is `NaN`, the returned result is `NaN`.
// @throws
// NoSuchElementException if the char sequence is empty.
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun CharSequence.minOf(selector: (Char) ->
Double): Double {
    if (isEmpty()) throw
NoSuchElementException()
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v =
selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}
// Returns the smallest
// value among all values produced by [selector] function
// applied to each character in the char sequence.
// If
// any of values produced by [selector] function is `NaN`, the returned result is `NaN`.
// @throws
// NoSuchElementException if the char sequence is empty.
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun CharSequence.minOf(selector: (Char) ->
Float): Float {
    if (isEmpty()) throw
NoSuchElementException()
    var minValue = selector(this[0])
    for (i in
1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return
minValue
}
// Returns the smallest
// value among all values produced by [selector] function
// applied to each character in the char sequence.
// @throws
// NoSuchElementException if the char sequence is empty.
@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolution
ByLambdaReturnType
@kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>>
CharSequence.minOf(selector: (Char) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var

```

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minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v) {\n
minValue = v\n }\n }\n return minValue\n}\n\n/**\n * Returns the smallest value among all values
produced by [selector] function\n * applied to each character in the char sequence or `null` if there are no
characters.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic
inline fun CharSequence.minOrNull(selector: (Char) -> Double): Double? {\n if (isEmpty()) return null\n var
minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n minValue =
minOf(minValue, v)\n }\n return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each character in the char sequence or `null` if there are no characters.\n
*\n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n
*\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.minOrNull(selector:
(Char) -> Float): Float? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in 1..lastIndex)
{\n val v = selector(this[i])\n minValue = minOf(minValue, v)\n }\n return minValue\n}\n\n/**\n *
Returns the smallest value among all values produced by [selector] function\n * applied to each character in the char
sequence or `null` if there are no characters.\n
*\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R : Comparable<R>>
CharSequence.minOrNull(selector: (Char) -> R): R? {\n if (isEmpty()) return null\n var minValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (minValue > v) {\n
minValue = v\n }\n }\n return minValue\n}\n\n/**\n * Returns the smallest value according to the provided
[comparator]\n * among all values produced by [selector] function applied to each character in the char sequence.\n
*\n * \n * @throws NoSuchElementException if the
char sequence is empty.\n
*\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R> CharSequence.minOfWith(comparator:
Comparator<in R>, selector: (Char) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var
minValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if
(comparator.compare(minValue, v) > 0) {\n minValue = v\n }\n }\n return minValue\n}\n\n/**\n *
Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector]
function applied to each character in the char sequence or `null` if there are no characters.\n
*\n*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.internal.InlineOnly\npublic inline fun <R>
CharSequence.minOfWithOrNull(comparator: Comparator<in
R>, selector: (Char) -> R): R? {\n if (isEmpty()) return null\n var minValue = selector(this[0])\n for (i in
1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(minValue, v) > 0) {\n minValue =
v\n }\n }\n return minValue\n}\n\n/**\n * Returns the smallest character or `null` if there are no
characters.\n * \n *\n*\n@SinceKotlin("1.4")\npublic fun CharSequence.minOrNull(): Char? {\n if (isEmpty()) return
null\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (min > e) min = e\n }\n return
min\n}\n\n/**\n * Returns the first character having the smallest value according to the provided [comparator].\n
*\n * \n * @throws NoSuchElementException if the char sequence is empty.\n
*\n*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow")\n@Suppress("CONFLICTING_OVER
LOADS")\npublic fun CharSequence.minWith(comparator: Comparator<in Char>): Char {\n if (isEmpty()) throw
NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(min, e) > 0) min = e\n }\n return min\n}\n\n/**\n * Returns the first character having the
smallest value according to the provided [comparator] or `null` if there are no characters.\n
*\n*\n@SinceKotlin("1.4")\npublic fun CharSequence.minWithOrNull(comparator: Comparator<in Char>): Char?

```

```

{\n  if (isEmpty()) return null\n  var min = this[0]\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    if
(comparator.compare(min, e) > 0) min = e\n  }\n  return min\n}\n\n/**\n * Returns `true` if the char sequence has
no characters.\n * \n * @sample samples.collections.Collections.Aggregates.none\n */\npublic fun
CharSequence.none(): Boolean {\n  return isEmpty()\n}\n\n/**\n * Returns `true` if no characters match the given
[predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n */\npublic inline
fun CharSequence.none(predicate: (Char) -> Boolean): Boolean {\n  for (element in this) if (predicate(element))
return false\n  return true\n}\n\n/**\n * Performs the given [action] on each character and returns the char sequence
itself afterwards.\n * \n * @SinceKotlin("1.1")\n */\npublic inline fun <S : CharSequence> S.onEach(action: (Char) ->
Unit): S {\n  return apply { for (element in this) action(element) }\n}\n\n/**\n * Performs the given [action] on
each character, providing sequential index with the character,\n * and returns the char sequence itself afterwards.\n *
@param [action] function that takes the index of a character and the character itself\n * and performs the action on
the character.\n * \n * @SinceKotlin("1.4")\n */\npublic inline fun <S : CharSequence> S.onEachIndexed(action: (index:
Int, Char) -> Unit): S {\n  return apply { forEachIndexed(action) }\n}\n\n/**\n * Accumulates value starting with
the first character and applying [operation] from left to right\n * to
current accumulator value and each character.\n * \n * Throws an exception if this char sequence is empty. If the
char sequence can be empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes current accumulator value and a character,\n *
and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun CharSequence.reduce(operation: (acc: Char, Char) -> Char): Char {\n  if (isEmpty())\n  throw UnsupportedOperationException("Empty char sequence can't be reduced.")\n  var accumulator = this[0]\n  for
(index in 1..lastIndex) {\n    accumulator = operation(accumulator, this[index])\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the first character and applying [operation] from left to
right\n * to current accumulator value and each character with its index in the original
char sequence.\n * \n * Throws an exception if this char sequence is empty. If the char sequence can be empty in an
expected way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n *
@param [operation] function that takes the index of a character, current accumulator value and the character itself,\n *
and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n */\npublic inline fun CharSequence.reduceIndexed(operation: (index: Int, acc: Char, Char) -> Char): Char {\n  if
(isEmpty())\n  throw UnsupportedOperationException("Empty char sequence can't be reduced.")\n  var
accumulator = this[0]\n  for (index in 1..lastIndex) {\n    accumulator = operation(index, accumulator,
this[index])\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value starting with the first character and
applying [operation] from left to right\n * to current accumulator value and each character
with its index in the original char sequence.\n * \n * Returns `null` if the char sequence is empty.\n * \n * @param
[operation] function that takes the index of a character, current accumulator value and the character itself,\n *
and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n */\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun
CharSequence.reduceIndexedOrNull(operation: (index: Int, acc: Char, Char) -> Char): Char? {\n  if (isEmpty())\n  return null\n  var accumulator = this[0]\n  for (index in
1..lastIndex) {\n    accumulator = operation(index, accumulator, this[index])\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the last character and applying [operation]
from right to left\n * to each character and current accumulator value.\n * \n * Throws an exception if this char

```

sequence is empty. If the char sequence can be empty in an expected way, please use `reduceRightOrNull` instead. It returns `null` when its receiver is empty.

`CharSequence.reduceRight(operation: (Char, acc: Char) -> Char): Char` {  
`var index = lastIndex`  
`if (index < 0)`  
`throw UnsupportedOperationException("Empty char sequence can't be reduced.")`  
`var accumulator = get(index--)`  
`while (index >= 0)` {  
`accumulator = operation(get(index--), accumulator)`  
`}`  
`return accumulator`  
`}`  
 Accumulates value starting with the last character and applying `operation` from right to left to each character with its index in the original char sequence and current accumulator value. Throws an exception if this char sequence is empty. If the char sequence can be empty in an expected way, please use `reduceRightIndexedOrNull` instead. It returns `null` when its receiver is empty.

`CharSequence.reduceRightIndexed(operation: (index: Int, Char, acc: Char) -> Char): Char` {  
`var index = lastIndex`  
`if (index < 0)`  
`throw UnsupportedOperationException("Empty char sequence can't be reduced.")`  
`var accumulator = get(index--)`  
`while (index >= 0)` {  
`accumulator = operation(index, get(index), accumulator)`  
`--index`  
`}`  
`return accumulator`  
`}`  
 Accumulates value starting with the last character and applying `operation` from right to left to each character with its index in the original char sequence and current accumulator value. Returns `null` if the char sequence is empty.

`CharSequence.reduceRightIndexedOrNull(operation: (index: Int, Char, acc: Char) -> Char): Char?` {  
`var index = lastIndex`  
`if (index < 0)`  
`return null`  
`var accumulator = get(index--)`  
`while (index >= 0)` {  
`accumulator = operation(index, get(index), accumulator)`  
`--index`  
`}`  
`return accumulator`  
`}`  
 Accumulates value starting with the last character and applying `operation` from right to left to each character and current accumulator value. Returns `null` if the char sequence is empty.

`CharSequence.reduceRightOrNull(operation: (Char, acc: Char) -> Char): Char?` {  
`var index = lastIndex`  
`if (index < 0)`  
`return null`  
`var accumulator = get(index--)`  
`while (index >= 0)` {  
`accumulator = operation(get(index--), accumulator)`  
`}`  
`return accumulator`  
`}`  
 Returns a list containing successive accumulation values generated by applying `operation` from left to right to each character and current accumulator value that starts with `initial` value. Note that `acc` value passed to `operation` function should not be mutated; otherwise it would affect the previous value in resulting list.

`CharSequence.runningFold(initial: R, operation: (acc: R, Char) -> R): List<R>` {  
`if (isEmpty())`  
`return listOf(initial)`  
`val result = ArrayList<R>(length + 1)`  
`apply { add(initial) }`  
`var accumulator = initial`  
`for (element in this)` {  
`accumulator = operation(accumulator, element)`  
`result.add(accumulator)`  
`}`  
`return result`  
`}`  
 Returns a list containing successive accumulation values generated by applying `operation` from left to right to each character, its index in the original char sequence and current accumulator value that starts with `initial` value. Note that `acc` value passed to `operation` function should not be mutated; otherwise it would affect the previous value in resulting list.

`CharSequence.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, Char) -> R): List<R>`

```

{\n if (isEmpty()) return listOf(initial)\n val result = ArrayList<R>(length + 1).apply { add(initial) }\n var
accumulator = initial\n for (index in indices) {\n accumulator = operation(index, accumulator, this[index])\n
result.add(accumulator)\n }\n return result\n}\n\n/**\n * Returns a list containing successive accumulation
values generated by applying [operation] from left to right\n * to each character and current accumulator value that
starts with the first character of this char sequence.\n * \n * Note that `acc` value passed to [operation] function
should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation]
function that takes current accumulator value and a character, and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.runningReduce\n */\n@SinceKotlin("1.4")\npublic inline fun
CharSequence.runningReduce(operation: (acc: Char, Char)
-> Char): List<Char> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n val result =
ArrayList<Char>(length).apply { add(accumulator) }\n for (index in 1 until length) {\n accumulator =
operation(accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n/**\n * Returns a list
containing successive accumulation values generated by applying [operation] from left to right\n * to each character,
its index in the original char sequence and current accumulator value that starts with the first character of this char
sequence.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of a character,
current accumulator value\n * and the character itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*/\n@SinceKotlin("1.4")\npublic inline fun CharSequence.runningReduceIndexed(operation: (index: Int, acc:
Char, Char) -> Char): List<Char> {\n if (isEmpty()) return emptyList()\n var accumulator = this[0]\n val result
= ArrayList<Char>(length).apply { add(accumulator) }\n for (index in 1 until length) {\n accumulator =
operation(index, accumulator, this[index])\n result.add(accumulator)\n }\n return result\n}\n\n/**\n *
Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to
each character and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to
[operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n *
@param [operation] function that takes current accumulator value and a character, and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <R>
CharSequence.scan(initial: R, operation: (acc: R, Char) -> R): List<R> {\n return runningFold(initial,
operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation]
from left to right\n * to each character, its index in the original char sequence and current accumulator value that
starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n *
otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the
index of a character, current accumulator value\n * and the character itself, and calculates the next accumulator
value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic inline fun <R>
CharSequence.scanIndexed(initial: R,
operation: (index: Int, acc: R, Char) -> R): List<R> {\n return runningFoldIndexed(initial, operation)\n}\n\n/**\n *
Returns the sum of all values produced by [selector] function applied to each character in the char sequence.\n
*/\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
CharSequence.sumBy(selector: (Char) -> Int): Int {\n var sum: Int = 0\n for (element in this) {\n sum +=
selector(element)\n }\n return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each character in the char sequence.\n */\n@Deprecated("Use sumOf instead.",
ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic inline fun
CharSequence.sumByDouble(selector: (Char) -> Double): Double {\n var sum: Double = 0.0\n for (element in
this) {\n sum += selector(element)\n }\n return sum\n}\n\n/**\n * Returns

```



the sum of all values produced by [selector] function applied to each character in the char sequence.

```

*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfDouble")\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.sumOf(selector: (Char) -> Double): Double {\n    var sum: Double = 0.toDouble()\n    for (element in
this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each character in the char sequence.\n

```

```

*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfInt")\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.sumOf(selector: (Char) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n       
sum += selector(element)\n    }\n    return
sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each character in the
char sequence.\n

```

```

*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfLong")\n@kotlin.internal.InlineOnly\npublic inline fun
CharSequence.sumOf(selector: (Char) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n
        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each character in the char sequence.\n

```

```

*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfUInt")\n@WasExperimental(ExperimentalUnsignedType
s::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> UInt): UInt {\n
    var sum: UInt = 0.toUInt()\n    for (element
in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced
by [selector] function applied to each character in the char sequence.\n

```

```

*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@kotlin.jvm.JvmName("sumOfULong")\n@WasExperimental(ExperimentalUnsignedTy
pes::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.sumOf(selector: (Char) -> ULong):
ULong {\n    var sum: ULong = 0.toULong()\n    for (element in this) {\n        sum += selector(element)\n    }\n
return sum\n}\n\n/**\n * Splits this char sequence into a list of strings each not exceeding the given [size].\n * \n *
The last string in the resulting list may have fewer characters than the given [size].\n * \n * @param size the number
of elements to take in each string, must be positive and can be greater than the number of elements in this char
sequence.\n * \n * @sample
samples.text.Strings.chunked\n

```

```

*\n@SinceKotlin("1.2")\npublic fun CharSequence.chunked(size: Int):
List<String> {\n    return windowed(size, size, partialWindows = true)\n}\n\n/**\n * Splits this char sequence into
several char sequences each not exceeding the given [size]\n * and applies the given [transform] function to an
each.\n * \n * @return list of results of the [transform] applied to an each char sequence.\n * \n * Note that the char
sequence passed to the [transform] function is ephemeral and is valid only inside that function.\n * You should not
store it or allow it to escape in some way, unless you made a snapshot of it.\n * The last char sequence may have
fewer characters than the given [size].\n * \n * @param size the number of elements to take in each char sequence,
must be positive and can be greater than the number of elements in this char sequence.\n * \n * @sample
samples.text.Strings.chunkedTransform\n

```

```

*\n@SinceKotlin("1.2")\npublic fun <R> CharSequence.chunked(size:
Int, transform: (CharSequence) -> R): List<R> {\n    return windowed(size, size, partialWindows = true, transform
= transform)\n}\n\n/**\n * Splits this char sequence into a sequence of strings each not exceeding the given [size].\n
*\n * The last string in the resulting sequence may have fewer characters than the given [size].\n * \n * @param size
the number of elements to take in each string, must be positive and can be greater than the number of elements in
this char sequence.\n * \n * @sample samples.collections.Collections.Transformations.chunked\n

```

```

*\n@SinceKotlin("1.2")\npublic fun CharSequence.chunkedSequence(size: Int): Sequence<String> {\n    return
chunkedSequence(size) { it.toString() }\n}\n\n/**\n * Splits this char sequence into several char sequences each not
exceeding the given [size]\n * and applies the given [transform] function to an each.\n * \n * @return sequence of

```

results of the [transform] applied to an each char sequence.

`\n * \n *` Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.

`\n * \n *` You should not store it or allow it to escape in some way, unless you made a snapshot of it.

`\n * \n *` The last char sequence may have fewer characters than the given [size].

`\n * \n *` @param size the number of elements to take in each char sequence, must be positive and can be greater than the number of elements in this char sequence.

`\n * \n *` @sample samples.text.Strings.chunkedTransformToSequence

```
\n * \n * @SinceKotlin("1.2")\npublic fun <R>
CharSequence.chunkedSequence(size: Int, transform: (CharSequence) -> R): Sequence<R> {
    return windowedSequence(size, size, partialWindows = true, transform = transform)
}
\n\n/**
 * Splits the original char sequence into pair of char sequences,
 * where *first* char sequence contains characters for which [predicate] yielded `true`,
 * while *second* char sequence contains characters for which [predicate] yielded `false`.
 * \n * \n *
 * @sample samples.text.Strings.partition
 * \n\npublic inline fun CharSequence.partition(predicate: (Char) -> Boolean): Pair<CharSequence, CharSequence>
{
    val first = StringBuilder()
    val second = StringBuilder()
    for (element in this) {
        if (predicate(element))
            first.append(element)
        else
            second.append(element)
    }
    return Pair(first, second)
}
\n\n/**
 * Splits the original string into pair of strings,
 * where *first* string contains characters for which [predicate] yielded `true`,
 * while *second* string contains characters for which [predicate] yielded `false`.
 * \n * \n *
 * @sample samples.text.Strings.partition
 * \n\npublic inline fun String.partition(predicate: (Char) -> Boolean): Pair<String, String>
{
    val first = StringBuilder()
    val second = StringBuilder()
    for (element in this) {
        if (predicate(element))
            first.append(element)
        else
            second.append(element)
    }
    return Pair(first.toString(), second.toString())
}
\n\n/**
 * Returns a list of snapshots of the window of the given [size]
 * sliding along this char sequence with the given [step], where each
 * snapshot is a string.
 * \n * \n * Several last strings may have fewer characters than the given [size].
 * \n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.
 * \n * @param size the number of elements to take in each window
 * \n * @param step the number of elements to move the window forward by on an each step, by default 1
 * \n * @param partialWindows controls whether or not to keep partial windows in the end if any,
 * by default `false` which means partial windows won't be preserved
 * \n * \n *
 * @sample samples.collections.Sequences.Transformations.takeWindows
 * \n * \n * @SinceKotlin("1.2")\npublic fun
CharSequence.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false): List<String>
{
    return windowed(size, step, partialWindows) { it.toString() }
}
\n\n/**
 * Returns a list of results of applying the given [transform] function to
 * an each char sequence representing a view over the window of the given [size]
 * sliding along this char sequence with the given [step].
 * \n * \n * Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.
 * \n * You should not store it or allow it to escape in some way, unless you made a snapshot of it.
 * \n * Several last char sequences may have fewer characters than the given [size].
 * \n * \n * Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.
 * \n * @param size the number of elements to take in each window
 * \n * @param step the number of elements to move the window forward by on an each step, by default 1
 * \n * @param partialWindows controls whether or not to keep partial windows in the end if any,
 * by default `false` which means partial windows won't be preserved
 * \n * \n *
 * @sample samples.collections.Sequences.Transformations.averageWindows
 * \n * \n * @SinceKotlin("1.2")\npublic fun <R> CharSequence.windowed(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (CharSequence) -> R): List<R>
{
    checkWindowSizeStep(size, step)
    val thisSize = this.length
    val resultCapacity = thisSize / step + if (thisSize % step == 0) 0 else 1
    val result = ArrayList<R>(resultCapacity)
    var index = 0
    while (index in 0 until thisSize) {
        val end = index + size
        val coercedEnd = if (end < 0 || end > thisSize) { if (partialWindows) thisSize else break } else end
        result.add(transform(subSequence(index, coercedEnd)))
        index += step
    }
    return result
}
\n\n/**
 * Returns a sequence of snapshots of the window of the given [size]
 * sliding along this char sequence with the given [step], where each
 * snapshot is a string.
 * \n * \n * Several last strings may have fewer

```

characters than the given [size].\n \* \n \* Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.\n \* @param size the number of elements to take in each window\n \* @param step the number of elements to move the window forward by on an each step, by default 1\n \* @param partialWindows controls whether or not to keep partial windows in the end if any,\n \* by default `false` which means partial windows won't be preserved\n \* \n \* @sample samples.collections.Sequences.Transformations.takeWindows\n \* \n \* @SinceKotlin("1.2")\n public fun CharSequence.windowedSequence(size: Int, step: Int = 1, partialWindows: Boolean = false): Sequence<String> {\n return windowedSequence(size, step, partialWindows) { it.toString() }\n }\n }\n /\*\*\n \* Returns a sequence of results of applying the given [transform] function to\n \* an each char sequence representing a view over the window of the given [size]\n \* sliding along this char sequence with the given [step].\n \* \n \* Note that the char sequence passed to the [transform] function is ephemeral and is valid only inside that function.\n \* You should not store it or allow it to escape in some way, unless you made a snapshot of it.\n \* \n \* Several last char sequences may have fewer characters than the given [size].\n \* \n \* Both [size] and [step] must be positive and can be greater than the number of elements in this char sequence.\n \* \n \* @param size the number of elements to take in each window\n \* @param step the number of elements to move the window forward by on an each step, by default 1\n \* @param partialWindows controls whether or not to keep partial windows in the end if any,\n \* by default `false` which means partial windows won't be preserved\n \* \n \* @sample samples.collections.Sequences.Transformations.averageWindows\n \* \n \* @SinceKotlin("1.2")\n public fun <R> CharSequence.windowedSequence(size: Int, step: Int = 1, partialWindows: Boolean = false, transform: (CharSequence) -> R): Sequence<R> {\n checkWindowSizeStep(size, step)\n val windows = (if (partialWindows) indices else 0 until length - size + 1) step step\n return windows.asSequence().map { index ->\n val end = index + size\n val coercedEnd = if (end < 0 || end > length) length else end\n transform(subSequence(index, coercedEnd))\n }\n }\n /\*\*\n \* Returns a list of pairs built from the characters of `this` and the [other] char sequences with the same index\n \* The returned list has length of the shortest char sequence.\n \* \n \* @sample samples.text.Strings.zip\n \* \n public infix fun CharSequence.zip(other: CharSequence): List<Pair<Char, Char>> {\n return zip(other) { c1, c2 -> c1 to c2 }\n }\n /\*\*\n \* Returns a list of values built from the characters of `this` and the [other] char sequences with the same index\n \* using the provided [transform] function applied to each pair of characters.\n \* \n \* The returned list has length of the shortest char sequence.\n \* \n \* @sample samples.text.Strings.zipWithTransform\n \* \n public inline fun <V> CharSequence.zip(other: CharSequence, transform: (a: Char, b: Char) -> V): List<V> {\n val length = minOf(this.length, other.length)\n val list = ArrayList<V>(length)\n for (i in 0 until length) {\n list.add(transform(this[i], other[i]))\n }\n return list\n }\n /\*\*\n \* Returns a list of pairs of each two adjacent characters in this char sequence.\n \* \n \* The returned list is empty if this char sequence contains less than two characters.\n \* \n \* @sample samples.collections.Collections.Transformations.zipWithNext\n \* \n @SinceKotlin("1.2")\n public fun CharSequence.zipWithNext(): List<Pair<Char, Char>> {\n return zipWithNext { a, b -> a to b }\n }\n /\*\*\n \* Returns a list containing the results of applying the given [transform] function\n \* to an each pair of two adjacent characters in this char sequence.\n \* \n \* The returned list is empty if this char sequence contains less than two characters.\n \* \n \* @sample samples.collections.Collections.Transformations.zipWithNextToFindDeltas\n \* \n @SinceKotlin("1.2")\n public inline fun <R> CharSequence.zipWithNext(transform: (a: Char, b: Char) -> R): List<R> {\n val size = length - 1\n if (size < 1) return emptyList()\n val result = ArrayList<R>(size)\n for (index in 0 until size) {\n result.add(transform(this[index], this[index + 1]))\n }\n return result\n }\n /\*\*\n \* Creates an [Iterable] instance that wraps the original char sequence returning its characters when being iterated.\n \* \n \* \n public fun CharSequence.asIterable(): Iterable<Char> {\n if (this is String && isEmpty()) return emptyList()\n return Iterable { this.iterator() }\n }\n /\*\*\n \* Creates a [Sequence] instance that wraps the original char sequence returning its characters when being iterated.\n \* \n \* \n public fun CharSequence.asSequence(): Sequence<Char> {\n if (this is String && isEmpty()) return emptySequence()\n return Sequence {

this.iterator() }n}n", "/\*n \* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.n

\*^n @file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\n"StringsKt(\n)")n\npackage kotlin.text\n\nimport kotlin.contracts.contract\nimport kotlin.jvm.JvmName\n\n/\*n \* Returns a copy of this string converted to upper case using the rules of the default locale.n \*^n @Deprecated(\n"Use uppercase() instead.\n", ReplaceWith(\n"uppercase()")\n)\n\n@DeprecatedSinceKotlin(warningSince = \n"1.5")\n\npublic expect fun String.toUpperCase(): String\n\n/\*n \* Returns a copy of this string converted to upper case using Unicode mapping rules of the invariant locale.n \*n \* This function supports one-to-many and many-to-one character mapping,\n \* thus the length of the returned string can be different from the length of the original string.n \*n \* @sample samples.text.Strings.uppercase\n

\*^n @SinceKotlin(\n"1.5")\n\n@WasExperimental(ExperimentalStdlibApi::class)\n\npublic expect fun String.lowercase(): String\n\n/\*n \* Returns a copy of this string converted to lower case using the rules of the default locale.n \*^n @Deprecated(\n"Use lowercase() instead.\n",

ReplaceWith(\n"lowercase()")\n)\n\n@DeprecatedSinceKotlin(warningSince = \n"1.5")\n\npublic expect fun String.toLowerCase(): String\n\n/\*n \* Returns a copy of this string converted to lower case using Unicode mapping rules of the invariant locale.n \*n \* This function supports one-to-many and many-to-one character mapping,\n \* thus the length of the returned string can be different from the length of the original string.n \*n \* @sample samples.text.Strings.lowercase\n

\*^n @SinceKotlin(\n"1.5")\n\n@WasExperimental(ExperimentalStdlibApi::class)\n\npublic expect fun String.capitalize(): String\n\n/\*n \* Returns a copy of this string having its first letter titlecased using the rules of the default locale,\n

\* or the original string if it's empty or already starts with a title case letter.n \*n \* The title case of a character is usually the same as its upper case with several exceptions.n \* The particular list of characters with the special title case form depends on the underlying platform.n \*n \* @sample samples.text.Strings.capitalize\n

\*^n @Deprecated(\n"Use replaceFirstChar instead.\n", ReplaceWith(\n"replaceFirstChar { if (it.isLowerCase()) it.titlecase() else it.toString() }")\n)\n\n@DeprecatedSinceKotlin(warningSince = \n"1.5")\n\npublic expect fun String.decitalize(): String\n\n/\*n \* Returns a copy of this string having its first letter lowercased using the rules of the default locale,\n \* or the original string if it's empty or already starts with a lower case letter.n \*n \* @sample samples.text.Strings.decitalize\n \*^n @Deprecated(\n"Use replaceFirstChar instead.\n",

ReplaceWith(\n"replaceFirstChar { it.lowercase() }")\n)\n\n@DeprecatedSinceKotlin(warningSince = \n"1.5")\n\npublic expect fun String.trim(predicate: (Char) -> Boolean): CharSequence {\n var startIndex = 0\n var endIndex = length - 1\n var startFound = false\n\n while (startIndex <= endIndex) {\n val index = if (!startFound) startIndex else endIndex\n val match = predicate(this[index])\n\n if (!startFound) {\n if (!match)\n startFound = true\n else\n startIndex += 1\n } else {\n if (!match)\n break\n else\n endIndex -= 1\n }\n }\n\n return subSequence(startIndex, endIndex + 1)\n}\n\n/\*n \* Returns a string having leading and trailing characters matching the [predicate] removed.n \*^n public inline fun CharSequence.trim(predicate: (Char) -> Boolean): String =\n (this as CharSequence).trim(predicate).toString()\n\n/\*n \* Returns a sub sequence of this char sequence having leading and trailing characters matching the [predicate] removed.n \*^n public inline fun CharSequence.trimStart(predicate: (Char) -> Boolean): CharSequence {\n for (index in this.indices)\n if (!predicate(this[index]))\n return subSequence(index, length)\n return \"\"\n}\n\n/\*n \* Returns a string having leading characters matching the [predicate] removed.n \*^n public inline fun String.trimStart(predicate: (Char) -> Boolean): String =\n (this as CharSequence).trimStart(predicate).toString()\n\n/\*n \* Returns a sub sequence of this char sequence having trailing characters matching the [predicate] removed.n \*^n public inline fun CharSequence.trimEnd(predicate: (Char) -> Boolean): CharSequence {\n for (index in this.indices.reversed())\n if (!predicate(this[index]))\n

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    return subSequence(0, index + 1)\n\n    return \"\"}\n\n/**\n * Returns
a string having trailing characters matching the [predicate] removed.\n */\npublic inline fun
String.trimEnd(predicate: (Char) -> Boolean): String =\n    (this as
CharSequence).trimEnd(predicate).toString()\n\n/**\n * Returns a sub sequence of this char sequence having
leading and trailing characters from the [chars] array removed.\n */\npublic fun CharSequence.trim(vararg chars:
Char): CharSequence = trim { it in chars }\n\n/**\n * Returns a string having leading and trailing characters from
the [chars] array removed.\n */\npublic fun String.trim(vararg chars: Char): String = trim { it in chars }\n\n/**\n * Returns a sub sequence of this char sequence having leading characters from the [chars] array removed.\n */\npublic
fun CharSequence.trimStart(vararg chars: Char): CharSequence = trimStart { it in chars }\n\n/**\n * Returns a string
having leading characters from the [chars] array removed.\n */\npublic fun String.trimStart(vararg chars: Char):
String = trimStart { it in chars
}\n\n/**\n * Returns a sub sequence of this char sequence having trailing characters from the [chars] array
removed.\n */\npublic fun CharSequence.trimEnd(vararg chars: Char): CharSequence = trimEnd { it in chars
}\n\n/**\n * Returns a string having trailing characters from the [chars] array removed.\n */\npublic fun
String.trimEnd(vararg chars: Char): String = trimEnd { it in chars }\n\n/**\n * Returns a sub sequence of this char
sequence having leading and trailing whitespace removed.\n */\npublic fun CharSequence.trim(): CharSequence =
trim(Char::isWhitespace)\n\n/**\n * Returns a string having leading and trailing whitespace removed.\n
*/\n\n@kotlin.internal.InlineOnly\npublic inline fun String.trim(): String = (this as
CharSequence).trim().toString()\n\n/**\n * Returns a sub sequence of this char sequence having leading whitespace
removed.\n */\npublic fun CharSequence.trimStart(): CharSequence = trimStart(Char::isWhitespace)\n\n/**\n *
Returns a string having leading whitespace removed.\n
*/\n\n@kotlin.internal.InlineOnly\npublic inline fun String.trimStart(): String = (this as
CharSequence).trimStart().toString()\n\n/**\n * Returns a sub sequence of this char sequence having trailing
whitespace removed.\n */\npublic fun CharSequence.trimEnd(): CharSequence =
trimEnd(Char::isWhitespace)\n\n/**\n * Returns a string having trailing whitespace removed.\n
*/\n\n@kotlin.internal.InlineOnly\npublic inline fun String.trimEnd(): String = (this as
CharSequence).trimEnd().toString()\n\n/**\n * Returns a char sequence with content of this char sequence padded at
the beginning\n * to the specified [length] with the specified character or space.\n * @param length the desired
string length.\n * @param padChar the character to pad string with, if it has length less than the [length] specified.
Space is used by default.\n * @return Returns a char sequence of length at least [length] consisting of `this` char
sequence prepended with [padChar] as many times\n * as are necessary
to reach that length.\n * @sample samples.text.Strings.padStart\n */\npublic fun CharSequence.padStart(length: Int,
padChar: Char = ' '): CharSequence {\n    if (length < 0)\n        throw IllegalArgumentException(\"Desired length
$length is less than zero.\")\n    if (length <= this.length)\n        return this.subSequence(0, this.length)\n    val sb =
StringBuilder(length)\n    for (i in 1..(length - this.length))\n        sb.append(padChar)\n    sb.append(this)\n    return
sb\n}\n\n/**\n * Pads the string to the specified [length] at the beginning with the specified character or space.\n *
*/\n * @param length the desired string length.\n * @param padChar the character to pad string with, if it has length less
than the [length] specified. Space is used by default.\n * @return Returns a string of length at least [length]
consisting of `this` string prepended with [padChar] as many times\n * as are necessary to reach that length.\n *
*/\n\n@sample samples.text.Strings.padStart\n */\npublic fun
String.padStart(length: Int, padChar: Char = ' '): String =\n    (this as CharSequence).padStart(length,
padChar).toString()\n\n/**\n * Returns a char sequence with content of this char sequence padded at the end\n * to
the specified [length] with the specified character or space.\n * @param length the desired string length.\n *
*/\n * @param padChar the character to pad string with, if it has length less than the [length] specified. Space is used by
default.\n * @return Returns a char sequence of length at least [length] consisting of `this` char sequence appended
with [padChar] as many times\n * as are necessary to reach that length.\n * @sample samples.text.Strings.padEnd\n
*/\n\npublic fun CharSequence.padEnd(length: Int, padChar: Char = ' '): CharSequence {\n    if (length < 0)\n        throw IllegalArgumentException(\"Desired length $length is less than zero.\")\n    if (length <= this.length)\n

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return this.subSequence(0, this.length)\n\n    val sb = StringBuilder(length)\n    sb.append(this)\n    for (i in 1..(length - this.length))\n        sb.append(padChar)\n    return sb\n}\n\n/**\n * Pads the string to the specified [length] at the end with the specified character or space.\n * @param length the desired string length.\n * @param padChar the character to pad string with, if it has length less than the [length] specified. Space is used by default.\n * @return Returns a string of length at least [length] consisting of `this` string appended with [padChar] as many times\n * as are necessary to reach that length.\n * @sample\n samples.text.Strings.padEnd\n */\npublic fun String.padEnd(length: Int, padChar: Char = ' '): String =\n    (this as CharSequence).padEnd(length, padChar).toString()\n\n/**\n * Returns `true` if this nullable char sequence is either `null` or empty.\n * @sample\n samples.text.Strings.stringIsNullOrEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence?.isNullOrEmpty(): Boolean {\n    contract {\n        returns(false)\n        implies (this@isNullOrEmpty != null)\n    }\n    return this == null || this.length == 0\n}\n\n/**\n * Returns `true` if this char sequence is empty (contains no characters).\n * @sample\n samples.text.Strings.stringIsEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.isEmpty(): Boolean = length == 0\n\n/**\n * Returns `true` if this char sequence is not empty.\n * @sample\n samples.text.Strings.stringIsNotEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.isNotEmpty(): Boolean = length > 0\n\n// implemented differently in JVM and JS\n// public fun String.isBlank(): Boolean = length() == 0 || all { it.isWhitespace() }\n\n/**\n * Returns `true` if this char sequence is not empty and contains some characters except of whitespace characters.\n * @sample\n samples.text.Strings.stringIsNotBlank\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.isNotBlank(): Boolean = !isBlank()\n\n/**\n * Returns `true` if this nullable char sequence is either `null` or empty or consists solely of whitespace characters.\n * @sample\n samples.text.Strings.stringIsNullOrBlank\n */\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence?.isNullOrBlank(): Boolean {\n    contract {\n        returns(false)\n        implies (this@isNullOrBlank != null)\n    }\n    return this == null || this.isBlank()\n}\n\n/**\n * Iterator for characters of the given char sequence.\n * @public operator fun CharSequence.iterator(): CharIterator = object : CharIterator() {\n    private var index = 0\n    public override fun nextChar(): Char = get(index++)\n    public override fun hasNext(): Boolean = index < length\n}\n\n/**\n * Returns the string if it is not `null`, or the empty string otherwise.\n * @sample\n samples.text.Strings.stringIfEmpty\n */\n@kotlin.internal.InlineOnly\npublic inline fun String?.orEmpty(): String = this ?: ""\n\n/**\n * Returns this char sequence if it's not empty\n * or the result of calling [defaultValue] function if the char sequence is empty.\n * @sample\n samples.text.Strings.stringIfBlank\n */\n@kotlin.internal.InlineOnly\npublic inline fun <C, R> C.ifBlank(defaultValue: () -> R): R where C : CharSequence, C : R =\n    if (isEmpty()) defaultValue() else this\n\n/**\n * Returns the range of valid character indices for this char sequence.\n * @public val CharSequence.indices: IntRange\n    get() = 0..length - 1\n\n/**\n * Returns the index of the last character in the char sequence or -1 if it is empty.\n * @public val CharSequence.lastIndex: Int\n    get() = this.length - 1\n\n/**\n * Returns `true` if this CharSequence has Unicode surrogate pair at the specified [index].\n * @public fun CharSequence.hasSurrogatePairAt(index: Int): Boolean {\n    return index in 0..length - 2 && this[index].isHighSurrogate() && this[index + 1].isLowSurrogate()\n}\n\n/**\n * Returns a substring specified by the given [range] of indices.\n * @public fun String.substring(range: IntRange): String =\n    substring(range.start, range.endInclusive + 1)\n\n/**\n * Returns a subsequence of this char sequence specified by the given [range] of indices.\n * @public fun CharSequence.subSequence(range: IntRange): CharSequence =\n    subSequence(range.start, range.endInclusive + 1)\n\n/**\n * Returns a subsequence of this char sequence.\n * @sample\n This extension is chosen only for invocation with old-named parameters.\n * Replace parameter names with the

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same as those of [CharSequence.subSequence].\n
*\n@kotlin.internal.InlineOnly\n@Suppress("\u0027EXTENSION_SHADOWED_BY_MEMBER\u0027") // false
warning\n@Deprecated("\u0027Use
parameters named startIndex and endIndex.\u0027", ReplaceWith("\u0027subSequence(startIndex = start, endIndex =
end)\u0027"))\npublic inline fun String.subSequence(start: Int, end: Int): CharSequence = subSequence(start,
end)\n\n/**\n * Returns a substring of chars from a range of this char sequence starting at the [startIndex] and
ending right before the [endIndex].\n * @param startIndex the start index (inclusive).\n * @param endIndex the
end index (exclusive). If not specified, the length of the char sequence is used.\n
*\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.substring(startIndex: Int, endIndex: Int = length):
String = subSequence(startIndex, endIndex).toString()\n\n/**\n * Returns a substring of chars at indices from the
specified [range] of this char sequence.\n * @param range the range of indices to substring.\n * @return a
substring before the first occurrence of\n
*\n@kotlin.internal.InlineOnly\npublic fun CharSequence.substring(range: IntRange): String =
subSequence(range.start, range.endInclusive + 1).toString()\n\n/**\n * Returns a substring before the first
occurrence of\n
[delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the
original string.\n * @param delimiter the delimiter to search for.\n * @param missingDelimiterValue the value to
return if the delimiter is not found.\n * @return a substring before the first occurrence of [delimiter].\n * If the
string does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringBefore(delimiter: Char, missingDelimiterValue: String =
this): String {\n    val index = indexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else
substring(0, index)\n}\n\n/**\n * Returns a substring before the first occurrence of [delimiter].\n * If the string
does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringBefore(delimiter: String, missingDelimiterValue: String =
this): String {\n    val index =
indexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n * Returns
a substring after the first occurrence of [delimiter].\n * If the string does not contain the delimiter, returns
[missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringAfter(delimiter:
Char, missingDelimiterValue: String = this): String {\n    val index = indexOf(delimiter)\n    return if (index ==
-1) missingDelimiterValue else substring(index + 1, length)\n}\n\n/**\n * Returns a substring after the first
occurrence of [delimiter].\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which
defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringAfter(delimiter: String, missingDelimiterValue: String =
this): String {\n    val index =
indexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else substring(index + delimiter.length,
length)\n}\n\n/**\n * Returns a substring before the last occurrence of [delimiter].\n * If the string does not
contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringBeforeLast(delimiter: Char, missingDelimiterValue:
String = this): String {\n    val index =
lastIndexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n *
Returns a substring before the last occurrence of [delimiter].\n * If the string does not contain the delimiter,
returns [missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringBeforeLast(delimiter: String, missingDelimiterValue:
String = this): String {\n    val index =
lastIndexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else substring(0, index)\n}\n\n/**\n *
Returns a substring after the last occurrence of [delimiter].\n * If the string does not contain the delimiter,
returns [missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringAfterLast(delimiter: Char, missingDelimiterValue:
String = this): String {\n    val index =
lastIndexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else substring(index + 1,
length)\n}\n\n/**\n * Returns a substring after the last occurrence of [delimiter].\n * If the string does not
contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n *
*\n@kotlin.internal.InlineOnly\npublic fun String.substringAfterLast(delimiter: String, missingDelimiterValue:
String = this): String {\n    val index =
lastIndexOf(delimiter)\n    return if (index == -1) missingDelimiterValue else substring(index + delimiter.length,
length)\n}\n\n/**\n * Returns a char sequence with content of this char sequence where its part at the given
range\n * is replaced with the [replacement] char sequence.\n * @param startIndex the index of the first character
to be replaced.\n * @param endIndex the index of the first character after the replacement to keep in the string.\n
*\n@kotlin.internal.InlineOnly\npublic fun CharSequence.replaceRange(startIndex: Int, endIndex: Int, replacement:
CharSequence):
CharSequence {\n    if (endIndex < startIndex)\n        throw IndexOutOfBoundsException("\u0027End index
($endIndex)

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is less than start index ($startIndex).")\n    val sb = StringBuilder()\n    sb.appendRange(this,
0, startIndex)\n    sb.append(replacement)\n    sb.appendRange(this, endIndex, length)\n    return sb\n}\n\n/**\n * Replaces the part of the string at the given range with the [replacement] char sequence.\n * @param startIndex the
index of the first character to be replaced.\n * @param endIndex the index of the first character after the replacement
to keep in the string.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.replaceRange(startIndex: Int,
endIndex: Int, replacement: CharSequence): String =\n    (this as CharSequence).replaceRange(startIndex, endIndex,
replacement).toString()\n\n/**\n * Returns a char sequence with content of this char sequence where its part at the
given [range]\n * is replaced with the [replacement] char sequence.\n * \n * The end index of the [range] is included
in the part to be replaced.\n */\npublic fun CharSequence.replaceRange(range: IntRange, replacement:
CharSequence): CharSequence =\n    replaceRange(range.start, range.endInclusive + 1, replacement)\n\n/**\n * Replace the part of string at the given [range] with the [replacement] string.\n * \n * The end index of the [range]
is included in the part to be replaced.\n */\n@kotlin.internal.InlineOnly\npublic inline fun
String.replaceRange(range: IntRange, replacement: CharSequence): String =\n    (this as
CharSequence).replaceRange(range, replacement).toString()\n\n/**\n * Returns a char sequence with content of this
char sequence where its part at the given range is removed.\n * \n * @param startIndex the index of the first
character to be removed.\n * @param endIndex the index of the first character after the removed part to keep in the
string.\n * \n * [endIndex] is not included in the removed part.\n */\npublic fun
CharSequence.removeRange(startIndex: Int, endIndex: Int): CharSequence {\n    if (endIndex < startIndex)\n        throw IndexOutOfBoundsException("End index ($endIndex) is less than start index ($startIndex).")\n    if
(endIndex == startIndex)\n        return
this.subSequence(0, length)\n    val sb = StringBuilder(length - (endIndex - startIndex))\n    sb.appendRange(this,
0, startIndex)\n    sb.appendRange(this, endIndex, length)\n    return sb\n}\n\n/**\n * Removes the part of a string at
a given range.\n * @param startIndex the index of the first character to be removed.\n * @param endIndex the index
of the first character after the removed part to keep in the string.\n * \n * [endIndex] is not included in the removed
part.\n */\n@kotlin.internal.InlineOnly\npublic inline fun String.removeRange(startIndex: Int, endIndex: Int): String
=\n    (this as CharSequence).removeRange(startIndex, endIndex).toString()\n\n/**\n * Returns a char sequence with
content of this char sequence where its part at the given [range] is removed.\n * \n * The end index of the [range] is
included in the removed part.\n */\npublic fun CharSequence.removeRange(range: IntRange): CharSequence =
removeRange(range.start, range.endInclusive + 1)\n\n/**\n * Removes
the part of a string at the given [range].\n * \n * The end index of the [range] is included in the removed part.\n
*/\n@kotlin.internal.InlineOnly\npublic inline fun String.removeRange(range: IntRange): String =\n    (this as
CharSequence).removeRange(range).toString()\n\n/**\n * If this char sequence starts with the given [prefix], returns
a new char sequence\n * with the prefix removed. Otherwise, returns a new char sequence with the same
characters.\n */\npublic fun CharSequence.removePrefix(prefix: CharSequence): CharSequence {\n    if
(startsWith(prefix)) {\n        return subSequence(prefix.length, length)\n    }\n    return subSequence(0,
length)\n}\n\n/**\n * If this string starts with the given [prefix], returns a copy of this string\n * with the prefix
removed. Otherwise, returns this string.\n */\npublic fun String.removePrefix(prefix: CharSequence): String {\n    if
(startsWith(prefix)) {\n        return substring(prefix.length)\n    }\n    return this\n}\n\n/**\n * If this
char sequence ends with the given [suffix], returns a new char sequence\n * with the suffix removed. Otherwise,
returns a new char sequence with the same characters.\n */\npublic fun CharSequence.removeSuffix(suffix:
CharSequence): CharSequence {\n    if (endsWith(suffix)) {\n        return subSequence(0, length - suffix.length)\n
    }\n    return subSequence(0, length)\n}\n\n/**\n * If this string ends with the given [suffix], returns a copy of this
string\n * with the suffix removed. Otherwise, returns this string.\n */\npublic fun String.removeSuffix(suffix:
CharSequence): String {\n    if (endsWith(suffix)) {\n        return substring(0, length - suffix.length)\n    }\n
return this\n}\n\n/**\n * When this char sequence starts with the given [prefix] and ends with the given [suffix],\n *
returns a new char sequence having both the given [prefix] and [suffix] removed.\n * Otherwise returns a new char
sequence with the same characters.\n */\npublic fun CharSequence.removeSurrounding(prefix:

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CharSequence, suffix: CharSequence): CharSequence {\n  if ((length >= prefix.length + suffix.length) &&
startsWith(prefix) && endsWith(suffix)) {\n    return subSequence(prefix.length, length - suffix.length)\n  }\n
return subSequence(0, length)\n}\n\n/**\n * Removes from a string both the given [prefix] and [suffix] if and only
if\n * it starts with the [prefix] and ends with the [suffix].\n * Otherwise returns this string unchanged.\n */\npublic
fun String.removeSurrounding(prefix: CharSequence, suffix: CharSequence): String {\n  if ((length >=
prefix.length + suffix.length) && startsWith(prefix) && endsWith(suffix)) {\n    return substring(prefix.length,
length - suffix.length)\n  }\n  return this\n}\n\n/**\n * When this char sequence starts with and ends with the
given [delimiter],\n * returns a new char sequence having this [delimiter] removed both from the start and end.\n *
Otherwise returns a new char sequence with the same characters.\n */\npublic
fun CharSequence.removeSurrounding(delimiter: CharSequence): CharSequence = removeSurrounding(delimiter,
delimiter)\n}\n\n/**\n * Removes the given [delimiter] string from both the start and the end of this string\n * if
and only if it starts with and ends with the [delimiter].\n * Otherwise returns this string unchanged.\n */\npublic fun
String.removeSurrounding(delimiter: CharSequence): String = removeSurrounding(delimiter, delimiter)\n}\n\n/**\n *
Replace part of string before the first occurrence of given delimiter with the [replacement] string.\n * If the string
does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic
fun String.replaceBefore(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n
val index = indexOf(delimiter)\n  return if (index == -1) missingDelimiterValue else replaceRange(0, index,
replacement)\n}\n\n/**\n * Replace part of string before the first occurrence of given
delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns
[missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBefore(delimiter:
String, replacement: String, missingDelimiterValue: String = this): String {\n  val index = indexOf(delimiter)\n
return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n}\n\n/**\n * Replace part
of string after the first occurrence of given delimiter with the [replacement] string.\n * If the string does not contain
the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun
String.replaceAfter(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n  val
index = indexOf(delimiter)\n  return if (index == -1) missingDelimiterValue else replaceRange(index + 1, length,
replacement)\n}\n}\n\n/**\n * Replace part of string after the first occurrence of given delimiter with
the [replacement] string.\n * If the string does not contain the delimiter, returns [missingDelimiterValue] which
defaults to the original string.\n */\npublic fun String.replaceAfter(delimiter: String, replacement: String,
missingDelimiterValue: String = this): String {\n  val index = indexOf(delimiter)\n  return if (index == -1)
missingDelimiterValue else replaceRange(index + delimiter.length, length, replacement)\n}\n}\n\n/**\n * Replace part
of string after the last occurrence of given delimiter with the [replacement] string.\n * If the string does not contain
the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun
String.replaceAfterLast(delimiter: String, replacement: String, missingDelimiterValue: String = this): String {\n
val index = lastIndexOf(delimiter)\n  return if (index == -1) missingDelimiterValue else replaceRange(index +
delimiter.length, length, replacement)\n}\n}\n\n/**\n * Replace part of string before the last occurrence
of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns
[missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBeforeLast(delimiter:
Char, replacement: String, missingDelimiterValue: String = this): String {\n  val index = lastIndexOf(delimiter)\n
return if (index == -1) missingDelimiterValue else replaceRange(index + 1, length, replacement)\n}\n}\n\n/**\n *
Replace part of string before the last occurrence of given delimiter with the [replacement] string.\n * If the string
does not contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic
fun String.replaceBeforeLast(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n
val index = lastIndexOf(delimiter)\n  return if (index == -1) missingDelimiterValue else replaceRange(0, index,
replacement)\n}\n}\n\n/**\n * Replace part of string before the last occurrence
of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns
[missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceBeforeLast(delimiter:
String, replacement: String, missingDelimiterValue: String = this): String {\n  val index = lastIndexOf(delimiter)\n
return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n}\n\n/**\n * Replace
part of string after the last occurrence of given delimiter with the [replacement] string.\n * If the string does not
contain the delimiter, returns [missingDelimiterValue] which defaults to the original string.\n */\npublic fun
String.replaceAfterLast(delimiter: Char, replacement: String, missingDelimiterValue: String = this): String {\n  val
index = lastIndexOf(delimiter)\n  return if (index == -1) missingDelimiterValue else replaceRange(index + 1, length,
replacement)\n}\n}\n\n/**\n * Replace part of string after the last occurrence
of given delimiter with the [replacement] string.\n * If the string does not contain the delimiter, returns
[missingDelimiterValue] which defaults to the original string.\n */\npublic fun String.replaceAfterLast(delimiter:
String, replacement: String, missingDelimiterValue: String = this): String {\n  val index = lastIndexOf(delimiter)\n
return if (index == -1) missingDelimiterValue else replaceRange(index + delimiter.length, length, replacement)\n}\n}

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return if (index == -1) missingDelimiterValue else replaceRange(0, index, replacement)\n}\n\n// public fun
String.replace(oldChar: Char, newChar: Char, ignoreCase: Boolean): String // JVM- and JS-specific\n// public fun
String.replace(oldValue: String, newValue: String, ignoreCase: Boolean): String // JVM- and JS-specific\n\n/**\n *
Returns a new string obtained by replacing each substring of this char sequence that matches the given regular
expression\n * with the given [replacement].\n *\n * The [replacement] can consist of any combination of literal text
and $-substitutions. To treat the replacement string\n * literally escape it with the
[kotlin.text.Regex.Companion.escapeReplacement] method.\n *\n *\n @kotlin.internal.InlineOnly\n\npublic inline fun
CharSequence.replace(regex: Regex, replacement: String): String = regex.replace(this, replacement)\n\n/**\n *
Returns a new string obtained by replacing each substring of this char sequence that matches the given regular
expression\n * with the result of the given function [transform] that takes [MatchResult] and returns a string to be
used as a\n * replacement for that match.\n *\n *\n @kotlin.internal.InlineOnly\n\npublic inline fun
CharSequence.replace(regex: Regex, noinline transform: (MatchResult) -> CharSequence): String =\n
regex.replace(this, transform)\n\n/**\n * Replaces the first occurrence of the given regular expression [regex] in this
char sequence with specified [replacement] expression.\n *\n * @param replacement A replacement expression that
can include substitutions. See [Regex.replaceFirst] for details.\n *\n *\n @kotlin.internal.InlineOnly\n\npublic inline fun
CharSequence.replaceFirst(regex:
Regex, replacement: String): String = regex.replaceFirst(this, replacement)\n\n/**\n * Returns a copy of this string
having its first character replaced with the result of the specified [transform],\n * or the original string if it's empty.\n\n
*\n * @param transform function that takes the first character and returns the result of the transform applied to the
character.\n *\n * @sample samples.text.Strings.replaceFirstChar\n\n
*\n *\n @SinceKotlin("1.5")\n\n@WasExperimental(ExperimentalStdlibApi::class)\n\n@OptIn(kotlin.experimental.Exper
imentalTypeInference::class)\n\n@OverloadResolutionByLambdaReturnType\n\n@JvmName("\replaceFirstCharWithC
har")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun String.replaceFirstChar(transform: (Char) -> Char): String {\n
return if (isEmpty()) transform(this[0]) + substring(1) else this\n}\n\n/**\n * Returns a copy of this string
having its first character replaced with the result of the specified [transform],\n * or the original
string if it's empty.\n *\n * @param transform function that takes the first character and returns the result of the
transform applied to the character.\n *\n * @sample samples.text.Strings.replaceFirstChar\n\n
*\n *\n @SinceKotlin("1.5")\n\n@WasExperimental(ExperimentalStdlibApi::class)\n\n@OptIn(kotlin.experimental.Exper
imentalTypeInference::class)\n\n@OverloadResolutionByLambdaReturnType\n\n@JvmName("\replaceFirstCharWithC
harSequence")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun String.replaceFirstChar(transform: (Char) ->
CharSequence): String {\n
return if (isEmpty()) transform(this[0]).toString() + substring(1) else
this\n}\n\n\n/**\n * Returns `true` if this char sequence matches the given regular expression.\n\n
*\n *\n @kotlin.internal.InlineOnly\n\npublic inline infix fun CharSequence.matches(regex: Regex): Boolean =
regex.matches(this)\n\n/**\n * Implementation of [regionMatches] for CharSequences.\n * Invoked when it's
already known that arguments are not Strings, so that no additional
type checks are performed.\n *\n *\n\ninternal fun CharSequence.regionMatchesImpl(thisOffset: Int, other:
CharSequence, otherOffset: Int, length: Int, ignoreCase: Boolean): Boolean {\n
if ((otherOffset < 0) || (thisOffset <
0) || (thisOffset > this.length - length) || (otherOffset > other.length - length)) {\n
return false\n }\n\n for
(index in 0 until length) {\n
if (!this[thisOffset + index].equals(other[otherOffset + index], ignoreCase))\n
return false\n }\n
return true\n}\n\n\n/**\n * Returns `true` if this char sequence starts with the specified
character.\n *\n *\n\npublic fun CharSequence.startsWith(char: Char, ignoreCase: Boolean = false): Boolean =\n
this.length > 0 && this[0].equals(char, ignoreCase)\n\n/**\n * Returns `true` if this char sequence ends with the
specified character.\n *\n *\n\npublic fun CharSequence.endsWith(char: Char, ignoreCase: Boolean = false): Boolean =\n
this.length > 0 && this[lastIndex].equals(char, ignoreCase)\n\n/**\n * Returns `true` if this char sequence starts with the specified prefix.\n *\n *\n\npublic fun
CharSequence.startsWith(prefix: CharSequence, ignoreCase: Boolean = false): Boolean {\n
if (!ignoreCase &&
this is String && prefix is String)\n
return this.startsWith(prefix)\n
else\n
return regionMatchesImpl(0,
prefix, 0, prefix.length, ignoreCase)\n}\n\n\n/**\n * Returns `true` if a substring of this char sequence starting at the

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specified offset [startIndex] starts with the specified prefix.\n */\npublic fun CharSequence.startsWith(prefix:
CharSequence, startIndex: Int, ignoreCase: Boolean = false): Boolean {\n    if (!ignoreCase && this is String &&
prefix is String)\n        return this.startsWith(prefix, startIndex)\n    else\n        return regionMatchesImpl(startIndex,
prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n * Returns `true` if this char sequence ends with the specified
suffix.\n */\npublic fun CharSequence.endsWith(suffix: CharSequence, ignoreCase: Boolean
= false): Boolean {\n    if (!ignoreCase && this is String && suffix is String)\n        return this.endsWith(suffix)\n    else\n        return regionMatchesImpl(length - suffix.length, suffix, 0, suffix.length, ignoreCase)\n}\n\n\n// common
prefix and suffix\n/**\n * Returns the longest string `prefix` such that this char sequence and [other] char sequence
both start with this prefix,\n * taking care not to split surrogate pairs.\n * If this and [other] have no common prefix,
returns the empty string.\n * @param ignoreCase `true` to ignore character case when matching a character. By
default `false`.\n * @sample samples.text.Strings.commonPrefixWith\n */\npublic fun
CharSequence.commonPrefixWith(other: CharSequence, ignoreCase: Boolean = false): String {\n    val
shortestLength = minOf(this.length, other.length)\n\n    var i = 0\n    while (i < shortestLength &&
this[i].equals(other[i], ignoreCase = ignoreCase)) {\n        i++\n    }\n    if (this.hasSurrogatePairAt(i - 1) ||
other.hasSurrogatePairAt(i
- 1)) {\n        i--\n    }\n    return subSequence(0, i).toString()\n}\n\n\n/**\n * Returns the longest string `suffix` such
that this char sequence and [other] char sequence both end with this suffix,\n * taking care not to split surrogate
pairs.\n * If this and [other] have no common suffix, returns the empty string.\n * @param ignoreCase `true` to
ignore character case when matching a character. By default `false`.\n * @sample
samples.text.Strings.commonSuffixWith\n */\npublic fun CharSequence.commonSuffixWith(other: CharSequence,
ignoreCase: Boolean = false): String {\n    val thisLength = this.length\n    val otherLength = other.length\n    val
shortestLength = minOf(thisLength, otherLength)\n\n    var i = 0\n    while (i < shortestLength && this[thisLength -
i - 1].equals(other[otherLength - i - 1], ignoreCase = ignoreCase)) {\n        i++\n    }\n    if
(this.hasSurrogatePairAt(thisLength - i - 1) || other.hasSurrogatePairAt(otherLength - i - 1)) {\n
        i--\n    }\n    return subSequence(thisLength - i, thisLength).toString()\n}\n\n\n// indexOfAny()\n/**\n * Finds
the index of the first occurrence of any of the specified [chars] in this char sequence,\n * starting from the specified
[startIndex] and optionally ignoring the case.\n * @param ignoreCase `true` to ignore character case when
matching a character. By default `false`.\n * @return An index of the first occurrence of matched character from
[chars] or -1 if none of [chars] are found.\n */\npublic fun CharSequence.indexOfAny(chars: CharArray,
startIndex: Int = 0, ignoreCase: Boolean = false): Int {\n    if (!ignoreCase && chars.size == 1 && this is String) {\n
        val char = chars.single()\n        return nativeIndexOf(char, startIndex)\n    }\n\n    for (index in
startIndex.coerceAtLeast(0)..lastIndex) {\n        val charAtIndex = get(index)\n        if (chars.any {
it.equals(charAtIndex, ignoreCase) })\n            return index\n    }\n    return -1\n}\n\n\n/**\n * Finds the index of the last occurrence of any of the specified [chars] in this char sequence,\n * starting from the
specified [startIndex] and optionally ignoring the case.\n * @param startIndex The index of character to start
searching at. The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to
ignore character case when matching a character. By default `false`.\n * @return An index of the last occurrence of
matched character from [chars] or -1 if none of [chars] are found.\n */\npublic fun
CharSequence.lastIndexOfAny(chars: CharArray, startIndex: Int = lastIndex, ignoreCase: Boolean = false): Int {\n
    if (!ignoreCase && chars.size == 1 && this is String) {\n        val char = chars.single()\n        return
nativeLastIndexOf(char, startIndex)\n    }\n\n    for (index in startIndex.coerceAtMost(lastIndex) downTo 0) {\n
        val charAtIndex = get(index)\n        if (chars.any { it.equals(charAtIndex, ignoreCase) })\n            return
index\n    }\n    return -1\n}\n\n\nprivate fun CharSequence.indexOf(other: CharSequence, startIndex: Int,
endIndex: Int, ignoreCase: Boolean, last: Boolean = false): Int {\n    val indices = if (!last)\n        startIndex.coerceAtLeast(0)..endIndex.coerceAtMost(length)\n    else\n        startIndex.coerceAtMost(lastIndex)
downTo endIndex.coerceAtLeast(0)\n\n    if (this is String && other is String) { // smart cast\n        for (index in
indices) {\n            if (other.regionMatches(0, this, index, other.length, ignoreCase))\n                return index\n
        }\n    } else {\n        for (index in indices) {\n            if (other.regionMatchesImpl(0, this, index, other.length,

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ignoreCase))\n        return index\n    }\n }\n return -1\n}\n\nprivate fun CharSequence.findAnyOf(strings:
Collection<String>, startIndex: Int, ignoreCase: Boolean, last: Boolean): Pair<Int, String>? {\n    if (!ignoreCase
&& strings.size == 1) {\n        val string = strings.single()\n
        val index = if (!last) indexOf(string, startIndex) else lastIndexOf(string, startIndex)\n        return if (index < 0)
null else index to string\n    }\n    val indices = if (!last) startIndex.coerceAtLeast(0)..length else
startIndex.coerceAtMost(lastIndex) downTo 0\n    if (this is String) {\n        for (index in indices) {\n            val
matchingString = strings.firstOrNull { it.regionMatches(0, this, index, it.length, ignoreCase) }\n            if
(matchingString != null)\n                return index to matchingString\n        }\n    } else {\n        for (index in indices)
{\n            val matchingString = strings.firstOrNull { it.regionMatchesImpl(0, this, index, it.length, ignoreCase) }\n
            if (matchingString != null)\n                return index to matchingString\n        }\n    }\n    return
null\n}\n\n/**\n * Finds the first occurrence of any of the specified [strings] in this char sequence,\n * starting from
the specified [startIndex] and
optionally ignoring the case.\n * @param ignoreCase `true` to ignore character case when matching a string. By
default `false`.\n * @return A pair of an index of the first occurrence of matched string from [strings] and the string
matched\n * or `null` if none of [strings] are found.\n * To avoid ambiguous results when strings in [strings]
have characters in common, this method proceeds from\n * the beginning to the end of this string, and finds at each
position the first element in [strings]\n * that matches this string at that position.\n */\n\npublic fun
CharSequence.findAnyOf(strings: Collection<String>, startIndex: Int = 0, ignoreCase: Boolean = false): Pair<Int,
String>? =\n    findAnyOf(strings, startIndex, ignoreCase, last = false)\n\n/**\n * Finds the last occurrence of any of
the specified [strings] in this char sequence,\n * starting from the specified [startIndex] and optionally ignoring the
case.\n * @param startIndex The index of character to start searching at.
The search proceeds backward toward the beginning of the string.\n * @param ignoreCase `true` to ignore character
case when matching a string. By default `false`.\n * @return A pair of an index of the last occurrence of matched
string from [strings] and the string matched or `null` if none of [strings] are found.\n * To avoid ambiguous
results when strings in [strings] have characters in common, this method proceeds from\n * the end toward the
beginning of this string, and finds at each position the first element in [strings]\n * that matches this string at
that position.\n */\n\npublic fun CharSequence.findLastAnyOf(strings: Collection<String>, startIndex: Int = lastIndex,
ignoreCase: Boolean = false): Pair<Int, String>? =\n    findAnyOf(strings, startIndex, ignoreCase, last =
true)\n\n/**\n * Finds the index of the first occurrence of any of the specified [strings] in this char sequence,\n *
starting from the specified [startIndex] and optionally ignoring the case.\n * @param
ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the
first occurrence of matched string from [strings] or -1 if none of [strings] are found.\n * To avoid ambiguous
results when strings in [strings] have characters in common, this method proceeds from\n * the beginning to the end
of this string, and finds at each position the first element in [strings]\n * that matches this string at that
position.\n */\n\npublic fun CharSequence.indexOfAny(strings: Collection<String>, startIndex: Int = 0, ignoreCase: Boolean =
false): Int =\n    findAnyOf(strings, startIndex, ignoreCase, last = false)?.first ?: -1\n\n/**\n * Finds the index of the
last occurrence of any of the specified [strings] in this char sequence,\n * starting from the specified [startIndex] and
optionally ignoring the case.\n * @param startIndex The index of character to start searching at. The search
proceeds backward toward the beginning of the string.\n * @param
ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the
last occurrence of matched string from [strings] or -1 if none of [strings] are found.\n * To avoid ambiguous
results when strings in [strings] have characters in common, this method proceeds from\n * the end toward the
beginning of this string, and finds at each position the first element in [strings]\n * that matches this string at
that position.\n */\n\npublic fun CharSequence.lastIndexOfAny(strings: Collection<String>, startIndex: Int = lastIndex,
ignoreCase: Boolean = false): Int =\n    findAnyOf(strings, startIndex, ignoreCase, last = true)?.first ?: -1\n\n//
indexOf\n\n/**\n * Returns the index within this string of the first occurrence of the specified character, starting
from the specified [startIndex].\n * @param ignoreCase `true` to ignore character case when matching a
character. By default `false`.\n * @return An index of the first occurrence of [char]

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or -1 if none is found.\n */\npublic fun CharSequence.indexOf(char: Char, startIndex: Int = 0, ignoreCase: Boolean
= false): Int {\n    return if (ignoreCase || this !is String)\n        indexOfAny(charArrayOf(char), startIndex,
ignoreCase)\n    else\n        nativeIndexOf(char, startIndex)\n}\n\n/**\n * Returns the index within this char
sequence of the first occurrence of the specified [string],\n * starting from the specified [startIndex].\n */\n * @param
ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An index of the
first occurrence of [string] or -1 if none is found.\n */\n\npublic fun
CharSequence.indexOf(string: String, startIndex: Int = 0, ignoreCase: Boolean = false): Int {\n    return if
(ignoreCase || this !is String)\n        indexOf(string, startIndex, length, ignoreCase)\n    else\n        nativeIndexOf(string, startIndex)\n}\n\n/**\n * Returns the index within this char sequence
of the last occurrence of the specified character,\n * starting from the specified [startIndex].\n */\n * @param
startIndex The index of character to start searching at. The search proceeds backward toward the beginning of the
string.\n * @param ignoreCase `true` to ignore character case when matching a character. By default `false`.\n *
@return An index of the last occurrence of [char] or -1 if none is found.\n */\n\npublic fun
CharSequence.lastIndexOf(char: Char, startIndex: Int = lastIndexOf, ignoreCase: Boolean = false): Int {\n    return if
(ignoreCase || this !is String)\n        lastIndexOfAny(charArrayOf(char), startIndex, ignoreCase)\n    else\n        nativeLastIndexOf(char, startIndex)\n}\n\n/**\n * Returns the index within this char sequence of the last occurrence
of the specified [string],\n * starting from the specified [startIndex].\n */\n * @param startIndex The index of
character to start searching at. The search proceeds backward toward the beginning of the string.\n *
@param ignoreCase `true` to ignore character case when matching a string. By default `false`.\n * @return An
index of the last occurrence of [string] or -1 if none is found.\n */\n\npublic fun CharSequence.lastIndexOf(string:
String, startIndex: Int = lastIndexOf, ignoreCase: Boolean = false): Int {\n    return if (ignoreCase || this !is String)\n
indexOf(string, startIndex, 0, ignoreCase, last = true)\n    else\n        nativeLastIndexOf(string,
startIndex)\n}\n\n/**\n * Returns `true` if this char sequence contains the specified [other] sequence of characters as
a substring.\n */\n * @param ignoreCase `true` to ignore character case when comparing strings. By default `false`.\n
*/\n\n@Suppress("INAPPLICABLE_OPERATOR_MODIFIER")\npublic operator fun
CharSequence.contains(other: CharSequence, ignoreCase: Boolean = false): Boolean =\n    if (other is String)\n        indexOf(other, ignoreCase = ignoreCase) >= 0\n    else\n        indexOf(other, 0, length, ignoreCase) >=
0\n}\n\n/**\n * Returns `true` if this char sequence contains the specified character [char].\n */\n * @param ignoreCase `true` to
ignore character case when comparing characters. By default `false`.\n
*/\n\n@Suppress("INAPPLICABLE_OPERATOR_MODIFIER")\npublic operator fun CharSequence.contains(char:
Char, ignoreCase: Boolean = false): Boolean =\n    indexOf(char, ignoreCase = ignoreCase) >= 0\n}\n\n/**\n * Returns
`true` if this char sequence contains at least one match of the specified regular expression [regex].\n
*/\n\n@kotlin.internal.InlineOnly\npublic inline operator fun CharSequence.contains(regex: Regex): Boolean =
regex.containsMatchIn(this)\n\n// rangesDelimitedBy\n\nprivate class DelimitedRangesSequence(\n    private
val input: CharSequence,\n    private val startIndex: Int,\n    private val limit: Int,\n    private val getNextMatch:
CharSequence.(currentIndex: Int) -> Pair<Int, Int>?) : Sequence<IntRange> {\n\n    override fun iterator():
Iterator<IntRange> = object : Iterator<IntRange>
{\n        var nextState: Int = -1 // -1 for unknown, 0 for done, 1 for continue\n        var currentStartIndex: Int =
startIndex.coerceIn(0, input.length)\n        var nextSearchIndex: Int = currentStartIndex\n        var nextItem:
IntRange? = null\n        var counter: Int = 0\n\n        private fun calcNext() {\n            if (nextSearchIndex < 0) {\n
                nextState = 0\n                nextItem = null\n            } else {\n                if (limit > 0 && ++counter >= limit ||
nextSearchIndex > input.length) {\n                    nextItem = currentStartIndex..input.lastIndex\n
                    nextSearchIndex = -1\n                } else {\n                    val match = input.getNextMatch(nextSearchIndex)\n
                    if (match == null) {\n                        nextItem = currentStartIndex..input.lastIndex\n
                        nextSearchIndex = -1\n                    } else {\n                        val (index, length) = match\n
                        nextItem = currentStartIndex until index\n                        currentStartIndex = index + length\n
                        nextSearchIndex = currentStartIndex + if (length == 0) 1 else 0\n                    }\n                }\n                nextState =

```



```

`true` to ignore character case when matching a delimiter. By default `false`.
 * @param limit The maximum number of substrings to return.
 * ^\npublic fun CharSequence.splitToSequence(vararg delimiters: Char,
ignoreCase: Boolean = false, limit: Int = 0): Sequence<String> =
    rangesDelimitedBy(delimiters, ignoreCase = ignoreCase, limit = limit).map { substring(it) }
 * Splits this char sequence to a list of strings around occurrences of the specified [delimiters].
 * @param delimiters One or more characters to be used as delimiters.
 * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.
 * @param limit The maximum number of substrings to return.
 * ^\npublic fun CharSequence.split(vararg delimiters: Char, ignoreCase: Boolean = false, limit: Int = 0): List<String> {
    if (delimiters.size == 1) {
        return split(delimiters[0].toString(), ignoreCase, limit)
    }
    return rangesDelimitedBy(delimiters, ignoreCase = ignoreCase, limit = limit).asIterable().map { substring(it) }
 * Splits this char sequence to a list of strings around occurrences of the specified [delimiter].
 * This is specialized version of split which receives single non-empty delimiter and offers better performance
 * @param delimiter String used as delimiter
 * @param ignoreCase `true` to ignore character case when matching a delimiter. By default `false`.
 * @param limit The maximum number of substrings to return.
 * ^\nprivate fun CharSequence.split(delimiter: String, ignoreCase: Boolean, limit: Int): List<String> {
    requireNonNegativeLimit(limit)
    var currentOffset = 0
    var nextIndex = indexOf(delimiter, currentOffset, ignoreCase)
    if (nextIndex == -1 || limit == 1) {
        return listOf(this.toString())
    }
    val isLimited = limit > 0
    val result = ArrayList<String>(if (isLimited) limit.coerceAtMost(10) else 10)
    do {
        result.add(substring(currentOffset, nextIndex))
        currentOffset = nextIndex + delimiter.length
        // Do not search for next occurrence if we're reaching limit
        if (isLimited && result.size == limit - 1) break
        nextIndex = indexOf(delimiter, currentOffset, ignoreCase)
    } while (nextIndex != -1)
    result.add(substring(currentOffset, length))
    return result
 * Splits this char sequence to a list of strings around matches of the given regular expression.
 * @param limit Non-negative value specifying the maximum number of substrings to return.
 * Zero by default means no limit is set.
 * ^\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.split(regex: Regex, limit: Int = 0): List<String> =
    regex.split(this, limit)
 * Splits this char sequence to a sequence of strings around matches of the given regular expression.
 * @param limit Non-negative value specifying the maximum number of substrings to return.
 * Zero by default means no limit is set.
 * @sample samples.text.Strings.splitToSequence
 * ^\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun CharSequence.splitToSequence(regex: Regex, limit: Int = 0): Sequence<String> =
    regex.splitToSequence(this, limit)
 * Splits this char sequence to a sequence of lines delimited by any of the following character sequences:
    CRLF, LF or CR.
 * The lines returned do not include terminating line separators.
 * ^\npublic fun CharSequence.lineSequence(): Sequence<String> = splitToSequence("\\r\\n", "\\n", "\\r")
 * Splits this char sequence to a list of lines delimited by any of the following character sequences: CRLF, LF or CR.
 * The lines returned do not include terminating line separators.
 * ^\npublic fun CharSequence.lines(): List<String> = lineSequence().toList()
 * Returns `true` if the contents of this char sequence are equal to the contents of the specified [other],
 * i.e. both char sequences contain the same number of the same characters in the same order.
 * @sample samples.text.Strings.contentEquals
 * ^\n@SinceKotlin("1.5")\npublic expect infix fun CharSequence?.contentEquals(other: CharSequence?): Boolean
 * Returns `true` if the contents of this char sequence are equal to the contents of the specified [other], optionally ignoring case difference.
 * @param ignoreCase `true` to ignore character case when comparing contents.
 * @sample samples.text.Strings.contentEquals
 * ^\n@SinceKotlin("1.5")\npublic expect fun CharSequence?.contentEquals(other: CharSequence?, ignoreCase: Boolean): Boolean
 * ^\ninternal fun CharSequence?.contentEqualsIgnoreCaseImpl(other: CharSequence?): Boolean {
    if (this is String && other is String) {
        return this.equals(other, ignoreCase = true)
    }
    if (this === other) return true
    if (this == null || other == null || this.length != other.length) return false
    for (i in 0 until length) {
        if (!this[i].equals(other[i], ignoreCase = true)) {
            return false
        }
    }
    return true
}
 * ^\ninternal fun

```

```

CharSequence?.contentEqualsImpl(other: CharSequence?): Boolean {
    if (this is String && other is String) {
        return this == other
    }
    if (this === other) return true
    if (this == null || other == null || this.length != other.length) return false
    for (i in 0 until length) {
        if (this[i] != other[i]) {
            return false
        }
    }
    return true
}

/**
 * Returns `true` if the content of this string is equal to the word `true`, `false` if it is equal to `false`, and throws an exception otherwise.
 * There is also a lenient version of the function available on nullable String, [String?.toBoolean].
 * Note that this function is case-sensitive.
 * @sample samples.text.Strings.toBooleanStrict
 */
@SinceKotlin("1.5")
public fun String.toBooleanStrict(): Boolean = when (this) {
    "true" -> true
    "false" -> false
    else -> throw IllegalArgumentException("The string doesn't represent a boolean value: $this")
}

/**
 * Returns `true` if the content of this string is equal to the word `true`, `false` if it is equal to `false`, and `null` otherwise.
 * There is also a lenient version of the function available on nullable String, [String?.toBoolean].
 * Note that this function is case-sensitive.
 * @sample samples.text.Strings.toBooleanStrictOrNull
 */
@SinceKotlin("1.5")
public fun String.toBooleanStrictOrNull(): Boolean? = when (this) {
    "true" -> true
    "false" -> false
    else -> null
}

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 */
// Auto-generated file. DO NOT EDIT!
package kotlin

import kotlin.jvm.*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@JvmInline
public value class UByteArray
@PublishedApi
internal constructor(@PublishedApi internal val storage: ByteArray) : Collection<UByte> {
    /** Creates a new array of the specified [size], with all elements initialized to zero. */
    public constructor(size: Int) : this(ByteArray(size))
    /** Returns the array element at the given [index]. This method can be called using the index operator.
     * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.
     */
    public operator fun get(index: Int): UByte = storage[index].toUByte()
    /** Sets the element at the given [index] to the given [value]. This method can be called using the index operator.
     * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.
     */
    public operator fun set(index: Int, value: UByte) {
        storage[index] = value.toByte()
    }
    /** Returns the number of elements in the array. */
    public override val size: Int get() = storage.size
    /** Creates an iterator over the elements of the array. */
    public override operator fun iterator(): kotlin.collections.Iterator<UByte> = Iterator(storage)
    private class Iterator(private val array: ByteArray) : kotlin.collections.Iterator<UByte> {
        private var index = 0
        override fun hasNext() = index < array.size
        override fun next() = if (index < array.size) array[index++].toUByte() else throw NoSuchElementException(index.toString())
    }
    override fun contains(element: UByte): Boolean {
        // TODO: Eliminate this check after KT-30016 gets fixed.
        // Currently JS BE does not generate special bridge method for this method.
        @Suppress("USELESS_CAST")
        if ((element as Any?) !is UByte) return false
        return storage.contains(element.toByte())
    }
    override fun containsAll(elements: Collection<UByte>): Boolean {
        return (elements as Collection<*>).all { it is UByte && storage.contains(it.toByte()) }
    }
    override fun isEmpty(): Boolean = this.storage.size == 0
}

/**
 * Creates a new array of the specified [size], where each element is calculated by calling the specified [init] function.
 * The function [init] is called for each array element sequentially starting from the first one.
 * It should return the value for an array element given its index.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UByteArray(size: Int, init: (Int) -> UByte): UByteArray {
    return UByteArray(ByteArray(size) { index -> init(index).toByte() })
}

@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun ubyteArrayOf(vararg elements: UByte): UByteArray = elements

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 */
// Auto-generated file. DO NOT EDIT!
package

```



```

kotlin\n\nimport kotlin.jvm.*\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@JvmInline\npublic
value class UIntArray\n@PublishedApi\ninternal constructor(@PublishedApi internal val storage: IntArray) :
Collection<UInt> {\n\n    /** Creates a new array of the specified [size], with all elements initialized to zero. */\n
public constructor(size: Int) : this(IntArray(size))\n\n    /**\n     * Returns the array element at the given [index].
This method can be called using the index operator.\n     *\n     * If the [index] is out of bounds of this array, throws
an [IndexOutOfBoundsException] except in Kotlin/JS\n     * where the behavior is unspecified.\n     */\n    public
operator fun get(index: Int): UInt = storage[index].toUInt()\n\n    /**\n     * Sets the element at the given [index] to
the given [value]. This method can be called using the index operator.\n     *\n     * If the [index] is out of bounds of
this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n     * where the behavior is unspecified.\n
*/\n    public operator fun
set(index: Int, value: UInt) {\n        storage[index] = value.toInt()\n    }\n\n    /** Returns the number of elements in
the array. */\n    public override val size: Int get() = storage.size\n\n    /** Creates an iterator over the elements of the
array. */\n    public override operator fun iterator(): kotlin.collections.Iterator<UInt> = Iterator(storage)\n\n    private
class Iterator(private val array: IntArray) : kotlin.collections.Iterator<UInt> {\n        private var index = 0\n
override fun hasNext() = index < array.size\n        override fun next() = if (index < array.size)
array[index++].toUInt() else throw NoSuchElementException(index.toString())\n    }\n\n    override fun
contains(element: UInt): Boolean {\n        // TODO: Eliminate this check after KT-30016 gets fixed.\n        //
Currently JS BE does not generate special bridge method for this method.\n
        @Suppress("USELESS_CAST")\n        if ((element as Any?) !is UInt) return false\n        return
storage.contains(element.toInt())\n    }\n\n    override fun containsAll(elements: Collection<UInt>): Boolean {\n        return (elements as
Collection<*>).all { it is UInt && storage.contains(it.toInt()) }\n    }\n\n    override fun isEmpty(): Boolean =
this.storage.size == 0\n}\n\n/**\n * Creates a new array of the specified [size], where each element is calculated by
calling the specified\n * [init] function.\n * The function [init] is called for each array element sequentially
starting from the first one.\n * It should return the value for an array element given its index.\n
*/\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray(size: Int, init: (Int) -> UInt): UIntArray {\n    return UIntArray(IntArray(size) { index ->
init(index).toInt()
})\n}\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
uintArrayOf(vararg elements: UInt): UIntArray = elements\n", "/*\n * Copyright 2010-2022
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Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT
EDIT!\n\npackage kotlin\n\nimport
kotlin.jvm.*\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@JvmInline\npublic value class
ULongArray\n@PublishedApi\ninternal constructor(@PublishedApi internal val storage: LongArray) :
Collection<ULong> {\n\n    /** Creates a new array of the specified [size], with all elements initialized to zero. */\n
public constructor(size: Int) : this(LongArray(size))\n\n    /**\n     * Returns the array element at the given [index].
This method can be called using the index operator.\n     *\n     * If the [index] is out of bounds of this array, throws
an [IndexOutOfBoundsException] except in Kotlin/JS\n     * where the behavior is unspecified.\n     */\n    public
operator fun get(index: Int): ULong = storage[index].toULong()\n\n    /**\n     * Sets the element at the given [index] to the given [value]. This method can be called using the index
operator.\n     *\n     * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except
in Kotlin/JS\n     * where the behavior is unspecified.\n     */\n    public operator fun set(index: Int, value: ULong)
{\n        storage[index] = value.toLong()\n    }\n\n    /** Returns the number of elements in the array. */\n    public
override val size: Int get() = storage.size\n\n    /** Creates an iterator over the elements of the array. */\n    public
override operator fun iterator(): kotlin.collections.Iterator<ULong> = Iterator(storage)\n\n    private class
Iterator(private val array: LongArray) : kotlin.collections.Iterator<ULong> {\n        private var index = 0\n
override fun hasNext() = index < array.size\n        override fun next() = if (index < array.size)

```

```

array[index++].toULong() else throw NoSuchElementException(index.toString())\n
    }\n\n    override fun contains(element: ULong): Boolean {\n        // TODO: Eliminate this check after KT-30016\n        gets fixed.\n        // Currently JS BE does not generate special bridge method for this method.\n        @Suppress("USELESS_CAST")\n        if ((element as Any?) !is ULong) return false\n        return\n        storage.contains(element.toLong())\n    }\n\n    override fun containsAll(elements: Collection<ULong>): Boolean\n    {\n        return (elements as Collection<*>).all { it is ULong && storage.contains(it.toLong()) }\n    }\n\n    override\n    fun isEmpty(): Boolean = this.storage.size == 0\n\n    /**\n     * Creates a new array of the specified [size], where each\n     * element is calculated by calling the specified\n     * [init] function.\n     * [init] * The function [init] is called for each array\n     * element sequentially starting from the first one.\n     * It should return the value for an array element given its index.\n     *\n     * @SinceKotlin("1.3")\n     * @ExperimentalUnsignedTypes\n     * @kotlin.internal.InlineOnly\n     * @public\n     * inline fun ULongArray(size: Int, init: (Int) -> ULong): ULongArray {\n     *     return ULongArray(LongArray(size) {\n     *         index -> init(index).toLong()\n     *     })\n     * }\n     *\n     * @SinceKotlin("1.3")\n     * @ExperimentalUnsignedTypes\n     * @kotlin.internal.InlineOnly\n     * @public\n     * inline fun\n     * ulongArrayOf(vararg elements: ULong): ULongArray = elements\n     * ,"/*\n     * * Copyright 2010-2022 JetBrains s.r.o.\n     * and Kotlin Programming Language contributors.\n     * Use of this source code is governed by the Apache 2.0 license\n     * that can be found in the license/LICENSE.txt file.\n     * \n     * @SinceKotlin("1.3")\n     * @ExperimentalUnsignedTypes\n     * @JvmInline\n     * @public\n     * value class UShortArray\n     * @PublishedApi\n     * internal constructor(@PublishedApi internal val storage: ShortArray) :\n     * Collection<UShort> {\n     *     /**\n     *      * Creates a new array of the specified [size], with all elements initialized to zero. *\n     *      * public constructor(size: Int) : this(ShortArray(size))\n     *      * /**\n     *      * Returns\n     *      * the array element at the given [index]. This method can be called using the index operator.\n     *      * *\n     *      * If the\n     *      * [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n     *      * * where the\n     *      * behavior is unspecified.\n     *      * *\n     *      * public operator fun get(index: Int): UShort = storage[index].toUShort()\n     *      * \n     *      * /**\n     *      * Sets the element at the given [index] to the given [value]. This method can be called using the index\n     *      * operator.\n     *      * *\n     *      * If the [index] is out of bounds of this array, throws an [IndexOutOfBoundsException] except\n     *      * in Kotlin/JS\n     *      * * where the behavior is unspecified.\n     *      * *\n     *      * public operator fun set(index: Int, value: UShort)\n     *      * {\n     *      *     storage[index] = value.toShort()\n     *      *     }\n     *      * /**\n     *      * Returns the number of elements in the array. *\n     *      * public\n     *      * override val size: Int get() = storage.size\n     *      * \n     *      * /**\n     *      * Creates an iterator over the elements of the array. *\n     *      * public\n     *      * override operator fun iterator(): kotlin.collections.Iterator<UShort>\n     *      * = Iterator(storage)\n     *      * \n     *      * private class Iterator(private val array: ShortArray) : kotlin.collections.Iterator<UShort>\n     *      * {\n     *      *     private var index = 0\n     *      *     override fun hasNext() = index < array.size\n     *      *     override fun next() = if (index\n     *      * < array.size) array[index++].toUShort() else throw NoSuchElementException(index.toString())\n     *      *     }\n     *      * \n     *      * override\n     *      * fun contains(element: UShort): Boolean {\n     *      *     // TODO: Eliminate this check after KT-30016 gets fixed.\n     *      *     //\n     *      *     Currently JS BE does not generate special bridge method for this method.\n     *      *     \n     *      *     @Suppress("USELESS_CAST")\n     *      *     if ((element as Any?) !is UShort) return false\n     *      *     return\n     *      *     storage.contains(element.toShort())\n     *      *     }\n     *      * \n     *      * override fun containsAll(elements: Collection<UShort>): Boolean\n     *      * {\n     *      *     return (elements as Collection<*>).all { it is UShort && storage.contains(it.toShort()) }\n     *      *     }\n     *      * \n     *      * override\n     *      * fun isEmpty(): Boolean = this.storage.size == 0\n     *      * \n     *      * /**\n     *      * Creates a new\n     *      * array of the specified [size], where each element is calculated by calling the specified\n     *      * [init] function.\n     *      * [init] * The function [init] is called for each array element sequentially starting from the first one.\n     *      * It should return the\n     *      * value for an array element given its index.\n     *      * \n     *      * @SinceKotlin("1.3")\n     *      * @ExperimentalUnsignedTypes\n     *      * @kotlin.internal.InlineOnly\n     *      * @public\n     *      * inline fun\n     *      * UShortArray(size: Int, init: (Int) -> UShort): UShortArray {\n     *      *     return UShortArray(ShortArray(size) {\n     *      *         index ->\n     *      *         init(index).toShort()\n     *      *     })\n     *      *     }\n     *      * \n     *      * @SinceKotlin("1.3")\n     *      * @ExperimentalUnsignedTypes\n     *      * @kotlin.internal.InlineOnly\n     *      * @public\n     *      * inline fun\n     *      * ushortArrayOf(vararg elements: UShort): UShortArray = elements\n     *      * ,"/*\n     *      * * Copyright 2010-2022 JetBrains s.r.o.\n     *      * and Kotlin Programming Language contributors.\n     *      * Use of this source code is governed by the Apache 2.0 license\n     *      * that can be found in the license/LICENSE.txt file.\n     *

```

```

*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("\uArraysKt")\n@file:kotlin.jvm.JvmPacka
geName("kotlin.collections.unsigned")\n\npackage
kotlin.collections\n\n/\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\nimport kotlin.random.*\nimport
kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the
size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior
is unspecified.\n * \n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public
inline operator fun UIntArray.component1(): UInt {\n     return get(0)\n }\n\n/**\n * Returns 1st *element* from the
array.\n * \n * If the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n
* where the behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
ULongArray.component1():
    ULong {\n     return get(0)\n }\n\n/**\n * Returns 1st *element* from the array.\n * \n * If the size of this array is
less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
UByteArray.component1(): UByte {\n     return get(0)\n }\n\n/**\n * Returns 1st *element* from the array.\n * \n * If
the size of this array is less than 1, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the
behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
UShortArray.component1(): UShort {\n     return get(0)\n }\n\n/**\n * Returns 2nd *element* from the array.\n * \n *
If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the
behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
inline operator fun UIntArray.component2(): UInt {\n     return get(1)\n }\n\n/**\n * Returns 2nd *element* from the
array.\n * \n * If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n
* where the behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
ULongArray.component2(): ULong {\n     return get(1)\n }\n\n/**\n * Returns 2nd *element* from the array.\n * \n *
If the size of this array is less than 2, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the
behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
UByteArray.component2(): UByte {\n     return get(1)\n }\n\n/**\n * Returns 2nd *element* from the array.\n * \n *
If the size of this array is less than 2, throws an [IndexOutOfBoundsException]
except in Kotlin/JS\n * where the behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
UShortArray.component2(): UShort {\n     return get(1)\n }\n\n/**\n * Returns 3rd *element* from the array.\n * \n *
If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the
behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
UIntArray.component3(): UInt {\n     return get(2)\n }\n\n/**\n * Returns 3rd *element* from the array.\n * \n *
If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the
behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
ULongArray.component3(): ULong {\n     return get(2)\n }\n\n/**\n * Returns 3rd *element*
from the array.\n * \n * If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in
Kotlin/JS\n * where the behavior is unspecified.\n
*\n @SinceKotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline operator fun
UByteArray.component3(): UByte {\n     return get(2)\n }\n\n/**\n * Returns 3rd *element* from the array.\n * \n *

```

If the size of this array is less than 3, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun  
UShortArray.component3(): UShort {\n    return get(2)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n *
```

If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline  
operator fun UIntArray.component4(): UInt {\n    return get(3)\n}\n\n/**\n * Returns 4th *element* from the  
array.\n * \n * If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior is unspecified.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun  
ULongArray.component4(): ULong {\n    return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n *
```

If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun  
UByteArray.component4(): UByte {\n    return get(3)\n}\n\n/**\n * Returns 4th *element* from the array.\n * \n *
```

If the size of this array is less than 4, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic  
inline operator fun UShortArray.component4(): UShort {\n    return get(3)\n}\n\n/**\n * Returns 5th *element*\n from the array.\n * \n * If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in  
Kotlin/JS\n * where the behavior is unspecified.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun  
UIntArray.component5(): UInt {\n    return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n * If the  
size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS\n * where the behavior  
is unspecified.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic  
inline operator fun ULongArray.component5(): ULong {\n    return get(4)\n}\n\n/**\n * Returns 5th *element* from  
the array.\n * \n * If the size of this array is less than 5, throws an
```

[IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun  
UByteArray.component5(): UByte {\n    return get(4)\n}\n\n/**\n * Returns 5th *element* from the array.\n * \n *
```

If the size of this array is less than 5, throws an [IndexOutOfBoundsException] except in Kotlin/JS where the behavior is unspecified.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun  
UShortArray.component5(): UShort {\n    return get(4)\n}\n\n/**\n * Returns an element at the given [index] or  
throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample  
samples.collections.Collections.Elements.elementAt\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic expect fun UIntArray.elementAt(index: Int):  
UInt\n\n/**\n * Returns an element at the given [index] or throws
```

an [IndexOutOfBoundsException] if the [index] is out of bounds of this array. @sample samples.collections.Collections.Elements.elementAt

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic expect fun ULongArray.elementAt(index: Int):  
ULong\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index]  
is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic expect fun UByteArray.elementAt(index: Int):  
UByte\n\n/**\n * Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index]  
is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic expect fun UShortArray.elementAt(index: Int):
```

```

UShort\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue]
function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.elementAtOrElse(index: Int, defaultValue: (Int) -> UInt): UInt {\n    return if (index >= 0 && index <=
lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result of
calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.elementAtOrElse(index: Int, defaultValue: (Int) -> ULong): ULong {\n    return if (index >= 0 &&
index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the
result of calling the [defaultValue] function
if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.elementAtOrElse(index: Int, defaultValue: (Int) -> UByte): UByte {\n    return if (index >= 0 && index
<= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or the result
of calling the [defaultValue] function if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrElse\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.elementAtOrElse(index: Int, defaultValue: (Int) -> UShort): UShort {\n    return if (index >= 0 &&
index <= lastIndex) get(index) else defaultValue(index)\n}\n\n/**\n * Returns an element at the given [index] or
`null` if the [index] is out of bounds of this array.\n
* \n * @sample samples.collections.Collections.Elements.elementAtOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.elementAtOrNull(index: Int): UInt? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an element
at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.elementAtOrNull(index: Int): ULong? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an
element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.elementAtOrNull(index: Int): UByte? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns an element
at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAtOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.elementAtOrNull(index: Int): UShort? {\n    return this.getOrNull(index)\n}\n\n/**\n * Returns the
first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.find(predicate: (UInt) -> Boolean): UInt? {\n    return firstOrNull(predicate)\n}\n\n/**\n * Returns the
first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun ULongArray.find(predicate: (ULong) -> Boolean): ULong? {\n    return
firstOrNull(predicate)\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if no such
element was found.\n * \n * @sample samples.collections.Collections.Elements.find\n

```

```

*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.find(predicate: (UByte) -> Boolean): UByte? {\n    return firstOrNull(predicate)\n}\n\n/**\n * Returns
the first element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.find(predicate: (UShort) -> Boolean): UShort? {\n    return firstOrNull(predicate)\n}\n\n/**\n *
Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.findLast(predicate: (UInt) -> Boolean): UInt? {\n    return lastOrNull(predicate)\n}\n\n/**\n * Returns the
last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.findLast(predicate: (ULong) -> Boolean): ULong? {\n    return lastOrNull(predicate)\n}\n\n/**\n *
Returns the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.findLast(predicate: (UByte) -> Boolean): UByte? {\n    return lastOrNull(predicate)\n}\n\n/**\n *
Returns
the last element matching the given [predicate], or `null` if no such element was found.\n * \n * @sample
samples.collections.Collections.Elements.find\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.findLast(predicate: (UShort) -> Boolean): UShort? {\n    return lastOrNull(predicate)\n}\n\n/**\n *
Returns the first element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.first(): UInt {\n    return storage.first().toUInt()\n}\n\n/**\n * Returns the first element.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.first(): ULong {\n    return storage.first().toULong()\n}\n\n/**\n * Returns the first element.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.first(): UByte {\n    return storage.first().toUByte()\n}\n\n/**\n * Returns the first element.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.first(): UShort {\n    return storage.first().toUShort()\n}\n\n/**\n * Returns the first element matching
the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.first(predicate: (UInt) -> Boolean): UInt {\n    for (element in this) if (predicate(element)) return
element\n    throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n *
Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException]
if no such element is found.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.first(predicate: (ULong) -> Boolean): ULong {\n    for (element in this) if (predicate(element)) return
element\n    throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n *
Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such
element is found.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.first(predicate: (UByte) -> Boolean): UByte {\n    for (element in this) if (predicate(element)) return

```

```

element\n    throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n * Returns the first element matching the given [predicate].\n * @throws [NoSuchElementException] if no such element is found.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UShortArray.first(predicate: (UShort) -> Boolean): UShort {\n    for (element in this) if (predicate(element)) return element\n    throw NoSuchElementException("Array contains no element matching the predicate.")\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * public fun UIntArray.firstOrNull(): UInt? {\n    return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * public fun ULongArray.firstOrNull(): ULong? {\n    return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element, or `null` if the array is empty.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * public fun UByteArray.firstOrNull(): UByte? {\n    return if (isEmpty()) null else this[0]\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UIntArray.firstOrNull(predicate: (UInt) -> Boolean): UInt? {\n    for (element in this) if (predicate(element)) return element\n    return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun ULongArray.firstOrNull(predicate: (ULong) -> Boolean): ULong? {\n    for (element in this) if (predicate(element)) return element\n    return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UByteArray.firstOrNull(predicate: (UByte) -> Boolean): UByte? {\n    for (element in this) if (predicate(element)) return element\n    return null\n}\n\n/**\n * Returns the first element matching the given [predicate], or `null` if element was not found.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UShortArray.firstOrNull(predicate: (UShort) -> Boolean): UShort? {\n    for (element in this) if (predicate(element)) return element\n    return null\n}\n\n/**\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UIntArray.getOrNull(index: Int, defaultValue: (Int) -> UInt): UInt {\n    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun ULongArray.getOrNull(index: Int, defaultValue: (Int) -> ULong): ULong {\n    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UByteArray.getOrNull(index: Int, defaultValue: (Int) -> UByte): UByte {\n    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n * Returns an element at the given [index] or the result of calling the [defaultValue] function if the [index] is out of bounds of this array.\n *\n * @SinceKotlin("1.3")\n * @ExperimentalUnsignedTypes\n * @kotlin.internal.InlineOnly\n * public inline fun UShortArray.getOrNull(index: Int, defaultValue: (Int) -> UShort): UShort {\n    return if (index >= 0 && index <= lastIndex) get(index) else defaultValue(index)\n}\n\n * Returns an element at the given [index] or `null` if the [index] is out of bounds of this array.\n * @sample

```

```

samples.collections.Collections.Elements.getOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.getOrNull(index: Int): UInt? {\n
    return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the given
[index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.getOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.getOrNull(index: Int):
ULong? {\n    return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an
element at the given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.getOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.getOrNull(index: Int): UByte?
{\n    return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns an element at the
given [index] or `null` if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.getOrNull\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.getOrNull(index: Int):
UShort? {\n    return if (index >= 0 && index <= lastIndex) get(index) else null\n}\n\n/**\n * Returns first index of
[element], or -1 if the array does not contain element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.indexOf(element: UInt): Int {\n    return storage.indexOf(element.toInt())\n}\n\n/**\n * Returns
first index of [element], or -1 if the array does not contain element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.indexOf(element: ULong): Int {\n    return storage.indexOf(element.toLong())\n}\n\n/**\n * Returns
first index of [element], or -1 if the array does not contain element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.indexOf(element: UByte): Int {\n    return storage.indexOf(element.toByte())\n}\n\n/**\n * Returns
first index of [element], or -1 if the array does not contain element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.indexOf(element: UShort): Int {\n    return storage.indexOf(element.toShort())\n}\n\n/**\n * Returns
index of the first element matching the given [predicate], or -1 if the array does not contain such element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UIntArray.indexOfFirst(predicate: (UInt) -> Boolean): Int {\n    return storage.indexOfFirst {
predicate(it.toUInt()) }\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the
array does not contain such element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.indexOfFirst(predicate: (ULong) -> Boolean): Int {\n    return storage.indexOfFirst {
predicate(it.toULong()) }\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if the
array does not contain such element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.indexOfFirst(predicate: (UByte) -> Boolean): Int {\n    return storage.indexOfFirst {
predicate(it.toUByte()) }\n}\n\n/**\n * Returns index of the first element matching the given [predicate], or -1 if
the array does not contain such element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.indexOfFirst(predicate: (UShort) -> Boolean): Int {\n    return storage.indexOfFirst {
predicate(it.toUShort()) }\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the
array does not contain such element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.indexOfLast(predicate: (UInt) -> Boolean): Int {\n    return storage.indexOfLast { predicate(it.toUInt())
}\n}\n\n/**\n * Returns index of the last element matching the given [predicate], or -1 if the array does not contain
such element.\n *\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic

```



```

inline fun ULongArray.indexOfLast(predicate: (ULong) -> Boolean): Int {
    return storage.indexOfLast {
        predicate(it.toULong())
    }
}
/**
 * Returns index of the last element matching the given [predicate], or -1 if the array does not contain such element.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UByteArray.indexOfLast(predicate: (UByte) -> Boolean): Int {
    return storage.indexOfLast {
        predicate(it.toUByte())
    }
}
/**
 * Returns index of the last element matching the given [predicate], or -1 if the
array does not contain such element.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UShortArray.indexOfLast(predicate: (UShort) -> Boolean): Int {
    return storage.indexOfLast {
        predicate(it.toUShort())
    }
}
/**
 * Returns the last element.
 * @throws NoSuchElementException if the
array is empty.
 * @sample samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UIntArray.last(): UInt {
    return storage.last().toUInt()
}
/**
 * Returns the last element.
 * @throws NoSuchElementException if the array is empty.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
ULongArray.last(): ULong {
    return storage.last().toULong()
}
/**
 * Returns the last element.
 * @throws NoSuchElementException if the array is empty.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UByteArray.last(): UByte {
    return storage.last().toUByte()
}
/**
 * Returns the last element.
 * @throws NoSuchElementException if the array is empty.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UShortArray.last(): UShort {
    return
storage.last().toUShort()
}
/**
 * Returns the last element matching the given [predicate].
 * @throws
NoSuchElementException if no such element is found.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UIntArray.last(predicate: (UInt) -> Boolean): UInt {
    for (index in this.indices.reversed()) {
        val element =
this[index]
        if (predicate(element)) return element
    }
    throw NoSuchElementException("Array contains
no element matching the predicate.")
}
/**
 * Returns the last element matching the given [predicate].
 * @throws
NoSuchElementException if no such element is found.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
ULongArray.last(predicate: (ULong) -> Boolean): ULong {
    for (index in this.indices.reversed()) {
        val element =
this[index]
        if (predicate(element)) return element
    }
    throw
NoSuchElementException("Array contains no element matching the predicate.")
}
/**
 * Returns the last
element matching the given [predicate].
 * @throws
NoSuchElementException if no such element is found.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UByteArray.last(predicate: (UByte) -> Boolean): UByte {
    for (index in this.indices.reversed()) {
        val
element = this[index]
        if (predicate(element)) return element
    }
    throw
NoSuchElementException("Array contains no element matching the predicate.")
}
/**
 * Returns the last
element matching the given [predicate].
 * @throws
NoSuchElementException if no such element is found.
 * @sample
samples.collections.Collections.Elements.last
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public

```

```

inline fun UShortArray.last(predicate: (UShort) -> Boolean): UShort {
    for (index in this.indices.reversed()) {
        val element = this[index]
        if (predicate(element)) return element
    }
    throw NoSuchElementException("Array contains no element matching the predicate.")
}
/** Returns last index of [element], or -1 if the array does not contain element. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun UIntArray.lastIndexOf(element: UInt): Int {
    return storage.lastIndexOf(element.toInt())
}
/** Returns last index of [element], or -1 if the array does not contain element. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun ULongArray.lastIndexOf(element: ULong): Int {
    return storage.lastIndexOf(element.toLong())
}
/** Returns last index of [element], or -1 if the array does not contain element. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun UByteArray.lastIndexOf(element: UByte): Int {
    return storage.lastIndexOf(element.toByte())
}
/** Returns last index of [element], or -1 if the array does not contain element. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun UShortArray.lastIndexOf(element: UShort): Int {
    return storage.lastIndexOf(element.toShort())
}
/** Returns the last element, or `null` if the array is empty. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes
public fun UIntArray.lastOrNull(): UInt? {
    return if (isEmpty()) null else this[size - 1]
}
/** Returns the last element, or `null` if the array is empty. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes
public fun ULongArray.lastOrNull(): ULong? {
    return if (isEmpty()) null else this[size - 1]
}
/** Returns the last element, or `null` if the array is empty. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes
public fun UByteArray.lastOrNull(): UByte? {
    return if (isEmpty()) null else this[size - 1]
}
/** Returns the last element, or `null` if the array is empty. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes
public fun UShortArray.lastOrNull(): UShort? {
    return if (isEmpty()) null else this[size - 1]
}
/** Returns the last element matching the given [predicate], or `null` if no such element was found. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun UIntArray.lastOrNull(predicate: (UInt) -> Boolean): UInt? {
    for (index in this.indices.reversed()) {
        val element = this[index]
        if (predicate(element)) return element
    }
    return null
}
/** Returns the last element matching the given [predicate], or `null` if no such element was found. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun ULongArray.lastOrNull(predicate: (ULong) -> Boolean): ULong? {
    for (index in this.indices.reversed()) {
        val element = this[index]
        if (predicate(element)) return element
    }
    return null
}
/** Returns the last element matching the given [predicate], or `null` if no such element was found. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun UByteArray.lastOrNull(predicate: (UByte) -> Boolean): UByte? {
    for (index in this.indices.reversed()) {
        val element = this[index]
        if (predicate(element)) return element
    }
    return null
}
/** Returns the last element matching the given [predicate], or `null` if no such element was found. */
@sample
samples.collections.Collections.Elements.last
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun UShortArray.lastOrNull(predicate: (UShort) -> Boolean): UShort? {
    for (index in this.indices.reversed()) {

```

```

val element = this[index]\n    if (predicate(element)) return element\n    } \n    return null\n}\n\n/**\n * Returns a
random element from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.random(): UInt {\n    return random(Random)\n}\n\n/**\n * Returns a random element
from this array.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.random(): ULong {\n    return random(Random)\n}\n\n/**\n * Returns a random element from this
array.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.random(): UByte {\n    return random(Random)\n}\n\n/**\n * Returns a random element from this
array.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.random(): UShort {\n    return random(Random)\n}\n\n/**\n * Returns a random element from this
array using the specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun UIntArray.random(random: Random): UInt {\n    if (isEmpty())\n        throw NoSuchElementException("Array
is empty.")\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the
specified source of randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.random(random: Random):
ULong {\n    if (isEmpty())\n        throw NoSuchElementException("Array is empty.")\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness.\n * \n * @throws NoSuchElementException if this array is empty.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.random(random: Random):
UByte {\n    if (isEmpty())\n        throw NoSuchElementException("Array is empty.")\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random
element from this array using the specified source of randomness.\n * \n * @throws NoSuchElementException if
this array is empty.\n * \n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
UShortArray.random(random: Random): UShort {\n    if (isEmpty())\n        throw
NoSuchElementException("Array is empty.")\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns a random
element from this array, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UIntArray.randomOrNull(): UInt? {\n    return
randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun ULongArray.randomOrNull(): ULong? {\n    return
randomOrNull(Random)\n}\n\n/**\n * Returns
a random element from this array, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UByteArray.randomOrNull(): UByte? {\n    return
randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UShortArray.randomOrNull(): UShort? {\n    return
randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
public fun UIntArray.randomOrNull(random: Random): UInt? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns

```

```

a random element from this array using the specified source of randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\np
ublic fun ULongArray.randomOrNull(random: Random): ULong? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\np
ublic fun UByteArray.randomOrNull(random: Random): UByte? {\n    if (isEmpty())\n        return null\n    return
get(random.nextInt(size))\n}\n\n/**\n * Returns a random element from this array using the specified source of
randomness, or `null` if this array is empty.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\np
ublic fun UShortArray.randomOrNull(random:
Random): UShort? {\n    if (isEmpty())\n        return null\n    return get(random.nextInt(size))\n}\n\n/**\n * Returns
the single element, or throws an exception if the array is empty or has more than one element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.single(): UInt {\n    return storage.single().toUInt()\n}\n\n/**\n * Returns the single element, or throws an
exception if the array is empty or has more than one element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.single(): ULong {\n    return storage.single().toULong()\n}\n\n/**\n * Returns the single element, or
throws an exception if the array is empty or has more than one element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.single(): UByte {\n    return storage.single().toUByte()\n}\n\n/**\n * Returns the single
element, or throws an exception if the array is empty or has more than one element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.single(): UShort {\n    return storage.single().toUShort()\n}\n\n/**\n * Returns the single element
matching the given [predicate], or throws exception if there is no or more than one matching element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.single(predicate: (UInt) -> Boolean): UInt {\n    var single: UInt? = null\n    var found = false\n    for
(element in this) {\n        if (predicate(element)) {\n            if (found) throw IllegalArgumentException("Array
contains more than one matching element.")\n            single = element\n            found = true\n        }\n    }\n    if
(!found) throw NoSuchElementException("Array contains no element matching the predicate.")\n    @Suppress("UNCHECKED_CAST")\n
return single as UInt\n}\n\n/**\n * Returns the single element matching the given [predicate], or throws exception
if there is no or more than one matching element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.single(predicate: (ULong) -> Boolean): ULong {\n    var single: ULong? = null\n    var found = false\n
for (element in this) {\n        if (predicate(element)) {\n            if (found) throw IllegalArgumentException("Array
contains more than one matching element.")\n            single = element\n            found = true\n        }\n    }\n    if
(!found) throw NoSuchElementException("Array contains no element matching the predicate.")\n    @Suppress("UNCHECKED_CAST")\n
return single as ULong\n}\n\n/**\n * Returns the single element
matching the given [predicate], or throws exception if there is no or more than one matching element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UByteArray.single(predicate: (UByte) -> Boolean): UByte {\n    var single: UByte? = null\n    var found
= false\n    for (element in this) {\n        if (predicate(element)) {\n            if (found) throw
IllegalArgumentException("Array contains more than one matching element.")\n            single = element\n
found = true\n        }\n    }\n    if (!found) throw NoSuchElementException("Array contains no element matching
the predicate.")\n    @Suppress("UNCHECKED_CAST")\n    return single as UByte\n}\n\n/**\n * Returns the
single element matching the given [predicate], or throws exception if there is no or more than one matching
element.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline

```

```

fun UShortArray.single(predicate: (UShort) -> Boolean): UShort {
    var single: UShort? = null
    var found = false
    for (element in this) {
        if (predicate(element)) {
            if (found) throw IllegalArgumentException("Array contains more than one matching element.")
            single = element
            found = true
        }
    }
    if (!found) throw NoSuchElementException("Array contains no element matching the predicate.")
    @Suppress("UNCHECKED_CAST") return single as UShort
}

/** Returns single element, or `null` if the array is empty or has more than one element.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 */
public fun UIntArray.singleOrNull(): UInt? {
    return if (size == 1) this[0] else null
}

/** Returns single element, or `null` if the array is empty or has more than one element.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 */
public fun ULongArray.singleOrNull(): ULong? {
    return if (size == 1) this[0] else null
}

/** Returns single element, or `null` if the array is empty or has more than one element.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 */
public fun UByteArray.singleOrNull(): UByte? {
    return if (size == 1) this[0] else null
}

/** Returns single element, or `null` if the array is empty or has more than one element.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 */
public fun UShortArray.singleOrNull(predicate: (UShort) -> Boolean): UShort? {
    return if (size == 1) this[0] else null
}

/** Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 * @kotlin.internal.InlineOnly
 */
public inline fun UIntArray.singleOrNull(predicate: (UInt) -> Boolean): UInt? {
    var single: UInt? = null
    var found = false
    for (element in this) {
        if (predicate(element)) {
            if (found) return null
            single = element
            found = true
        }
    }
    if (!found) return null
    return single
}

/** Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 * @kotlin.internal.InlineOnly
 */
public inline fun ULongArray.singleOrNull(predicate: (ULong) -> Boolean): ULong? {
    var single: ULong? = null
    var found = false
    for (element in this) {
        if (predicate(element)) {
            if (found) return null
            single = element
            found = true
        }
    }
    if (!found) return null
    return single
}

/** Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 * @kotlin.internal.InlineOnly
 */
public inline fun UByteArray.singleOrNull(predicate: (UByte) -> Boolean): UByte? {
    var single: UByte? = null
    var found = false
    for (element in this) {
        if (predicate(element)) {
            if (found) return null
            single = element
            found = true
        }
    }
    if (!found) return null
    return single
}

/** Returns the single element matching the given [predicate], or `null` if element was not found or more than one element was found.
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 * @kotlin.internal.InlineOnly
 */
public inline fun UShortArray.singleOrNull(predicate: (UShort) -> Boolean): UShort? {
    var single: UShort? = null
    var found = false
    for (element in this) {
        if (predicate(element)) {
            if (found) return null
            single = element
            found = true
        }
    }
    if (!found) return null
    return single
}

/** Returns a list containing all elements except first [n] elements.
 *
 * @throws IllegalArgumentException if [n] is negative.
 *
 * @sample samples.collections.Collections.Transformations.drop
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 */
public fun UIntArray.drop(n: Int): List<UInt> {
    require(n >= 0) { "Requested element count $n is less than zero." }
    return takeLast((size - n).coerceAtLeast(0))
}

/** Returns a list containing all elements except first [n] elements.
 *
 * @throws IllegalArgumentException if [n] is negative.
 *
 * @sample samples.collections.Collections.Transformations.drop
 *
 * @SinceKotlin("1.3")
 * @ExperimentalUnsignedTypes
 */
public fun ULongArray.drop(n: Int): List<ULong> {
    require(n >= 0) { "Requested element count $n is less than zero." }
    return takeLast((size - n).coerceAtLeast(0))
}

```

```

IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.drop(n: Int): List<UByte> {\n
require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n**\n
* Returns a list containing all elements except first [n] elements.\n * \n * @throws IllegalArgumentException if [n]
is negative.\n * \n * @sample samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.drop(n: Int): List<UShort> {\n
  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return takeLast((size -
n).coerceAtLeast(0))\n}\n\n**\n
* Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.dropLast(n: Int): List<UInt> {\n
  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return take((size -
n).coerceAtLeast(0))\n}\n\n**\n
* Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.dropLast(n: Int):
List<ULong> {\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return take((size -
n).coerceAtLeast(0))\n}\n\n**\n
* Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.dropLast(n: Int): List<UByte>
{\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return take((size -
n).coerceAtLeast(0))\n}\n\n**\n
* Returns a list containing all elements except last [n] elements.\n * \n * @throws
IllegalArgumentException if [n] is negative.\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.dropLast(n: Int):
List<UShort> {\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  return take((size -
n).coerceAtLeast(0))\n}\n\n**\n
* Returns a list containing all elements except last elements that satisfy the given
[predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.dropLastWhile(predicate: (UInt) -> Boolean): List<UInt> {\n  for (index in lastIndex downTo 0) {\n
if (!predicate(this[index])) {\n    return take(index + 1)\n  }\n  }\n  return emptyList()\n}\n\n**\n
Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun ULongArray.dropLastWhile(predicate: (ULong) -> Boolean): List<ULong> {\n  for (index in lastIndex
downTo 0) {\n    if (!predicate(this[index])) {\n      return take(index + 1)\n    }\n  }\n  return
emptyList()\n}\n\n**\n
Returns a list containing all elements except last elements that satisfy the given
[predicate].\n * \n * @sample samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.dropLastWhile(predicate: (UByte) -> Boolean): List<UByte> {\n  for (index in lastIndex downTo 0)
{\n    if (!predicate(this[index])) {\n      return take(index + 1)\n    }\n  }\n  return emptyList()\n}\n\n**\n
* Returns a list containing all elements except last elements that satisfy the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.drop\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic

```

```

inline fun UShortArray.dropLastWhile(predicate: (UShort) -> Boolean): List<UShort> {
    for (index in lastIndex downTo 0) {
        if (!predicate(this[index])) {
            return take(index + 1)
        }
    }
    return emptyList()
}
/**
 * Returns a list containing all elements except first elements that satisfy the given [predicate].
 */
@sample samples.collections.Collections.Transformations.drop

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UIntArray.dropWhile(predicate: (UInt) -> Boolean): List<UInt> {
    var yielding = false
    val list = ArrayList<UInt>()
    for (item in this) {
        if (yielding) {
            list.add(item)
        } else if (!predicate(item)) {
            list.add(item)
            yielding = true
        }
    }
    return list
}
/**
 * Returns a list containing all elements except first elements that satisfy the given [predicate].
 */
@sample samples.collections.Collections.Transformations.drop

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun ULongArray.dropWhile(predicate: (ULong) -> Boolean): List<ULong> {
    var yielding = false
    val list = ArrayList<ULong>()
    for (item in this) {
        if (yielding) {
            list.add(item)
        } else if (!predicate(item)) {
            list.add(item)
            yielding = true
        }
    }
    return list
}
/**
 * Returns a list containing all elements except first elements that satisfy the given [predicate].
 */
@sample samples.collections.Collections.Transformations.drop

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UByteArray.dropWhile(predicate: (UByte) -> Boolean): List<UByte> {
    var yielding = false
    val list = ArrayList<UByte>()
    for (item in this) {
        if (yielding) {
            list.add(item)
        } else if (!predicate(item)) {
            list.add(item)
            yielding = true
        }
    }
    return list
}
/**
 * Returns a list containing all elements except first elements that satisfy the given [predicate].
 */
@sample samples.collections.Collections.Transformations.drop

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UShortArray.dropWhile(predicate: (UShort) -> Boolean): List<UShort> {
    var yielding = false
    val list = ArrayList<UShort>()
    for (item in this) {
        if (yielding) {
            list.add(item)
        } else if (!predicate(item)) {
            list.add(item)
            yielding = true
        }
    }
    return list
}
/**
 * Returns a list containing only elements matching the given [predicate].
 */
@sample samples.collections.Collections.Filtering.filter

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UIntArray.filter(predicate: (UInt) -> Boolean): List<UInt> {
    return filterTo(ArrayList<UInt>(), predicate)
}
/**
 * Returns a list containing only elements matching the given [predicate].
 */
@sample samples.collections.Collections.Filtering.filter

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun ULongArray.filter(predicate: (ULong) -> Boolean): List<ULong> {
    return filterTo(ArrayList<ULong>(), predicate)
}
/**
 * Returns a list containing only elements matching the given [predicate].
 */
@sample samples.collections.Collections.Filtering.filter

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UByteArray.filter(predicate: (UByte) -> Boolean): List<UByte> {
    return filterTo(ArrayList<UByte>(), predicate)
}
/**
 * Returns a list containing only elements matching the given [predicate].
 */
@sample samples.collections.Collections.Filtering.filter

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UShortArray.filter(predicate: (UShort) -> Boolean): List<UShort> {
    return filterTo(ArrayList<UShort>(), predicate)
}
/**
 * Returns a list containing only elements matching the given [predicate].
 */
@param [predicate] function that takes the index of an element and the element itself
* and returns the result of predicate evaluation on the element.
@sample samples.collections.Collections.Filtering.filterIndexed

*
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UIntArray.filterIndexed(predicate: (index: Int, UInt) -> Boolean): List<UInt> {
    return filterIndexedTo(ArrayList<UInt>(), predicate)
}
/**
 * Returns a list containing only elements matching the

```

given [predicate].\n \* @param [predicate] function that takes the index of an element and the element itself\n \* and returns the result of predicate evaluation

on the element.\n \* \n \* @sample samples.collections.Collections.Filtering.filterIndexed\n

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.filterIndexed(predicate: (index: Int, ULong) -> Boolean): List<ULong> {\n    return
filterIndexedTo(ArrayList<ULong>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the
given [predicate].\n * @param [predicate] function that takes the index of an element and the element itself\n * and
returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.filterIndexed(predicate: (index: Int, UByte) -> Boolean): List<UByte> {\n    return
filterIndexedTo(ArrayList<UByte>(), predicate)\n}\n\n/**\n * Returns a list containing only elements matching the
given [predicate].\n * @param
[predicate] function that takes the index of an element and the element itself\n * and returns the result of predicate
evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexed\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.filterIndexed(predicate: (index: Int, UShort) -> Boolean): List<UShort> {\n    return
filterIndexedTo(ArrayList<UShort>(), predicate)\n}\n\n/**\n * Appends all elements matching the given [predicate]
to the given [destination].\n * @param [predicate] function that takes the index of an element and the element
itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UInt>> UIntArray.filterIndexedTo(destination: C, predicate: (index: Int,
UInt) -> Boolean): C {\n    forEachIndexed { index, element ->\n        if (predicate(index, element))
destination.add(element)\n    }\n    return destination\n}\n\n/**\n * Appends all elements matching the given
[predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the
element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in ULong>> ULongArray.filterIndexedTo(destination: C, predicate: (index: Int, ULong) ->
Boolean): C {\n    forEachIndexed { index, element ->\n        if (predicate(index, element))
destination.add(element)\n    }\n    return destination\n}\n\n/**\n * Appends all elements matching the given
[predicate] to the given [destination].\n * @param [predicate] function that takes the index of
an element and the element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UByte>> UByteArray.filterIndexedTo(destination: C, predicate: (index: Int, UByte) ->
Boolean): C {\n    forEachIndexed { index, element ->\n        if (predicate(index, element))
destination.add(element)\n    }\n    return destination\n}\n\n/**\n * Appends all elements matching the given
[predicate] to the given [destination].\n * @param [predicate] function that takes the index of an element and the
element itself\n * and returns the result of predicate evaluation on the element.\n * \n * @sample
samples.collections.Collections.Filtering.filterIndexedTo\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UShort>>
UShortArray.filterIndexedTo(destination: C, predicate: (index: Int, UShort) -> Boolean): C {\n    forEachIndexed {
index, element ->\n        if (predicate(index, element)) destination.add(element)\n    }\n    return
destination\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n
```



```

*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.filterNot(predicate: (UInt) -> Boolean): List<UInt> {\n  return filterNotTo(ArrayList<UInt>(),
predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.filterNot(predicate: (ULong) -> Boolean): List<ULong> {\n  return filterNotTo(ArrayList<ULong>(),
predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.filterNot(predicate: (UByte) -> Boolean): List<UByte> {\n  return filterNotTo(ArrayList<UByte>(),
predicate)\n}\n\n/**\n * Returns a list containing all elements not matching the given [predicate].\n * \n * @sample
samples.collections.Collections.Filtering.filter\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.filterNot(predicate: (UShort) -> Boolean): List<UShort> {\n  return
filterNotTo(ArrayList<UShort>(), predicate)\n}\n\n/**\n * Appends all elements not matching the given [predicate]
to the given [destination].\n * \n * @sample samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun <C : MutableCollection<in UInt>> UIntArray.filterNotTo(destination: C, predicate: (UInt) -> Boolean):
C {\n  for (element in this) if (!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n *
Appends all elements not matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in ULong>> ULongArray.filterNotTo(destination: C, predicate: (ULong) -> Boolean): C {\n
for (element in this) if (!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends
all elements not matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in
UByte>> UByteArray.filterNotTo(destination: C, predicate: (UByte) -> Boolean): C {\n  for (element in this) if
(!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends all elements not
matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UShort>> UShortArray.filterNotTo(destination: C, predicate: (UShort) -> Boolean): C {\n
for (element in this) if (!predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends
all elements matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UInt>> UIntArray.filterTo(destination:
C, predicate: (UInt) -> Boolean): C {\n  for (element in this) if (predicate(element)) destination.add(element)\n
return destination\n}\n\n/**\n * Appends all elements matching the given [predicate] to the given [destination].\n *
\n * @sample samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in ULong>> ULongArray.filterTo(destination: C, predicate: (ULong) -> Boolean): C {\n
for (element in this) if (predicate(element)) destination.add(element)\n  return destination\n}\n\n/**\n * Appends
all elements matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n

```

```

*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UByte>> UByteArray.filterTo(destination: C, predicate: (UByte) -> Boolean): C {\n for
(element in this) if (predicate(element)) destination.add(element)\n return destination\n}\n\n/**\n * Appends all
elements matching the given [predicate] to the given [destination].\n * \n * @sample
samples.collections.Collections.Filtering.filterTo\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <C :
MutableCollection<in UShort>> UShortArray.filterTo(destination: C, predicate: (UShort) -> Boolean): C {\n for
(element in this) if (predicate(element)) destination.add(element)\n return destination\n}\n\n/**\n * Returns a list
containing elements at indices in the specified [indices] range.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.slice(indices: IntRange):
List<UInt> {\n if (indices.isEmpty()) return listOf()\n return copyOfRange(indices.start, indices.endInclusive +
1).asList()\n}\n\n/**\n * Returns a list containing elements at indices in the specified [indices] range.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun ULongArray.slice(indices: IntRange): List<ULong> {\n if (indices.isEmpty()) return listOf()\n return
copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at
indices in the specified [indices] range.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
UByteArray.slice(indices: IntRange): List<UByte> {\n if (indices.isEmpty()) return listOf()\n return
copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at
indices in the specified [indices] range.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
UShortArray.slice(indices: IntRange): List<UShort> {\n if (indices.isEmpty()) return listOf()\n return
copyOfRange(indices.start, indices.endInclusive + 1).asList()\n}\n\n/**\n * Returns a list containing elements at
specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun UIntArray.slice(indices: Iterable<Int>): List<UInt> {\n val size = indices.collectionSizeOrDefault(10)\n if
(size == 0) return emptyList()\n val list = ArrayList<UInt>(size)\n for (index in indices) {\n
list.add(get(index))\n }\n return list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.slice(indices: Iterable<Int>):
List<ULong> {\n val size = indices.collectionSizeOrDefault(10)\n if (size == 0) return emptyList()\n val list =
ArrayList<ULong>(size)\n for (index in indices) {\n list.add(get(index))\n }\n return list\n}\n\n/**\n *
Returns a list containing elements at specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.slice(indices: Iterable<Int>):
List<UByte> {\n val size = indices.collectionSizeOrDefault(10)\n if (size == 0) return emptyList()\n
val list = ArrayList<UByte>(size)\n for (index in indices) {\n list.add(get(index))\n }\n return
list\n}\n\n/**\n * Returns a list containing elements at specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.slice(indices: Iterable<Int>):
List<UShort> {\n val size = indices.collectionSizeOrDefault(10)\n if (size == 0) return emptyList()\n val list =
ArrayList<UShort>(size)\n for (index in indices) {\n list.add(get(index))\n }\n return list\n}\n\n/**\n *
Returns an array containing elements of this array at specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sliceArray(indices:
Collection<Int>): UIntArray {\n return UIntArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array
containing elements of this array at specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sliceArray(indices:
Collection<Int>):
ULongArray {\n return ULongArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing
elements of this array at specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun UByteArray.sliceArray(indices: Collection<Int>): UByteArray {\n return
UByteArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements of this array at
specified [indices].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
UShortArray.sliceArray(indices: Collection<Int>): UShortArray {\n return

```

```

UShortArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the
specified [indices] range.\n * \n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun
UIntArray.sliceArray(indices: IntRange): UIntArray {\n    return UIntArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the specified [indices] range.\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic
fun ULongArray.sliceArray(indices: IntRange): ULongArray {\n    return
ULongArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the
specified [indices] range.\n * \n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun
UByteArray.sliceArray(indices: IntRange): UByteArray {\n    return
UByteArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns an array containing elements at indices in the
specified [indices] range.\n * \n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun
UShortArray.sliceArray(indices: IntRange): UShortArray {\n    return
UShortArray(storage.sliceArray(indices))\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n *
*\n * @throws IllegalArgumentException if [n] is negative.\n * \n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun UIntArray.take(n: Int): List<UInt> {\n
    require(n >= 0) { "\"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >=
size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<UInt>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns
a list containing first [n] elements.\n * \n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun ULongArray.take(n: Int): List<ULong> {\n
    require(n >= 0) { "\"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >=
size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<ULong>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns a list containing first [n] elements.\n * \n * \n * @throws
IllegalArgumentExcep\n * \n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun UByteArray.take(n: Int): List<UByte> {\n
    require(n >= 0) { "\"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >=
size) return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<UByte>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns
a list containing first [n] elements.\n * \n * \n * @throws IllegalArgumentExcep\n * \n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun UShortArray.take(n: Int): List<UShort> {\n
    require(n
    >= 0) { "\"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    if (n >= size)
return toList()\n    if (n == 1) return listOf(this[0])\n    var count = 0\n    val list = ArrayList<UShort>(n)\n    for
(item in this) {\n        list.add(item)\n        if (++count == n)\n            break\n    }\n    return list\n}\n\n/**\n * Returns
a list containing last [n] elements.\n * \n * \n * @throws IllegalArgumentExcep\n * \n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun UIntArray.takeLast(n: Int): List<UInt> {\n
    require(n >= 0) { "\"Requested element count $n is less than zero.\" }\n    if (n == 0) return emptyList()\n    val size =
size\n    if (n >= size) return toList()\n    if (n == 1) return listOf(this[size - 1])\n    val list = ArrayList<UInt>(n)\n
    for (index in size - n until size)\n        list.add(this[index])\n    return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * \n * @throws
IllegalArgumentExcep\n * \n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n\n@SinceKotlin("1.3")\n\n@ExperimentalUnsignedTypes\n\npublic fun ULongArray.takeLast(n: Int): List<ULong>

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{\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  if (n == 0) return emptyList()\n  val size = size\n  if (n >= size) return toList()\n  if (n == 1) return listOf(this[size - 1])\n  val list = ArrayList<ULong>(n)\n  for (index in size - n until size)\n    list.add(this[index])\n  return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.takeLast(n: Int): List<UByte>\n{\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  if (n == 0) return emptyList()\n  val size = size\n  if (n >= size) return toList()\n  if (n == 1) return listOf(this[size - 1])\n  val list = ArrayList<UByte>(n)\n  for (index in size - n until size)\n    list.add(this[index])\n  return list\n}\n\n/**\n * Returns a list containing last [n] elements.\n * \n * @throws IllegalArgumentException if [n] is negative.\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.takeLast(n: Int): List<UShort>\n{\n  require(n >= 0) { \"Requested element count $n is less than zero.\" }\n  if (n == 0) return emptyList()\n  val size = size\n  if (n >= size) return toList()\n  if (n == 1) return listOf(this[size - 1])\n  val list = ArrayList<UShort>(n)\n  for (index in size - n until size)\n    list.add(this[index])\n  return list\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.takeLastWhile(predicate: (UInt) -> Boolean): List<UInt> {\n  for (index in lastIndex downTo 0) {\n    if (!predicate(this[index]))\n      return drop(index + 1)\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.takeLastWhile(predicate: (ULong) -> Boolean): List<ULong> {\n  for (index in lastIndex downTo 0) {\n    if (!predicate(this[index]))\n      return drop(index + 1)\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.takeLastWhile(predicate: (UByte) -> Boolean): List<UByte> {\n  for (index in lastIndex downTo 0) {\n    if (!predicate(this[index]))\n      return drop(index + 1)\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing last elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.takeLastWhile(predicate: (UShort) -> Boolean): List<UShort> {\n  for (index in lastIndex downTo 0) {\n    if (!predicate(this[index]))\n      return drop(index + 1)\n  }\n  return toList()\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.takeWhile(predicate: (UInt) -> Boolean): List<UInt> {\n  val list = ArrayList<UInt>()\n  for (item in this) {\n    if (!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n\n@SinceKotlin(\"1.3\")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.takeWhile(predicate: (ULong) -> Boolean): List<ULong> {\n  val list = ArrayList<ULong>()\n  for (item in this) {\n    if (!predicate(item))\n      break\n    list.add(item)\n  }\n  return list\n}\n\n/**\n * Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample samples.collections.Collections.Transformations.take\n */\n
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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.takeWhile(predicate: (UByte) -> Boolean): List<UByte> {\n    val list = ArrayList<UByte>()\n    for
(item in this) {\n        if (!predicate(item))\n            break\n        list.add(item)\n    }\n    return list\n}\n\n/**\n *
Returns a list containing first elements satisfying the given [predicate].\n * \n * @sample
samples.collections.Collections.Transformations.take\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.takeWhile(predicate: (UShort) -> Boolean): List<UShort> {\n    val list = ArrayList<UShort>()\n    for
(item in this) {\n        if (!predicate(item))\n            break\n        list.add(item)\n    }\n    return list\n}\n\n/**\n *
Reverses elements in the array in-place.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reverse():
Unit {\n    storage.reverse()\n}\n\n/**\n * Reverses elements in the array in-place.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.reverse(): Unit {\n    storage.reverse()\n}\n\n/**\n * Reverses elements in the array in-place.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.reverse(): Unit {\n    storage.reverse()\n}\n\n/**\n * Reverses elements in the array in-place.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.reverse(): Unit {\n    storage.reverse()\n}\n\n/**\n * Reverses elements of the array in the specified
range in-place.\n * \n * @param fromIndex the start of the range (inclusive) to reverse.\n * @param toIndex the end
of the range (exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero
or [toIndex] is greater than the size of
this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    storage.reverse(fromIndex, toIndex)\n}\n\n/**\n *
Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range
(inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    storage.reverse(fromIndex, toIndex)\n}\n\n/**\n *
Reverses elements of the array in the specified range in-place.\n * \n * \n * \n * @param fromIndex the start of the range
(exclusive) to reverse.\n * @param toIndex the end of the range
(exclusive) to reverse.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex]
is greater than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than
[toIndex].\n *\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
fun UByteArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    storage.reverse(fromIndex, toIndex)\n}\n\n/**\n *
Reverses elements of the array in the specified range in-place.\n * \n * @param fromIndex the start of the range
(inclusive) to reverse.\n * @param toIndex the end of the range (exclusive) to reverse.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
@throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UShortArray.reverse(fromIndex: Int, toIndex: Int): Unit {\n    storage.reverse(fromIndex,
toIndex)\n}\n\n/**\n * Returns a list with elements in reversed order.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.reversed(): List<UInt> {\n    if
(isEmpty()) return emptyList()\n    val list = toMutableList()\n    list.reverse()\n    return list\n}\n\n/**\n * Returns a
list with elements in reversed order.\n *\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
ULongArray.reversed(): List<ULong> {\n    if (isEmpty()) return emptyList()\n    val list = toMutableList()\n
list.reverse()\n    return list\n}\n\n/**\n * Returns a list with elements in reversed order.\n

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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.reversed(): List<UByte> {\n
if (isEmpty()) return emptyList()\n    val list = toMutableList()\n    list.reverse()\n    return list\n}\n\n/**\n
 * Returns a list with elements in reversed order.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.reversed(): List<UShort> {\n
if (isEmpty()) return emptyList()\n    val list = toMutableList()\n    list.reverse()\n    return list\n}\n\n/**\n
 * Returns an array with elements of this array in reversed order.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reversedArray(): UIntArray {\n    return UIntArray(storage.reversedArray())\n}\n\n/**\n
 * Returns an array with elements of this array in reversed order.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.reversedArray(): ULongArray {\n    return ULongArray(storage.reversedArray())\n}\n\n/**\n
 * Returns an array with elements of this array in reversed order.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.reversedArray():
UByteArray {\n    return UByteArray(storage.reversedArray())\n}\n\n/**\n
 * Returns an array with elements of this array in reversed order.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.reversedArray(): UShortArray {\n    return UShortArray(storage.reversedArray())\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.shuffle(): Unit {\n
shuffle(Random)\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.shuffle(): Unit {\n
shuffle(Random)\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.shuffle(): Unit {\n
shuffle(Random)\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic
fun UShortArray.shuffle(): Unit {\n    shuffle(Random)\n}\n\n/**\n
 * Randomly shuffles elements in this array in-
place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\_shuffle#The\_modern\_algorithm\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.shuffle(random: Random): Unit
{\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] =
this[j]\n        this[j] = copy\n    }\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place using the specified
[random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\_shuffle#The\_modern\_algorithm\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.shuffle(random: Random):
Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n
        val copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place using the specified [random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\_shuffle#The\_modern\_algorithm\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.shuffle(random: Random):
Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val copy = this[i]\n        this[i] =
this[j]\n        this[j] = copy\n    }\n}\n\n/**\n
 * Randomly shuffles elements in this array in-place using the specified
[random] instance as the source of randomness.\n * \n * See:
https://en.wikipedia.org/wiki/Fisher%20%80%93Yates\_shuffle#The\_modern\_algorithm\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.shuffle(random: Random):
Unit {\n    for (i in lastIndex downTo 1) {\n        val j = random.nextInt(i + 1)\n        val
copy = this[i]\n        this[i] = this[j]\n        this[j] = copy\n    }\n}\n\n/**\n
 * Sorts elements in the array in-place
descending according to their natural sort order.\n

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*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UIntArray.sortDescending(): Unit {^n if
(size > 1) {^n sort()^n reverse()^n }^n}^n/^n * Sorts elements in the array in-place descending
according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun
ULongArray.sortDescending(): Unit {^n if (size > 1) {^n sort()^n reverse()^n }^n}^n/^n * Sorts
elements in the array in-place descending according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UByteArray.sortDescending(): Unit {^n if
(size > 1) {^n sort()^n reverse()^n }^n}^n/^n * Sorts elements in the array in-place descending
according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public
fun UShortArray.sortDescending(): Unit {^n if (size > 1) {^n sort()^n reverse()^n }^n}^n/^n *
Returns a list of all elements sorted according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UIntArray.sorted(): List<UInt> {^n return
copyOf().apply { sort() }.asList()^n}^n/^n * Returns a list of all elements sorted according to their natural sort
order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun ULongArray.sorted():
List<ULong> {^n return copyOf().apply { sort() }.asList()^n}^n/^n * Returns a list of all elements sorted
according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun
UByteArray.sorted(): List<UByte> {^n return copyOf().apply { sort() }.asList()^n}^n/^n * Returns a list of all
elements sorted according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public
fun UShortArray.sorted(): List<UShort> {^n return copyOf().apply { sort() }.asList()^n}^n/^n * Returns an
array with all elements of this array sorted according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UIntArray.sortedArray(): UIntArray {^n if
(isEmpty()) return this^n return this.copyOf().apply { sort() }^n}^n/^n * Returns an array with all elements of
this array sorted according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun ULongArray.sortedArray(): ULongArray
{^n if (isEmpty()) return this^n return this.copyOf().apply { sort() }^n}^n/^n * Returns an array with all
elements of this array sorted according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UByteArray.sortedArray(): UByteArray {^n
if (isEmpty()) return this^n return this.copyOf().apply { sort() }^n}^n/^n * Returns
an array with all elements of this array sorted according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UShortArray.sortedArray(): UShortArray
{^n if (isEmpty()) return this^n return this.copyOf().apply { sort() }^n}^n/^n * Returns an array with all
elements of this array sorted descending according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UIntArray.sortedArrayDescending():
UIntArray {^n if (isEmpty()) return this^n return this.copyOf().apply { sortDescending() }^n}^n/^n * Returns
an array with all elements of this array sorted descending according to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun ULongArray.sortedArrayDescending():
ULongArray {^n if (isEmpty()) return this^n return this.copyOf().apply { sortDescending() }^n}^n/^n *
Returns an array with all elements of this array sorted descending according
to their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun
UByteArray.sortedArrayDescending(): UByteArray {^n if (isEmpty()) return this^n return this.copyOf().apply {
sortDescending() }^n}^n/^n * Returns an array with all elements of this array sorted descending according to
their natural sort order.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun
UShortArray.sortedArrayDescending(): UShortArray {^n if (isEmpty()) return this^n return this.copyOf().apply {
sortDescending() }^n}^n/^n * Returns a list of all elements sorted descending according to their natural sort
order.^n
* ^n * The sort is _stable_. It means that equal elements preserve their order relative to each other after
sorting.^n
*^@SinceKotlin("1.3")^@ExperimentalUnsignedTypes^public fun UIntArray.sortedDescending():
List<UInt> {^n return copyOf().apply { sort() }.reversed()^n}^n/^n * Returns a list of all elements sorted
descending

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according to their natural sort order.\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public fun ULongArray.sortedDescending(): List<ULong> {\n return copyOf().apply { sort() }.reversed()\n }\n\n/\*\*\n \* Returns a list of all elements sorted descending according to their natural sort order.\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public fun UByteArray.sortedDescending(): List<UByte> {\n return copyOf().apply { sort() }.reversed()\n }\n\n/\*\*\n \* Returns a list of all elements sorted descending according to their natural sort order.\n \* \n \* The sort is `_stable_`. It means that equal elements preserve their order relative to each other after sorting.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public fun UShortArray.sortedDescending(): List<UShort> {\n return copyOf().apply { sort() }.reversed()\n }\n\n/\*\*\n \* Returns an array of type [ByteArray], which is a view of this array where each element is a signed reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun UByteArray.asByteArray(): ByteArray {\n return storage\n }\n\n/\*\*\n \* Returns an array of type [IntArray], which is a view of this array where each element is a signed reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun UIntArray.asIntArray(): IntArray {\n return storage\n }\n\n/\*\*\n \* Returns a [List] that wraps the original array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public expect fun UIntArray.asList(): List<UInt>\n\n/\*\*\n \* Returns a [List] that wraps the original array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public expect fun ULongArray.asList(): List<ULong>\n\n/\*\*\n \* Returns a [List] that wraps the original array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public expect fun UByteArray.asList(): List<UByte>\n\n/\*\*\n \* Returns a [List] that wraps the original array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n public expect fun UShortArray.asList(): List<UShort>\n\n/\*\*\n \* Returns an array of type [LongArray], which is a view of this array where each element is a signed reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun ULongArray.asLongArray(): LongArray {\n return storage\n }\n\n/\*\*\n \* Returns an array of type [ShortArray], which is a view of this array where each element is a signed reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun UShortArray.asShortArray(): ShortArray {\n return storage\n }\n\n/\*\*\n \* Returns an array of type [UByteArray], which is a view of this array where each element is an unsigned reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun ByteArray.asUByteArray(): UByteArray {\n return UByteArray(this)\n }\n\n/\*\*\n \* Returns an array of type [UIntArray], which is a view of this array where each element is an unsigned reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun IntArray.asUIntArray(): UIntArray {\n return UIntArray(this)\n }\n\n/\*\*\n \* Returns an array of type [ULongArray], which is a view of this array where each element is an unsigned reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun LongArray.asULongArray(): ULongArray {\n return ULongArray(this)\n }\n\n/\*\*\n \* Returns an array of type [UShortArray], which is a view of this array where each element is an unsigned reinterpretation\n \* of the corresponding element of this array.\n \* \n \* Since Kotlin("1.3")\n @ExperimentalUnsignedTypes\n @kotlin.internal.InlineOnly\n public inline fun ShortArray.asUShortArray(): UShortArray {\n return UShortArray(this)\n }\n\n/\*\*\n \* Returns `true` if the two



specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun UIntArray.contentEquals(other: UIntArray): Boolean { \n return this.contentEquals(other) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun ULongArray.contentEquals(other: ULongArray): Boolean { \n return this.contentEquals(other) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun UByteArray.contentEquals(other: UByteArray): Boolean { \n return this.contentEquals(other) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun UShortArray.contentEquals(other: UShortArray): Boolean { \n return this.contentEquals(other) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @SinceKotlin(\n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun UIntArray?.contentEquals(other: UIntArray?): Boolean { \n return this?.storage.contentEquals(other?.storage) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @SinceKotlin(\n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun ULongArray?.contentEquals(other: ULongArray?): Boolean { \n return this?.storage.contentEquals(other?.storage) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @SinceKotlin(\n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun UByteArray?.contentEquals(other: UByteArray?): Boolean { \n return this?.storage.contentEquals(other?.storage) \n } \n \n /\*\* \n \* Returns `true` if the two specified arrays are *structurally* equal to one another, \n \* i.e. contain the same number of the same elements in the same order. \n \* \n @SinceKotlin(\n "1.4\n") \n @ExperimentalUnsignedTypes \n public infix fun UShortArray?.contentEquals(other: UShortArray?): Boolean { \n return this?.storage.contentEquals(other?.storage) \n } \n \n /\*\* \n \* Returns a hash code based on the contents of this array as if it is [List]. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public fun UIntArray.contentHashCode(): Int { \n return this.contentHashCode() \n } \n \n /\*\* \n \* Returns a hash code based on the contents of this array as if it is [List]. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public fun ULongArray.contentHashCode(): Int { \n return this.contentHashCode() \n } \n \n /\*\* \n \* Returns a hash code based on the contents of this array as if it is [List]. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince = \n "1.4\n") \n @ExperimentalUnsignedTypes \n public fun UByteArray.contentHashCode(): Int { \n return this.contentHashCode() \n } \n \n /\*\* \n \* Returns a hash code based on the contents of this array as if it is [List]. \n \* \n @Deprecated(\n "Use Kotlin compiler 1.4 to avoid deprecation warning.\n") \n @SinceKotlin(\n "1.3\n") \n @DeprecatedSinceKotlin(hiddenSince =

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= \"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.contentHashCode(): Int {\n  return
this.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it is [List].\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray?.contentHashCode(): Int {\n
return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it
is [List].\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun
ULongArray?.contentHashCode(): Int {\n  return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a hash
code based on the contents of this array as if it is [List].\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray?.contentHashCode(): Int {\n
return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a hash code based on the contents of this array as if it
is [List].\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray?.contentHashCode(): Int {\n
return this?.storage.contentHashCode()\n}\n\n/**\n * Returns a string representation of the contents of the specified
array as if it is [List].\n
*\n * @sample samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation
warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince =
\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.contentToString(): String {\n  return
this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is
[List].\n
*\n * @sample samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@Deprecated(\"Use
Kotlin compiler 1.4 to avoid deprecation
warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince =
\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.contentToString(): String {\n
return this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as
if it is [List].\n
*\n * @sample samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@Deprecated(\"Use Kotlin compiler 1.4 to avoid deprecation
warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince =
\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.contentToString(): String {\n  return
this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is
[List].\n
*\n * @sample samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@Deprecated(\"Use
Kotlin compiler 1.4 to avoid deprecation
warning.\")\n@SinceKotlin(\"1.3\")\n@DeprecatedSinceKotlin(hiddenSince =
\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.contentToString(): String {\n  return
this.contentToString()\n}\n\n/**\n * Returns a string representation of the contents of the specified
array as if it is [List].\n
*\n * @sample samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UIntArray?.contentToString(): String {\n
return this?.joinToString(\" \", \" \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Returns a string representation of the contents of
the specified array as if it is [List].\n
*\n * @sample
samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun ULongArray?.contentToString(): String {\n
return this?.joinToString(\" \", \" \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Returns a string representation of the contents of
the specified array as if it is [List].\n
*\n * @sample
samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UByteArray?.contentToString(): String {\n
return this?.joinToString(\" \", \" \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Returns a string representation of the contents of the specified array as if it is [List].\n
*\n * @sample
samples.collections.Arrays.ContentOperations.contentToString\n
*\n*\n@SinceKotlin(\"1.4\")\n@ExperimentalUnsignedTypes\npublic fun UShortArray?.contentToString(): String {\n
return this?.joinToString(\" \", \" \", \"[\", \"]\") ?: \"null\"\n}\n\n/**\n * Copies this array or its subrange into the
[destination] array and returns that array.\n
*\n * It's allowed to pass the same array in the [destination] and even

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specify the subrange so that it overlaps with the destination range.\n \* \n \* @param destination the array to copy to.\n \* @param destinationOffset the position in the [destination] array to copy to, 0 by default.\n \* @param startIndex the beginning (inclusive) of the subrange to copy, 0 by default.\n \* @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n \* \n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex]

or [endIndex] is out of range of this array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n \* or when that index is out of the [destination] array indices range.\n \* \n \* @return the [destination] array.\n

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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
UIntArray.copyInto(destination: UIntArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size):  
UIntArray {\n    storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n    return  
destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the  
destination range.\n * \n * @param destination the array to copy to.\n * @param  
destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the  
beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the  
subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or  
[IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex  
> endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array  
starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices range.\n * \n * @return the [destination] array.\n
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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
ULongArray.copyInto(destination: ULongArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size):  
ULongArray {\n    storage.copyInto(destination.storage, destinationOffset, startIndex,  
endIndex)\n    return destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and  
returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so  
that it overlaps with the destination range.\n * \n * @param destination the array to copy to.\n * @param  
destinationOffset the position in the [destination] array to copy to, 0 by default.\n * @param startIndex the  
beginning (inclusive) of the subrange to copy, 0 by default.\n * @param endIndex the end (exclusive) of the  
subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException or  
[IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when `startIndex  
> endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array  
starting at the specified [destinationOffset],\n * or when that index is out of the [destination] array indices  
range.\n * \n * @return the [destination] array.\n
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```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
UByteArray.copyInto(destination: UByteArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = size):  
UByteArray {\n    storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n    return  
destination\n}\n\n/**\n * Copies this array or its subrange into the [destination] array and returns that array.\n * \n * It's allowed to pass the same array in the [destination] and even specify the subrange so that it overlaps with the  
destination range.\n * \n * @param destination the array to copy to.\n * @param destinationOffset the position in the  
[destination] array to copy to, 0 by default.\n * @param startIndex the beginning (inclusive) of the subrange to copy,  
0 by default.\n * @param endIndex the end (exclusive) of the subrange to copy, size of this array by default.\n * \n * @throws IndexOutOfBoundsException
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or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this array indices or when  
`startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the  
[destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination]  
array indices range.\n * \n * @return the [destination] array.\n
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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.copyInto(destination: UShortArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int =
size): UShortArray {\n    storage.copyInto(destination.storage, destinationOffset, startIndex, endIndex)\n    return
destination\n}\n\n/**\n * Returns new array which is a copy of the original array.\n * \n * @sample
samples.collections.Arrays.CopyOfOperations.copyOfOf\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.copyOfOf():
UIIntArray {\n    return UIIntArray(storage.copyOfOf())\n}\n\n/**\n * Returns new array which is a copy of the
original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.copyOfOf(): ULongArray {\n    return ULongArray(storage.copyOfOf())\n}\n\n/**\n * Returns new array
which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.copyOfOf(): UByteArray {\n    return UByteArray(storage.copyOfOf())\n}\n\n/**\n * Returns new array
which is a copy of the original array.\n * \n * @sample samples.collections.Arrays.CopyOfOperations.copyOfOf\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.copyOfOf(): UShortArray {\n    return UShortArray(storage.copyOfOf())\n}\n\n/**\n *
* Returns new array which is a copy of the original array, resized to the given [newSize].\n * * The copy is either
truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the
original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the
original array, the extra elements in the copy array are filled with zero values.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIIntArray.copyOfOf(newSize: Int): UIIntArray {\n    return UIIntArray(storage.copyOfOf(newSize))\n}\n\n/**\n *
Returns new array which is a copy of the original array, resized to the given [newSize].\n * * The copy is either
truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the
original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the
original array, the extra elements in the copy array are filled with zero values.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.copyOfOf(newSize: Int): ULongArray {\n    return ULongArray(storage.copyOfOf(newSize))\n}\n\n/**\n *
Returns new array which is a copy of the original array, resized to the given [newSize].\n * * The copy is either
truncated or padded at the end with zero values if necessary.\n * \n * - If [newSize] is less than the size of the
original array, the copy array is truncated to the [newSize].\n * - If [newSize] is greater than the size of the
original array, the extra elements in the copy array are filled with zero values.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.copyOfOf(newSize: Int): UByteArray {\n    return UByteArray(storage.copyOfOf(newSize))\n}\n\n/**\n *
Returns new array which is a copy of the original array, resized to the
given [newSize].\n * * The copy is either truncated or padded at the end with zero values if necessary.\n * \n * - If
[newSize] is less than the size of the original array, the copy array is truncated to the [newSize].\n * - If [newSize] is
greater than the size of the original array, the extra elements in the copy array are filled with zero values.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.copyOfOf(newSize: Int): UShortArray {\n    return UShortArray(storage.copyOfOf(newSize))\n}\n\n/**\n *
Returns a new array which is a copy of the specified range of the original array.\n * \n * @param fromIndex the start
of the range (inclusive) to copy.\n * \n * @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws
IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
*\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UIIntArray.copyOfOfRange(fromIndex: Int, toIndex: Int): UIIntArray {\n    return
UIIntArray(storage.copyOfOfRange(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the

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specified range of the original array.\n \* \n \* @param fromIndex the start of the range (inclusive) to copy.\n \*  
 @param toIndex the end of the range (exclusive) to copy.\n \* \n \* @throws IndexOutOfBoundsException if  
 [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n \* @throws  
 IllegalArgumentException if [fromIndex] is greater than [toIndex].\n

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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.copyOfRange(fromIndex: Int, toIndex: Int): ULongArray {\n    return
  ULongArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the
  specified range of the original array.\n * \n * @param
    fromIndex the start of the range (inclusive) to copy.\n * @param toIndex the end of the range (exclusive) to copy.\n
  * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of
  this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
  UByteArray.copyOfRange(fromIndex: Int, toIndex: Int): UByteArray {\n    return
    UByteArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Returns a new array which is a copy of the
    specified range of the original array.\n * \n * @param fromIndex the start of the range (inclusive) to copy.\n *
    @param toIndex the end of the range (exclusive) to copy.\n * \n * @throws IndexOutOfBoundsException if
    [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
    IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
    inline fun UShortArray.copyOfRange(fromIndex: Int, toIndex: Int): UShortArray {\n    return
    UShortArray(storage.copyOfRange(fromIndex, toIndex))\n}\n\n/**\n * Fills this array or its subrange with the
    specified [element] value.\n * \n * @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n *
    @param toIndex the end of the range (exclusive) to fill, size of this array by default.\n * \n * @throws
    IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n *
    @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.fill(element: UInt, fromIndex:
    Int = 0, toIndex: Int = size): Unit {\n    storage.fill(element.toInt(), fromIndex, toIndex)\n}\n\n/**\n * Fills this array
    or its subrange with the specified [element] value.\n * \n * @param
    fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range
    (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less
    than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
    [fromIndex] is greater than [toIndex].\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
    ULongArray.fill(element: ULong, fromIndex: Int = 0, toIndex: Int = size): Unit {\n    storage.fill(element.toLong(),
    fromIndex, toIndex)\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n *
    @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range
    (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less
    than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
    [fromIndex] is greater than [toIndex].\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
    UByteArray.fill(element: UByte, fromIndex: Int = 0, toIndex: Int = size): Unit {\n    storage.fill(element.toByte(),
    fromIndex, toIndex)\n}\n\n/**\n * Fills this array or its subrange with the specified [element] value.\n * \n *
    @param fromIndex the start of the range (inclusive) to fill, 0 by default.\n * @param toIndex the end of the range
    (exclusive) to fill, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less
    than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
    [fromIndex] is greater than [toIndex].\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
    UShortArray.fill(element: UShort, fromIndex: Int = 0, toIndex: Int = size): Unit {\n    storage.fill(element.toShort(),
    fromIndex, toIndex)\n}\n\n/**\n * Returns the range of valid indices for the array.\n
  */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
  
```

```

inline val UIntArray.indices: IntRange\n    get() = storage.indices\n\n/**\n * Returns the range of valid indices for
the array.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val ULongArray.indices:
IntRange\n    get() = storage.indices\n\n/**\n * Returns the range of valid indices for the array.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val UByteArray.indices: IntRange\n
get() = storage.indices\n\n/**\n * Returns the range of valid indices for the array.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val UShortArray.indices: IntRange\n
get() = storage.indices\n\n/**\n * Returns the last valid index for the array.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val UIntArray.lastIndex: Int\n    get() =
storage.lastIndex\n\n/**\n * Returns the last valid index for the array.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val ULongArray.lastIndex: Int\n    get() =
storage.lastIndex\n\n/**\n * Returns the last valid index for the
array.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val UByteArray.lastIndex: Int\n
get() = storage.lastIndex\n\n/**\n * Returns the last valid index for the array.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic inline val UShortArray.lastIndex: Int\n    get() =
storage.lastIndex\n\n/**\n * Returns an array containing all elements of the original array and then the given
[element].\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
operator fun UIntArray.plus(element: UInt): UIntArray {\n    return UIntArray(storage +
element.toInt())\n}\n\n/**\n * Returns an array containing all elements of the original array and then the given
[element].\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
operator fun ULongArray.plus(element:
ULong): ULongArray {\n    return ULongArray(storage + element.toLong())\n}\n\n/**\n * Returns an array
containing all elements of the original array and then the given [element].\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun
UByteArray.plus(element: UByte): UByteArray {\n    return UByteArray(storage + element.toByte())\n}\n\n/**\n *
Returns an array containing all elements of the original array and then the given [element].\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun
UShortArray.plus(element: UShort): UShortArray {\n    return UShortArray(storage +
element.toShort())\n}\n\n/**\n * Returns an array containing all elements of the original array and then all elements
of the given [elements] collection.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic operator
fun UIntArray.plus(elements: Collection<UInt>): UIntArray {\n    var index = size\n
    val result = storage.copyOfOf(size + elements.size)\n    for (element in elements) result[index++] = element.toInt()\n
    return UIntArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all
elements of the given [elements] collection.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
operator fun ULongArray.plus(elements: Collection<ULong>): ULongArray {\n    var index = size\n    val result =
storage.copyOfOf(size + elements.size)\n    for (element in elements) result[index++] = element.toLong()\n    return
ULongArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all
elements of the given [elements] collection.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
operator fun UByteArray.plus(elements: Collection<UByte>): UByteArray {\n    var index = size\n    val result =
storage.copyOfOf(size + elements.size)\n    for (element in elements) result[index++] = element.toByte()\n
    return UByteArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all
elements of the given [elements] collection.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
operator fun UShortArray.plus(elements: Collection<UShort>): UShortArray {\n    var index = size\n    val result =
storage.copyOfOf(size + elements.size)\n    for (element in elements) result[index++] = element.toShort()\n    return
UShortArray(result)\n}\n\n/**\n * Returns an array containing all elements of the original array and then all
elements of the given [elements] array.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun
UIntArray.plus(elements: UIntArray): UIntArray {\n    return UIntArray(storage + elements.storage)\n}\n\n/**\n *
Returns an array containing all elements of the original array and then all elements of the given [elements] array.\n

```

```

*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline operator fun ULongArray.plus(elements: ULongArray): ULongArray {\n    return ULongArray(storage +
elements.storage)\n}\n\n**\n * Returns an array containing all elements of the original array and then all elements
of the given [elements] array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun
UByteArray.plus(elements: UByteArray): UByteArray {\n    return UByteArray(storage +
elements.storage)\n}\n\n**\n * Returns an array containing all elements of the original array and then all elements
of the given [elements] array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline operator fun
UShortArray.plus(elements: UShortArray): UShortArray {\n    return UShortArray(storage +
elements.storage)\n}\n\n**\n * Sorts the array in-place.\n * \n * @sample
samples.collections.Arrays.Sorting.sortArray\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun UIntArray.sort(): Unit {\n    if (size > 1) sortArray(this, 0, size)\n}\n\n**\n * Sorts the array in-place.\n * \n *
@sample samples.collections.Arrays.Sorting.sortArray\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sort(): Unit {\n    if (size > 1)
sortArray(this, 0, size)\n}\n\n**\n * Sorts the array in-place.\n * \n * @sample
samples.collections.Arrays.Sorting.sortArray\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun UByteArray.sort(): Unit {\n    if (size > 1) sortArray(this, 0, size)\n}\n\n**\n * Sorts the array in-place.\n * \n *
@sample samples.collections.Arrays.Sorting.sortArray\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sort(): Unit {\n    if (size > 1)
sortArray(this, 0, size)\n}\n\n**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the
range (inclusive) to sort, 0 by default.\n * @param toIndex the end of
the range (exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if
[fromIndex] is less than zero or [toIndex] is greater than the size of this array.\n * @throws
IllegalArgumentException if [fromIndex] is greater than [toIndex].\n * \n * @sample
samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.sort(fromIndex: Int = 0, toIndex:
Int = size): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    sortArray(this, fromIndex,
toIndex)\n}\n\n**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the range
(inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array by
default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than
the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
* \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.sort(fromIndex: Int = 0,
toIndex: Int = size): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)\n    sortArray(this,
fromIndex, toIndex)\n}\n\n**\n * Sorts a range in the array in-place.\n * \n * @param fromIndex the start of the
range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range (exclusive) to sort, size of this array
by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater
than the size of this array.\n * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].\n
* \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.sort(fromIndex: Int = 0,
toIndex: Int = size): Unit {\n    AbstractList.checkRangeIndexes(fromIndex, toIndex,
size)\n    sortArray(this, fromIndex, toIndex)\n}\n\n**\n * Sorts a range in the array in-place.\n * \n * @param
fromIndex the start of the range (inclusive) to sort, 0 by default.\n * @param toIndex the end of the range
(exclusive) to sort, size of this array by default.\n * \n * @throws IndexOutOfBoundsException if [fromIndex] is
less than zero or [toIndex] is greater than the size of this array.\n * @throws IllegalArgumentException if
[fromIndex] is greater than [toIndex].\n * \n * @sample samples.collections.Arrays.Sorting.sortRangeOfArray\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.sort(fromIndex: Int = 0,

```

```

toIndex: Int = size): Unit {
    AbstractList.checkRangeIndexes(fromIndex, toIndex, size)
    sortArray(this, fromIndex, toIndex)
}

/**
 * Sorts elements of the array in the specified range in-place.
 * The elements are sorted descending according to their natural sort order.
 * @param fromIndex the start of the range (inclusive) to sort.
 * @param toIndex the end of the range (exclusive) to sort.
 * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
 * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].
 */
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun UIntArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
    sort(fromIndex, toIndex)
    reverse(fromIndex, toIndex)
}

/**
 * Sorts elements of the array in the specified range in-place.
 * The elements are sorted descending according to their natural sort order.
 * @param fromIndex the start of the range (inclusive) to sort.
 * @param toIndex the end of the range (exclusive) to sort.
 * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
 * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].
 */
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun ULongArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
    sort(fromIndex, toIndex)
    reverse(fromIndex, toIndex)
}

/**
 * Sorts elements of the array in the specified range in-place.
 * The elements are sorted descending according to their natural sort order.
 * @param fromIndex the start of the range (inclusive) to sort.
 * @param toIndex the end of the range (exclusive) to sort.
 * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
 * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].
 */
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun UByteArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
    sort(fromIndex, toIndex)
    reverse(fromIndex, toIndex)
}

/**
 * Sorts elements of the array in the specified range in-place.
 * The elements are sorted descending according to their natural sort order.
 * @param fromIndex the start of the range (inclusive) to sort.
 * @param toIndex the end of the range (exclusive) to sort.
 * @throws IndexOutOfBoundsException if [fromIndex] is less than zero or [toIndex] is greater than the size of this array.
 * @throws IllegalArgumentException if [fromIndex] is greater than [toIndex].
 */
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun UShortArray.sortDescending(fromIndex: Int, toIndex: Int): Unit {
    sort(fromIndex, toIndex)
    reverse(fromIndex, toIndex)
}

/**
 * Returns an array of type [ByteArray], which is a copy of this array where each element is a signed reinterpretation
 * of the corresponding element of this array.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UByteArray.toByteArray(): ByteArray {
    return storage.copyOf()
}

/**
 * Returns an array of type [IntArray], which is a copy of this array where each element is a signed
 * reinterpretation
 * of the corresponding element of this array.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UIntArray.toIntArray(): IntArray {
    return storage.copyOf()
}

/**
 * Returns an array of type [LongArray], which is a copy of this array where each element is a signed reinterpretation
 * of the corresponding element of this array.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun ULongArray.toLongArray(): LongArray {
    return storage.copyOf()
}

/**
 * Returns an array of type [ShortArray], which is a copy of this array where each element is a signed reinterpretation
 * of the corresponding element of this array.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun UShortArray.toShortArray(): ShortArray {
    return storage.copyOf()
}

/**
 * Returns a *typed* object array containing all
 * of the elements of this primitive array.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
public fun UIntArray.toTypedArray(): Array<UInt> {
    return Array(size) { index -> this[index] }
}

/**
 * Returns a *typed* object array containing all of the elements of this primitive array.
 */
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
public fun ULongArray.toTypedArray(): Array<ULong> {
    return Array(size) { index -> this[index] }
}

```



containing all of the elements of this primitive array.\n

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.toTypedArray():
Array<UByte> {\n    return Array(size) { index -> this[index] }\n}\n\n/**\n * Returns a *typed* object array
containing all of the elements of this primitive array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.toTypedArray():
Array<UShort> {\n    return Array(size) { index -> this[index] }\n}\n\n/**\n * Returns
an array of UByte containing all of the elements of this generic array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Array<out UByte>.toUByteArray():
UByteArray {\n    return UByteArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type
[UByteArray], which is a copy of this array where each element is an unsigned reinterpretation\n * of the
corresponding element of this array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ByteArray.toUByteArray(): UByteArray {\n    return UByteArray(this.copyOf())\n}\n\n/**\n * Returns an array of
UInt containing all of the elements of this generic array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Array<out UInt>.toUIntArray(): UIntArray
{\n    return UIntArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type [UIntArray], which is a
copy of this array where each element is an unsigned reinterpretation\n * of
the corresponding element of this array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
IntArray.toUIntArray(): UIntArray {\n    return UIntArray(this.copyOf())\n}\n\n/**\n * Returns an array of ULong
containing all of the elements of this generic array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Array<out ULong>.toULongArray():
ULongArray {\n    return ULongArray(size) { index -> this[index] }\n}\n\n/**\n * Returns an array of type
[ULongArray], which is a copy of this array where each element is an unsigned reinterpretation\n * of the
corresponding element of this array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
LongArray.toULongArray(): ULongArray {\n    return ULongArray(this.copyOf())\n}\n\n/**\n * Returns an array
of UShort containing all of the elements of this generic array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
fun Array<out UShort>.toUShortArray(): UShortArray {\n    return UShortArray(size) { index -> this[index]
}\n}\n\n/**\n * Returns an array of type [UShortArray], which is a copy of this array where each element is an
unsigned reinterpretation\n * of the corresponding element of this array.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ShortArray.toUShortArray(): UShortArray {\n    return UShortArray(this.copyOf())\n}\n\n/**\n * Returns a [Map]
where keys are elements from the given array and values are\n * produced by the [valueSelector] function applied to
each element.\n * \n * If any two elements are equal, the last one gets added to the map.\n * \n * The returned map
preserves the entry iteration order of the original array.\n * \n * @sample
samples.collections.Collections.Transformations.associateWith\n
```

```
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V>
UIntArray.associateWith(valueSelector:
(UInt) -> V): Map<UInt, V> {\n    val result = LinkedHashMap<UInt, V>(mapCapacity(size).coerceAtLeast(16))\n
return associateWithTo(result, valueSelector)\n}\n\n/**\n * Returns a [Map] where keys are elements from the
given array and values are\n * produced by the [valueSelector] function applied to each element.\n * \n * If any two
elements are equal, the last one gets added to the map.\n * \n * The returned map preserves the entry iteration order
of the original array.\n * \n * @sample samples.collections.Collections.Transformations.associateWith\n
```

```
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V>
ULongArray.associateWith(valueSelector: (ULong) -> V): Map<ULong, V> {\n    val result =
LinkedHashMap<ULong, V>(mapCapacity(size).coerceAtLeast(16))\n    return associateWithTo(result,
```

valueSelector)\n}\n\n/\*\*\n \* Returns a [Map] where keys are elements from the given array and values are\n \* produced by the [valueSelector] function applied to each element.\n \* \n \* If any two elements are equal, the last one gets added to the map.\n \* \n \* The returned map preserves the entry iteration order of the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.associateWith\n \*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UByteArray.associateWith(valueSelector: (UByte) -> V): Map<UByte, V> {\n val result = LinkedHashMap<UByte, V>(mapCapacity(size).coerceAtLeast(16))\n return associateWithTo(result, valueSelector)\n}\n\n/\*\*\n \* Returns a [Map] where keys are elements from the given array and values are\n \* produced by the [valueSelector] function applied to each element.\n \* \n \* If any two elements are equal, the last one gets added to the map.\n \* \n \* The returned map preserves the entry iteration order of the original array.\n \* \n \* @sample samples.collections.Collections.Transformations.associateWith\n \*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V> UShortArray.associateWith(valueSelector: (UShort) -> V): Map<UShort, V> {\n val result = LinkedHashMap<UShort, V>(mapCapacity(size).coerceAtLeast(16))\n return associateWithTo(result, valueSelector)\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n \* where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n \* \n \* If any two elements are equal, the last one overwrites the former value in the map.\n \* \n \* @sample samples.collections.Collections.Transformations.associateWithTo\n \*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in UInt, in V>> UIntArray.associateWithTo(destination: M, valueSelector: (UInt) -> V): M {\n for (element in this) {\n destination.put(element, valueSelector(element))\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n \* where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n \* \n \* If any two elements are equal, the last one overwrites the former value in the map.\n \* \n \* @sample samples.collections.Collections.Transformations.associateWithTo\n \*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in ULong, in V>> ULongArray.associateWithTo(destination: M, valueSelector: (ULong) -> V): M {\n for (element in this) {\n destination.put(element, valueSelector(element))\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n \* where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n \* \n \* If any two elements are equal, the last one overwrites the former value in the map.\n \* \n \* @sample samples.collections.Collections.Transformations.associateWithTo\n \*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in UByte, in V>> UByteArray.associateWithTo(destination: M, valueSelector: (UByte) -> V): M {\n for (element in this) {\n destination.put(element, valueSelector(element))\n }\n return destination\n}\n\n/\*\*\n \* Populates and returns the [destination] mutable map with key-value pairs for each element of the given array,\n \* where key is the element itself and value is provided by the [valueSelector] function applied to that key.\n \* \n \* If any two elements are equal, the last one overwrites the former value in the map.\n \* \n \* @sample samples.collections.Collections.Transformations.associateWithTo\n \*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V, M : MutableMap<in UShort, in V>> UShortArray.associateWithTo(destination: M, valueSelector: (UShort) -> V): M {\n for (element in this) {\n destination.put(element, valueSelector(element))\n }\n return destination\n}\n\n/\*\*\n \* Returns a single list of all elements yielded from results of [transform] function being invoked on each element of original array.\n \* \n \* @sample samples.collections.Collections.Transformations.flatMap\n \*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>

```

UIntArray.flatMap(transform: (UInt) -> Iterable<R>): List<R> {\n  return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun <R> ULongArray.flatMap(transform: (ULong) -> Iterable<R>): List<R> {\n  return
flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of
[transform] function being invoked on each element of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UByteArray.flatMap(transform: (UByte) -> Iterable<R>): List<R> {\n  return flatMapTo(ArrayList<R>(),
transform)\n}\n\n/**\n * Returns a single list of all elements yielded from results of [transform] function being
invoked on each element of original array.\n * \n * @sample
samples.collections.Collections.Transformations.flatMap\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UShortArray.flatMap(transform: (UShort) -> Iterable<R>): List<R>
{\n  return flatMapTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UIntArray.flatMapIndexed(transform: (index: Int, UInt) -> Iterable<R>): List<R> {\n  return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original array.\n * \n *
@sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
ULongArray.flatMapIndexed(transform: (index: Int, ULong) -> Iterable<R>): List<R> {\n  return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original
array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UByteArray.flatMapIndexed(transform: (index: Int, UByte) -> Iterable<R>): List<R> {\n  return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Returns a single list of all elements yielded from
results of [transform] function being invoked on each element\n * and its index in the original
array.\n * \n * @sample samples.collections.Collections.Transformations.flatMapIndexed\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UShortArray.flatMapIndexed(transform: (index: Int, UShort) -> Iterable<R>): List<R> {\n  return
flatMapIndexedTo(ArrayList<R>(), transform)\n}\n\n/**\n * Appends all elements yielded from results of
[transform] function being invoked on each element\n * and its index in the original array, to the given
[destination].\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C :
MutableCollection<in R>> UIntArray.flatMapIndexedTo(destination: C, transform: (index: Int, UInt) ->
Iterable<R>): C {\n  var index = 0\n  for (element in this)

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    {\n    val list = transform(index++, element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> ULongArray.flatMapIndexedTo(destination: C, transform: (index: Int, ULong) -> Iterable<R>): C {\n  var index = 0\n  for (element in this) {\n    val list = transform(index++, element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UByteArray.flatMapIndexedTo(destination: C, transform: (index: Int, UByte) -> Iterable<R>): C {\n  var index = 0\n  for (element in this) {\n    val list = transform(index++, element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element\n * and its index in the original array, to the given [destination].\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UShortArray.flatMapIndexedTo(destination: C, transform: (index: Int, UShort) -> Iterable<R>): C {\n  var index = 0\n  for (element in this) {\n    val list = transform(index++, element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UIntArray.flatMapTo(destination: C, transform: (UInt) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> ULongArray.flatMapTo(destination: C, transform: (ULong) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UByteArray.flatMapTo(destination: C, transform: (UByte) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Appends all elements yielded from results of [transform] function being invoked on each element of original array, to the given [destination].\n */\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, C : MutableCollection<in R>> UShortArray.flatMapTo(destination: C, transform: (UShort) -> Iterable<R>): C {\n  for (element in this) {\n    val list = transform(element)\n    destination.addAll(list)\n  }\n  return destination\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map where each group key is associated with a list of corresponding elements.\n * The returned map preserves the entry iteration order of the keys produced from the original array.\n * @sample samples.collections.Collections.Transformations.groupBy\n */\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K> UIntArray.groupBy(keySelector: (UInt) -> K): Map<K, List<UInt>> {\n  return groupByTo(LinkedHashMap<K,

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MutableList<UInt>>(), keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the
given [keySelector] function\n * applied to each element and returns a map where each group key is associated
with a list of corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys
produced from the original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K>
ULongArray.groupBy(keySelector: (ULong) -> K): Map<K, List<ULong>> {\n return
groupByTo(LinkedHashMap<K, MutableList<ULong>>(), keySelector)\n}\n\n/**\n * Groups elements of the
original array by the key returned by the given [keySelector] function\n * applied to each element and returns a map
where each group key is associated with a list of corresponding elements.\n * \n * The returned map preserves the
entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K>
UByteArray.groupBy(keySelector:
(UByte) -> K): Map<K, List<UByte>> {\n return groupByTo(LinkedHashMap<K, MutableList<UByte>>(),
keySelector)\n}\n\n/**\n * Groups elements of the original array by the key returned by the given [keySelector]
function\n * applied to each element and returns a map where each group key is associated with a list of
corresponding elements.\n * \n * The returned map preserves the entry iteration order of the keys produced from the
original array.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K>
UShortArray.groupBy(keySelector: (UShort) -> K): Map<K, List<UShort>> {\n return
groupByTo(LinkedHashMap<K, MutableList<UShort>>(), keySelector)\n}\n\n/**\n * Groups values returned by
the [valueTransform] function applied to each element of the original array\n * by the key returned by the given
[keySelector] function applied to the element\n
* and returns a map where each group key is associated with a list of corresponding values.\n * \n * The returned
map preserves the entry iteration order of the keys produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V>
UIntArray.groupBy(keySelector: (UInt) -> K, valueTransform: (UInt) -> V): Map<K, List<V>> {\n return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values
returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by
the given [keySelector] function applied to the element\n * and returns a map where each group key is associated
with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys
produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V>
ULongArray.groupBy(keySelector: (ULong) -> K, valueTransform: (ULong) -> V): Map<K, List<V>> {\n return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values
returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by
the given [keySelector] function applied to the element\n * and returns a map where each group key is associated
with a list of corresponding values.\n * \n * The returned map preserves the entry iteration order of the keys
produced from the original array.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V>
UByteArray.groupBy(keySelector: (UByte) -> K,
valueTransform: (UByte) -> V): Map<K, List<V>> {\n return groupByTo(LinkedHashMap<K,
MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups values returned by the [valueTransform]
function applied to each element of the original array\n * by the key returned by the given [keySelector] function
applied to the element\n * and returns a map where each group key is associated with a list of corresponding

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values.\n * \n * The returned map preserves the entry iteration order of the keys produced from the original array.\n
* \n * @sample samples.collections.Collections.Transformations.groupByKeyAndValues\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V>
UShortArray.groupBy(keySelector: (UShort) -> K, valueTransform: (UShort) -> V): Map<K, List<V>> {\n return
groupByTo(LinkedHashMap<K, MutableList<V>>(), keySelector, valueTransform)\n}\n\n/**\n * Groups elements
of the original array by the key returned by the given
[keySelector] function\n * applied to each element and puts to the [destination] map each group key associated with
a list of corresponding elements.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M :
MutableMap<in K, MutableList<UInt>>> UIntArray.groupByTo(destination: M, keySelector: (UInt) -> K): M {\n
for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) {\n
ArrayList<UInt>() }\n list.add(element)\n }\n return destination\n}\n\n/**\n * Groups elements of the
original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the
[destination] map each group key associated with a list of corresponding elements.\n * \n * @return The
[destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M :
MutableMap<in K, MutableList<ULong>>> ULongArray.groupByTo(destination: M, keySelector: (ULong) ->
K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) {\n
ArrayList<ULong>() }\n list.add(element)\n }\n return destination\n}\n\n/**\n * Groups elements of the
original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the
[destination] map each group key associated with a list of corresponding elements.\n * \n * @return The
[destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M :
MutableMap<in K, MutableList<UByte>>> UByteArray.groupByTo(destination: M, keySelector: (UByte) ->
K): M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key)
{\n ArrayList<UByte>() }\n list.add(element)\n }\n return destination\n}\n\n/**\n * Groups elements of the
original array by the key returned by the given [keySelector] function\n * applied to each element and puts to the
[destination] map each group key associated with a list of corresponding elements.\n * \n * @return The
[destination] map.\n * \n * @sample samples.collections.Collections.Transformations.groupBy\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, M :
MutableMap<in K, MutableList<UShort>>> UShortArray.groupByTo(destination: M, keySelector: (UShort) -> K):
M {\n for (element in this) {\n val key = keySelector(element)\n val list = destination.getOrPut(key) {\n
ArrayList<UShort>() }\n list.add(element)\n }\n return destination\n}\n\n/**\n * Groups values
returned by the [valueTransform] function applied to each element of the original array\n * by the key returned by
the given [keySelector] function applied to the element\n * and puts to the [destination] map each group key
associated with a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeyAndValues\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V,
M : MutableMap<in K, MutableList<V>>> UIntArray.groupByTo(destination: M, keySelector: (UInt) -> K,
valueTransform: (UInt) -> V): M {\n for (element in this) {\n val key = keySelector(element)\n val list =
destination.getOrPut(key) {\n ArrayList<V>() }\n list.add(valueTransform(element))\n }\n return
destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the
original array\n * by the key returned by the given
[keySelector] function applied to the element\n * and puts to the [destination] map each group key associated with a
list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeyAndValues\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V,

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M : MutableMap<in K, MutableList<V>>> ULongArray.groupByTo(destination: M, keySelector: (ULong) -> K,
valueTransform: (ULong) -> V): M {\n  for (element in this) {\n    val key = keySelector(element)\n    val list
= destination.getOrPut(key) { ArrayList<V>() }\n    list.add(valueTransform(element))\n  }\n return
destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the
original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the
[destination] map each group key associated with
a list of corresponding values.\n * \n * @return The [destination] map.\n * \n * @sample
samples.collections.Collections.Transformations.groupByKeysAndValues\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V,
M : MutableMap<in K, MutableList<V>>> UByteArray.groupByTo(destination: M, keySelector: (UByte) -> K,
valueTransform: (UByte) -> V): M {\n  for (element in this) {\n    val key = keySelector(element)\n    val list
= destination.getOrPut(key) { ArrayList<V>() }\n    list.add(valueTransform(element))\n  }\n return
destination\n}\n\n/**\n * Groups values returned by the [valueTransform] function applied to each element of the
original array\n * by the key returned by the given [keySelector] function applied to the element\n * and puts to the
[destination] map each group key associated with a list of corresponding values.\n * \n * @return The [destination]
map.\n * \n * @sample samples.collections.Collections.Transformations.groupByKeysAndValues\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <K, V,
M : MutableMap<in K, MutableList<V>>> UShortArray.groupByTo(destination: M, keySelector: (UShort) -> K,
valueTransform: (UShort) -> V): M {\n  for (element in this) {\n    val key = keySelector(element)\n    val list
= destination.getOrPut(key) { ArrayList<V>() }\n    list.add(valueTransform(element))\n  }\n return
destination\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each
element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UIntArray.map(transform: (UInt) -> R): List<R> {\n  return mapTo(ArrayList<R>(size), transform)\n}\n\n/**\n *
Returns a list containing the results of applying the given [transform] function\n *
to each element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
ULongArray.map(transform: (ULong) -> R): List<R> {\n  return mapTo(ArrayList<R>(size),
transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each
element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UByteArray.map(transform: (UByte) -> R): List<R> {\n  return mapTo(ArrayList<R>(size),
transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each
element in the original array.\n * \n * @sample samples.collections.Collections.Transformations.map\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun <R> UShortArray.map(transform: (UShort) -> R): List<R> {\n  return mapTo(ArrayList<R>(size),
transform)\n}\n\n/**\n * Returns a list containing the results of applying the given [transform] function\n * to each
element and its index in the original array.\n * \n * @param [transform] function that takes the index of an element and
the element itself\n * and returns the result of the transform applied to the element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UIntArray.mapIndexed(transform: (index: Int, UInt) -> R): List<R> {\n  return
mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the
given [transform] function\n * to each element and its index in the original array.\n * \n * @param [transform] function
that takes the index of an element and the element itself\n * and returns the result of the transform applied to the
element.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
fun <R> ULongArray.mapIndexed(transform: (index: Int, ULong) -> R): List<R> {\n  return
mapIndexedTo(ArrayList<R>(size), transform)\n}\n\n/**\n * Returns a list containing the results of applying the
given [transform] function\n * to each element and its index in the original array.\n * \n * @param [transform] function

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that takes the index of an element and the element itself and returns the result of the transform applied to the element.

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline
fun <R> UByteArray.mapIndexed(transform: (index: Int, UByte) -> R): List<R> {
    return
    mapIndexedTo(ArrayList<R>(size), transform)
}

```

Returns a list containing the results of applying the given [transform] function to each element and its index in the original array.

@param [transform] function that takes the index of an element and the element itself and returns the result of the transform applied to the element.

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline fun <R>
UShortArray.mapIndexed(transform: (index: Int, UShort) -> R): List<R> {
    return
    mapIndexedTo(ArrayList<R>(size), transform)
}

```

Applies the given [transform] function to each element and its index in the original array and appends the results to the given [destination].

@param [transform] function that takes the index of an element and the element itself and returns the result of the transform applied to the element.

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline fun <R, C :
MutableCollection<in R>> UIntArray.mapIndexedTo(destination: C, transform: (index: Int, UInt) -> R): C {
    var index = 0
    for (item in this)
        destination.add(transform(index++, item))
    return destination
}

```

Applies the given [transform] function to each element and its index in the original array and appends the results to the given [destination].

@param [transform] function that takes the index of an element and the element itself and returns the result of the transform applied to the element.

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline fun <R, C :
MutableCollection<in R>> ULongArray.mapIndexedTo(destination: C, transform: (index: Int, ULong) -> R): C {
    var index = 0
    for (item in this)
        destination.add(transform(index++, item))
    return
    destination
}

```

Applies the given [transform] function to each element and its index in the original array and appends the results to the given [destination].

@param [transform] function that takes the index of an element and the element itself and returns the result of the transform applied to the element.

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public
inline fun <R, C : MutableCollection<in R>> UByteArray.mapIndexedTo(destination: C, transform: (index: Int,
UByte) -> R): C {
    var index = 0
    for (item in this)
        destination.add(transform(index++, item))
    return
    destination
}

```

Applies the given [transform] function to each element and its index in the original array and appends the results to the given [destination].

@param [transform] function that takes the index of an element and the element itself and returns the result of the transform applied to the element.

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline fun <R, C :
MutableCollection<in R>> UShortArray.mapIndexedTo(destination: C, transform: (index: Int, UShort) -> R): C {
    var index = 0
    for (item in this)
        destination.add(transform(index++, item))
    return
    destination
}

```

Applies the given [transform] function to each element of the original array and appends the results to the given [destination].

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline fun <R, C :
MutableCollection<in R>> UIntArray.mapTo(destination: C, transform: (UInt) -> R): C {
    for (item in this)
        destination.add(transform(item))
    return destination
}

```

Applies the given [transform] function to each element of the original array and appends the results to the given [destination].

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public inline fun <R, C :
MutableCollection<in R>> ULongArray.mapTo(destination: C, transform: (ULong) -> R): C {
    for (item in
    this)
        destination.add(transform(item))
    return destination
}

```

Applies the given [transform] function to each element of the original array and appends the results to the given [destination].

```

* Since Kotlin 1.3 ExperimentalUnsignedTypes kotlin.internal.InlineOnly public
inline fun <R, C : MutableCollection<in R>> UByteArray.mapTo(destination: C, transform: (UByte) -> R): C {
    for (item in this)
        destination.add(transform(item))
    return destination
}

```

Applies the given [transform] function to each element of the original array and appends the results to the given [destination].





```

fun UIntArray.any(predicate: (UInt) -> Boolean): Boolean {
    for (element in this) if (predicate(element)) return true
    return false
}
Returns `true` if at least one element matches the given [predicate].
@sample samples.collections.Collections.Aggregates.anyWithPredicate
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
ULongArray.any(predicate: (ULong) -> Boolean): Boolean {
    for (element in this) if (predicate(element)) return true
    return false
}
Returns `true` if at least one element matches the given [predicate].
@sample samples.collections.Collections.Aggregates.anyWithPredicate
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UByteArray.any(predicate: (UByte) -> Boolean): Boolean {
    for (element in this) if (predicate(element)) return true
    return false
}
Returns `true` if at least one element matches the given [predicate].
@sample samples.collections.Collections.Aggregates.anyWithPredicate
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UShortArray.any(predicate: (UShort) -> Boolean): Boolean {
    for (element in this) if (predicate(element)) return true
    return false
}
Returns the number of elements matching the given [predicate].
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UIntArray.count(predicate: (UInt) -> Boolean): Int {
    var count = 0
    for (element in this) if (predicate(element)) ++count
    return count
}
Returns the number of elements matching the given [predicate].
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
ULongArray.count(predicate: (ULong) -> Boolean): Int {
    var count = 0
    for (element in this) if (predicate(element)) ++count
    return count
}
Returns the number of elements matching the given [predicate].
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UByteArray.count(predicate: (UByte) -> Boolean): Int {
    var count = 0
    for (element in this) if (predicate(element)) ++count
    return count
}
Returns the number of elements matching the given [predicate].
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
UShortArray.count(predicate: (UShort) -> Boolean): Int {
    var count = 0
    for (element in this) if (predicate(element)) ++count
    return count
}
Accumulates value starting with [initial] value and applying [operation] from left to right
to current accumulator value and each element.
Returns the specified [initial] value if the array is empty.
@param [operation] function that takes current accumulator value and an element,
and calculates the next accumulator value.
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R>
UIntArray.fold(initial: R, operation: (acc: R, UInt) -> R): R {
    var accumulator = initial
    for (element in this) accumulator = operation(accumulator, element)
    return accumulator
}
Accumulates value starting with [initial] value and applying [operation] from left to right
to current accumulator value and each element.
Returns the specified [initial] value if the array is empty.
@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R>
ULongArray.fold(initial: R, operation: (acc: R, ULong) -> R): R {
    var accumulator = initial
    for (element in this) accumulator = operation(accumulator, element)
    return accumulator
}
Accumulates value starting with [initial] value and applying [operation] from left to right
to current accumulator value and each element.
Returns the specified [initial] value if the array is empty.
@param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.
*/
@SinceKotlin("1.3")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R>
UByteArray.fold(initial: R, operation: (acc: R, UByte) -> R): R {
    var accumulator = initial
    for (element in this) accumulator = operation(accumulator, element)
    return accumulator
}
Accumulates value starting with [initial] value and applying [operation] from left to right
to current accumulator value and each

```

element.\n \* \n \* Returns the specified [initial] value if the array is empty.\n \* \n \* @param [operation] function that takes current accumulator value and an element, and calculates

the next accumulator value.\n

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nUShortArray.fold(initial: R, operation: (acc: R, UShort) -> R): R {\n    var accumulator = initial\n    for (element in this) accumulator = operation(accumulator, element)\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nUIntArray.foldIndexed(initial: R, operation: (index: Int, acc: R, UInt) -> R): R {\n    var index = 0\n    var accumulator = initial\n    for (element in this) accumulator = operation(index++, accumulator, element)\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nULongArray.foldIndexed(initial: R, operation: (index: Int, acc: R, ULong) -> R): R {\n    var index = 0\n    var accumulator = initial\n    for (element in this) accumulator = operation(index++, accumulator, element)\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nUByteArray.foldIndexed(initial: R, operation: (index: Int, acc: R, UByte) -> R): R {\n    var index = 0\n    var accumulator = initial\n    for (element in this) accumulator = operation(index++, accumulator, element)\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nUShortArray.foldIndexed(initial: R, operation: (index: Int, acc: R, UShort) -> R): R {\n    var index = 0\n    var accumulator = initial\n    for (element in this) accumulator = operation(index++, accumulator, element)\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>\nUIntArray.foldRight(initial: R, operation: (UInt, acc: R) -> R): R {\n    var index = lastIndex\n    var accumulator = initial\n    while (index >= 0) {\n        accumulator = operation(get(index--), accumulator)\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with [initial] value and applying [operation] from right to left\n * to each element and current accumulator value.\n * \n * Returns the specified [initial] value if the array is empty.\n * \n * @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value.\n
```

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
```

```

ULongArray.foldRight(initial: R, operation: (ULong, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(get(index--), accumulator)
    }
    return accumulator
}

/** Accumulates value starting with [initial] value and applying [operation] from right to left to each element and current accumulator value. Returns the specified [initial] value if the array is empty. @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun <R>
UByteArray.foldRight(initial: R, operation: (UByte, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(get(index--), accumulator)
    }
    return accumulator
}

/** Accumulates value starting with [initial] value and applying [operation] from right to left to each element and current accumulator value. Returns the specified [initial] value if the array is empty. @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun <R>
UShortArray.foldRight(initial: R, operation: (UShort, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(get(index--), accumulator)
    }
    return accumulator
}

/** Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns the specified [initial] value if the array is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun <R>
UIntArray.foldRightIndexed(initial: R, operation: (index: Int, UInt, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/** Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns the specified [initial] value if the array is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun <R>
ULongArray.foldRightIndexed(initial: R, operation: (index: Int, ULong, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/** Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns the specified [initial] value if the array is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun <R>
UByteArray.foldRightIndexed(initial: R, operation: (index: Int, UByte, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

/** Accumulates value starting with [initial] value and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns the specified [initial] value if the array is empty. @param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value. */
@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly
public inline fun <R>
UShortArray.foldRightIndexed(initial: R, operation: (index: Int, UShort, acc: R) -> R): R {
    var index = lastIndex
    var accumulator = initial
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

```

accumulator)\n    --index\n    }\n    return accumulator\n}\n\n/**\n * Performs the given [action] on each
element.\n */\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
fun UIntArray.forEach(action: (UInt) -> Unit): Unit {\n    for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun ULongArray.forEach(action: (ULong) -> Unit): Unit {\n    for (element in this)
action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.forEach(action: (UByte) -> Unit): Unit {\n    for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.forEach(action: (UShort) -> Unit): Unit {\n    for (element in this) action(element)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element.\n * @param [action]
function that takes the index of an element and the element itself\n * and performs the action on the element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline
fun UIntArray.forEachIndexed(action: (index: Int, UInt) -> Unit): Unit {\n    var index = 0\n    for (item in this)
action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with
the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs
the action on the element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.forEachIndexed(action: (index: Int, ULong) -> Unit): Unit {\n    var index = 0\n    for (item in this)
action(index++, item)\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with
the element.\n * @param [action] function that takes the index of an element and the element itself\n * and performs
the action on the element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.forEachIndexed(action: (index: Int,
UByte) -> Unit): Unit {\n    var index = 0\n    for (item in this) action(index++, item)\n}\n\n/**\n * Performs the
given [action] on each element, providing sequential index with the element.\n * @param [action] function that
takes the index of an element and the element itself\n * and performs the action on the element.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.forEachIndexed(action: (index: Int, UShort) -> Unit): Unit {\n    var index = 0\n    for (item in this)
action(index++, item)\n}\n\n/**\n * Returns the largest element.\n * @throws NoSuchElementException if the
array is empty.\n */\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow-
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
UIntArray.max(): UInt {\n    if (isEmpty()) throw NoSuchElementException()\n    var max = this[0]\n    for (i in
1..lastIndex) {\n        val e = this[i]\n        if (max < e) max =
e\n    }\n    return max\n}\n\n/**\n * Returns the largest element.\n * @throws NoSuchElementException if the
array is empty.\n */\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow-
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
ULongArray.max(): ULong {\n    if (isEmpty()) throw NoSuchElementException()\n    var max = this[0]\n    for (i
in 1..lastIndex) {\n        val e = this[i]\n        if (max < e) max = e\n    }\n    return max\n}\n\n/**\n * Returns the
largest element.\n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow-
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
UByteArray.max(): UByte {\n    if (isEmpty()) throw NoSuchElementException()\n    var max = this[0]\n    for (i in
1..lastIndex) {\n        val e = this[i]\n        if (max < e) max = e\n    }\n    return max\n}\n\n/**\n * Returns the largest
element.\n * @throws

```

```

NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxOrThrow-
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
UShortArray.max(): UShort {\n    if (isEmpty()) throw NoSuchElementException()\n    var max = this[0]\n    for (i
in 1..lastIndex) {\n        val e = this[i]\n        if (max < e) max = e\n    }\n    return max\n}\n\n/**\n * Returns the first
element yielding the largest value of the given function.\n * \n * @throws NoSuchElementException if the array is
empty.\n * \n * @sample samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow-
U")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress("CONFLICTING_OVERLOADS
")\npublic inline fun <R : Comparable<R>> UIntArray.maxBy(selector: (UInt) -> R): UInt {\n    if (isEmpty())
throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if (lastIndex
== 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e = this[i]\n
val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow-
U")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress("CONFLICTING_OVERLOADS
")\npublic inline fun <R : Comparable<R>> ULongArray.maxBy(selector: (ULong) -> R): ULong {\n    if
(isEmpty()) throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if
(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow-
U")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress("CONFLICTING_OVERLOADS
")\npublic inline fun <R : Comparable<R>> UByteArray.maxBy(selector: (UByte) -> R): UByte {\n    if
(isEmpty()) throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if
(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function.\n * \n * @throws
NoSuchElementException if the array is empty.\n * \n * @sample
samples.collections.Collections.Aggregates.maxBy\n
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("maxByOrThrow-
U")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\n@Suppress("CONFLICTING_OVERLOADS
")\npublic inline fun <R : Comparable<R>> UShortArray.maxBy(selector: (UShort) -> R): UShort {\n    if
(isEmpty()) throw NoSuchElementException()\n    var maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if
(lastIndex == 0) return maxElem\n    var maxValue = selector(maxElem)\n    for (i in 1..lastIndex) {\n        val e =
this[i]\n        val v = selector(e)\n        if (maxValue < v) {\n            maxElem = e\n            maxValue = v\n        }\n    }\n    return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or
`null` if there are no elements.\n
*\n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UIntArray.maxByOrNull(selector: (UInt) -> R): UInt? {\n    if (isEmpty()) return null\n    var
maxElem = this[0]\n    val lastIndex = this.lastIndex\n    if (lastIndex == 0) return maxElem\n    var maxValue =

```

```

selector(maxElem)\n for (i in 1..lastIndex) {\n val e = this[i]\n val v = selector(e)\n if (maxValue < v)
{\n maxElem = e\n maxValue = v\n } } return maxElem\n}\n\n/**\n * Returns the first
element yielding the largest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.maxByOrNull\n
*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> ULongArray.maxByOrNull(selector: (ULong) -> R): ULong?
{\n if (isEmpty()) return null\n var maxElem = this[0]\n val lastIndex = this.lastIndex\n if (lastIndex == 0)
return maxElem\n var maxValue = selector(maxElem)\n for (i in 1..lastIndex) {\n val e = this[i]\n val v
= selector(e)\n if (maxValue < v) {\n maxElem = e\n maxValue = v\n } } return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are
no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n
*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UByteArray.maxByOrNull(selector: (UByte) -> R): UByte? {\n if (isEmpty()) return null\n
var maxElem = this[0]\n val lastIndex = this.lastIndex\n if (lastIndex == 0) return maxElem\n var maxValue =
selector(maxElem)\n for (i in 1..lastIndex) {\n val e = this[i]\n val
v = selector(e)\n if (maxValue < v) {\n maxElem = e\n maxValue = v\n } } return
maxElem\n}\n\n/**\n * Returns the first element yielding the largest value of the given function or `null` if there are
no elements.\n * \n * @sample samples.collections.Collections.Aggregates.maxByOrNull\n
*/\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UShortArray.maxByOrNull(selector: (UShort) -> R): UShort? {\n if (isEmpty()) return null\n
var maxElem = this[0]\n val lastIndex = this.lastIndex\n if (lastIndex == 0) return maxElem\n var maxValue =
selector(maxElem)\n for (i in 1..lastIndex) {\n val e = this[i]\n val v = selector(e)\n if (maxValue < v)
{\n maxElem = e\n maxValue = v\n } } return maxElem\n}\n\n/**\n * Returns the largest
value among all values produced by [selector] function\n * applied to each
element in the array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is
`NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.maxOf(selector: (UInt) -> Double): Double {\n if (isEmpty()) throw NoSuchElementException()\n
var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n maxValue =
maxOf(maxValue, v)\n } return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun ULongArray.maxOf(selector: (ULong) -> Double): Double {\n if (isEmpty()) throw
NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n maxValue = maxOf(maxValue, v)\n } return maxValue\n}\n\n/**\n * Returns the
largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If
any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*/\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.maxOf(selector: (UByte) -> Double): Double {\n if
(isEmpty()) throw NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n
val v = selector(this[i])\n maxValue = maxOf(maxValue, v)\n } return maxValue\n}\n\n/**\n * Returns
the largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n *
If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws

```

```

NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.maxOf(selector: (UShort) -> Double): Double {\n    if (isEmpty()) throw
NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the
array.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.maxOf(selector: (UInt) -> Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var
maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue =
maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.maxOf(selector: (ULong) -> Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n
var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue =
maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * \n *
@throws NoSuchElementException if the array is empty.\n
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inline fun UByteArray.maxOf(selector: (UByte) -> Float): Float {\n    if (isEmpty()) throw
NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the
largest value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If
any of values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n *
@throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.maxOf(selector: (UShort) -> Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n
var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n
        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all
values produced by [selector] function\n * applied to each element in the array.\n * \n *
@throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UIntArray.maxOf(selector: (UInt) -> R): R {\n    if (isEmpty()) throw
NoSuchElementException()\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        if (maxValue < v) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the
array.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic

```



```

inline fun <R : Comparable<R>> ULongArray.maxOf(selector: (ULong) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (maxValue < v) {
            maxValue = v
        }
    }
    return maxValue
}

Returns the largest value among all values produced by [selector] function
* applied to each element in the array.
* @throws NoSuchElementException if the array is empty.

* Since Kotlin("1.4")
* OptIn(kotlin.experimental.ExperimentalTypeInference::class)
* OverloadResolutionByLambdaReturnType
* ExperimentalUnsignedTypes
* kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>> UByteArray.maxOf(selector: (UByte) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (maxValue < v) {
            maxValue = v
        }
    }
    return maxValue
}

Returns the largest value among all values produced by [selector] function
* applied to each element in the array.
* @throws NoSuchElementException if the array is empty.

* Since Kotlin("1.4")
* OptIn(kotlin.experimental.ExperimentalTypeInference::class)
* OverloadResolutionByLambdaReturnType
* ExperimentalUnsignedTypes
* kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>> UShortArray.maxOf(selector: (UShort) -> R): R {
    if (isEmpty()) throw NoSuchElementException()
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (maxValue < v) {
            maxValue = v
        }
    }
    return maxValue
}

Returns the largest value among all values produced
by [selector] function
* applied to each element in the array or `null` if there are no elements.
* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.

* Since Kotlin("1.4")
* OptIn(kotlin.experimental.ExperimentalTypeInference::class)
* OverloadResolutionByLambdaReturnType
* ExperimentalUnsignedTypes
* kotlin.internal.InlineOnly
public inline fun UIntArray.maxOfOrNull(selector: (UInt) -> Double): Double? {
    if (isEmpty()) return null
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        maxValue = maxOf(maxValue, v)
    }
    return maxValue
}

Returns the largest value among all values produced by [selector] function
* applied to each element in the array or `null` if there are no elements.
* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.

* Since Kotlin("1.4")
* OptIn(kotlin.experimental.ExperimentalTypeInference::class)
* OverloadResolutionByLambdaReturnType
* ExperimentalUnsignedTypes
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public inline fun ULongArray.maxOfOrNull(selector: (ULong) -> Double): Double? {
    if (isEmpty()) return null
    var maxValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        maxValue = maxOf(maxValue, v)
    }
    return maxValue
}

Returns the largest value among all values produced by [selector] function
* applied to each element in the array or `null` if there are no elements.
* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.

* Since Kotlin("1.4")
* OptIn(kotlin.experimental.ExperimentalTypeInference::class)
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public inline fun UByteArray.maxOfOrNull(selector: (UByte) -> Double): Double? {
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    for (i in 1..lastIndex) {
        val v = selector(this[i])
        maxValue = maxOf(maxValue, v)
    }
    return maxValue
}

Returns the largest value among all values produced by [selector] function
* applied to each element in

```

the array or `null` if there are no elements. \n \* \n \* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`. \n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun\nUIntArray.maxOrNull(selector: (UInt) -> Float): Float? {\n    if (isEmpty()) return null\n    var maxValue =\n    selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector]\n * function is `NaN`, the returned result is `NaN`. \n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic\ninline fun ULongArray.maxOrNull(selector: (ULong) -> Float): Float? {\n    if (isEmpty()) return null\n    var\n    maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue =\n        maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced\n * by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of\n * values produced by [selector] function is `NaN`, the returned result is `NaN`. \n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun\nUByteArray.maxOrNull(selector: (UByte) -> Float): Float? {\n    if (isEmpty()) return null\n    var maxValue =\n    selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all\n * values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned result is `NaN`. \n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun\nUShortArray.maxOrNull(selector: (UShort) -> Float): Float? {\n    if (isEmpty()) return null\n    var maxValue =\n    selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        maxValue = maxOf(maxValue, v)\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic\ninline fun <R : Comparable<R>> UIntArray.maxOrNull(selector: (UInt) -> R): R? {\n    if (isEmpty()) return\n    null\n    var maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if\n        (maxValue < v) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value\n * among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no\n * elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :\nComparable<R>> ULongArray.maxOrNull(selector: (ULong) -> R): R? {\n    if (isEmpty()) return null\n    var\n    maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (maxValue < v) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :\nComparable<R>> UByteArray.maxOrNull(selector: (UByte) -> R): R? {\n    if (isEmpty()) return null\n    var\n    maxValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (maxValue < v) {\n            maxValue = v\n        }\n    }\n    return maxValue\n}\n\n/**\n * Returns the largest value among all values
```

```

produced by [selector] function\n * applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UShortArray.maxOfOrNull(selector: (UShort) -> R): R? {\n if (isEmpty()) return null\n var
maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (maxValue < v) {\n
maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value according to the
provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n *
\n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UIntArray.maxOfWith(comparator: Comparator<in R>,
selector: (UInt) -> R): R {\n if (isEmpty()) throw NoSuchElementException()\n var maxValue =
selector(this[0])\n for (i in 1..lastIndex) {\n val v = selector(this[i])\n if (comparator.compare(maxValue,
v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value
according to the provided [comparator]\n * among all values produced by [selector] function applied to each
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
ULongArray.maxOfWith(comparator: Comparator<in R>, selector: (ULong) -> R): R {\n if (isEmpty()) throw
NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n if (comparator.compare(maxValue,
v) < 0) {\n maxValue = v\n }\n }\n return maxValue\n}\n\n/**\n * Returns the largest value
according to the provided [comparator]\n * among all values produced by [selector] function applied to each
element in the array.\n * \n * @throws NoSuchElementException if the array is empty.\n
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UByteArray.maxOfWith(comparator: Comparator<in R>, selector: (UByte) -> R): R {\n if (isEmpty()) throw
NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values
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[selector] function applied to each element in the array.\n * \n * @throws NoSuchElementException if the array is
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
UShortArray.maxOfWith(comparator: Comparator<in R>, selector: (UShort) -> R): R {\n if (isEmpty()) throw
NoSuchElementException()\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values
produced by [selector] function applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun <R> UIntArray.maxOfWithOrNull(comparator: Comparator<in R>, selector: (UInt) -> R): R? {\n if
(isEmpty()) return null\n var maxValue = selector(this[0])\n for (i in 1..lastIndex) {\n val v =
selector(this[i])\n if (comparator.compare(maxValue, v) < 0) {\n maxValue = v\n }\n }\n return
maxValue\n}\n\n/**\n * Returns the largest value according to the provided [comparator]\n * among all values
produced by [selector] function applied to each element in the array or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

```



```

U()\n@ExperimentalUnsignedTypes\n@Suppress(\`CONFLICTING_OVERLOADS\`)npublic fun
UByteArray.maxWith(comparator: Comparator<in UByte>): UByte {\n if (isEmpty()) throw
NoSuchElementException()\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(max, e) < 0) max = e\n }\n return max\n}\n\n/**\n * Returns the first element having the
largest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is
empty.\n */\n@SinceKotlin(\`1.7\`)\n@kotlin.jvm.JvmName(\`maxWithOrThrow-
U()\n@ExperimentalUnsignedTypes\n@Suppress(\`CONFLICTING_OVERLOADS\`)npublic
fun UShortArray.maxWith(comparator: Comparator<in UShort>): UShort {\n if (isEmpty()) throw
NoSuchElementException()\n var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if
(comparator.compare(max, e) < 0) max = e\n }\n return max\n}\n\n/**\n * Returns the first element having the
largest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin(\`1.4\`)\n@ExperimentalUnsignedTypes\npublic fun UIntArray.maxWithOrNull(comparator:
Comparator<in UInt>): UInt? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n
val e = this[i]\n if (comparator.compare(max, e) < 0) max = e\n }\n return max\n}\n\n/**\n * Returns the
first element having the largest value according to the provided [comparator] or `null` if there are
no elements.\n */\n@SinceKotlin(\`1.4\`)\n@ExperimentalUnsignedTypes\npublic fun
ULongArray.maxWithOrNull(comparator: Comparator<in ULong>): ULong? {\n if (isEmpty()) return null\n
var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (comparator.compare(max, e) < 0) max =
e\n }\n return max\n}\n\n/**\n * Returns the first element having the largest value according to the provided
[comparator] or `null` if there are no elements.\n
*\n@SinceKotlin(\`1.4\`)\n@ExperimentalUnsignedTypes\npublic fun UByteArray.maxWithOrNull(comparator:
Comparator<in UByte>): UByte? {\n if (isEmpty()) return null\n var max = this[0]\n for (i in 1..lastIndex) {\n
val e = this[i]\n if (comparator.compare(max, e) < 0) max = e\n }\n return max\n}\n\n/**\n * Returns the
first element having the largest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin(\`1.4\`)\n@ExperimentalUnsignedTypes\npublic
fun UShortArray.maxWithOrNull(comparator: Comparator<in UShort>): UShort? {\n if (isEmpty()) return null\n
var max = this[0]\n for (i in 1..lastIndex) {\n val e = this[i]\n if (comparator.compare(max, e) < 0) max =
e\n }\n return max\n}\n\n/**\n * Returns the smallest element.\n * \n * @throws NoSuchElementException if
the array is empty.\n */\n@SinceKotlin(\`1.7\`)\n@kotlin.jvm.JvmName(\`minOrThrow-
U()\n@ExperimentalUnsignedTypes\n@Suppress(\`CONFLICTING_OVERLOADS\`)npublic fun
UIntArray.min(): UInt {\n if (isEmpty()) throw NoSuchElementException()\n var min = this[0]\n for (i in
1..lastIndex) {\n val e = this[i]\n if (min > e) min = e\n }\n return min\n}\n\n/**\n * Returns the smallest
element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin(\`1.7\`)\n@kotlin.jvm.JvmName(\`minOrThrow-
U()\n@ExperimentalUnsignedTypes\n@Suppress(\`CONFLICTING_OVERLOADS\`)npublic fun
ULongArray.min(): ULong
{\n if (isEmpty()) throw NoSuchElementException()\n var min = this[0]\n for (i in 1..lastIndex) {\n val e
= this[i]\n if (min > e) min = e\n }\n return min\n}\n\n/**\n * Returns the smallest element.\n * \n *
@throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin(\`1.7\`)\n@kotlin.jvm.JvmName(\`minOrThrow-
U()\n@ExperimentalUnsignedTypes\n@Suppress(\`CONFLICTING_OVERLOADS\`)npublic fun
UByteArray.min(): UByte {\n if (isEmpty()) throw NoSuchElementException()\n var min = this[0]\n for (i in
1..lastIndex) {\n val e = this[i]\n if (min > e) min = e\n }\n return min\n}\n\n/**\n * Returns the smallest
element.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin(\`1.7\`)\n@kotlin.jvm.JvmName(\`minOrThrow-
U()\n@ExperimentalUnsignedTypes\n@Suppress(\`CONFLICTING_OVERLOADS\`)npublic fun
UShortArray.min(): UShort {\n if (isEmpty()) throw NoSuchElementException()\n var min = this[0]\n

```

```

    for (i in 1..lastIndex) {
        val e = this[i]
        if (min > e) min = e
    }
    return min
}

/** Returns the first element yielding the smallest value of the given function.
 * @throws NoSuchElementException if the array is empty.
 * @sample samples.collections.Collections.Aggregates.minBy
 */
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <R : Comparable<R>> UIntArray.minBy(selector: (UInt) -> R): UInt {
    if (isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

/** Returns the first element yielding the smallest value of the given function.
 * @throws NoSuchElementException if the array is empty.
 * @sample samples.collections.Collections.Aggregates.minBy
 */
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <R : Comparable<R>> UIntArray.minBy(selector: (UInt) -> R): UInt? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

/** Returns the first element yielding the smallest value of the given function.
 * @throws NoSuchElementException if the array is empty.
 * @sample samples.collections.Collections.Aggregates.minBy
 */
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <R : Comparable<R>> ULongArray.minBy(selector: (ULong) -> R): ULong {
    if (isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

/** Returns the first element yielding the smallest value of the given function.
 * @throws NoSuchElementException if the array is empty.
 * @sample samples.collections.Collections.Aggregates.minBy
 */
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <R : Comparable<R>> UByteArray.minBy(selector: (UByte) -> R): UByte {
    if (isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

/** Returns the first element yielding the smallest value of the given function.
 * @throws NoSuchElementException if the array is empty.
 * @sample samples.collections.Collections.Aggregates.minBy
 */
@SinceKotlin("1.7")
@kotlin.jvm.JvmName("minByOrThrow")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
@Suppress("CONFLICTING_OVERLOADS")
public inline fun <R : Comparable<R>> UShortArray.minBy(selector: (UShort) -> R): UShort {
    if (isEmpty()) throw NoSuchElementException()
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

/** Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
 * @sample samples.collections.Collections.Aggregates.minByOrNull
 */
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>> UIntArray.minByOrNull(selector: (UInt) -> R): UInt? {
    if (isEmpty()) return null
    var minElem = this[0]
    val lastIndex = this.lastIndex
    if (lastIndex == 0) return minElem
    var minValue = selector(minElem)
    for (i in 1..lastIndex) {
        val e = this[i]
        val v = selector(e)
        if (minValue > v) {
            minElem = e
            minValue = v
        }
    }
    return minElem
}

/** Returns the first element yielding the smallest value of the given function or `null` if there are no elements.
 * @sample samples.collections.Collections.Aggregates.minByOrNull
 */
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>> ULongArray.minByOrNull(selector: (ULong) -> R): ULong? {
    if (isEmpty()) return null

```

```

var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return minElem\n  var minValue =
selector(minElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (minValue > v)
{\n      minElem = e\n      minValue = v\n    }\n  }\n  return minElem\n}\n\n/**\n * Returns the first
element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.minByOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UByteArray.minByOrNull(selector: (UByte) -> R): UByte? {\n  if (isEmpty()) return null\n
var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return minElem\n  var minValue =
selector(minElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (minValue > v)
{\n      minElem = e\n      minValue = v\n    }\n  }\n  return minElem\n}\n\n/**\n * Returns the first
element yielding the smallest value of the given function or `null` if there are no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.minByOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UShortArray.minByOrNull(selector: (UShort) -> R): UShort? {\n  if (isEmpty()) return null\n
var minElem = this[0]\n  val lastIndex = this.lastIndex\n  if (lastIndex == 0) return minElem\n  var minValue =
selector(minElem)\n  for (i in 1..lastIndex) {\n    val e = this[i]\n    val v = selector(e)\n    if (minValue > v)
{\n      minElem = e\n      minValue = v\n    }\n  }\n  return minElem\n}\n\n/**\n * Returns the smallest
value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UIntArray.minOf(selector: (UInt) -> Double): Double {\n  if (isEmpty()) throw
NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =
selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest
value among all values produced by [selector] function\n * applied to each element in the array.\n * \n * If any of
values produced by [selector] function is `NaN`, the returned result is `NaN`.\n * \n * @throws
NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.minOf(selector: (ULong) -> Double): Double {\n  if (isEmpty()) throw
NoSuchElementException()\n  var minValue
= selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue = minOf(minValue,
v)\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector]
function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`,
the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
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NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue =
minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by
[selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function
is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.minOf(selector: (UShort) -> Double): Double {\n  if (isEmpty()) throw
NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue =

```

```

minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n * \n *\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.minOf(selector: (UInt) -> Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var
minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue =
minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
by [selector] function\n * applied to each element in the array.\n * \n * If any of values produced by [selector]
function is `NaN`, the returned result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.minOf(selector:
(ULong) -> Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var minValue =
selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue = minOf(minValue, v)\n
    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector]
function\n * applied to each element in the array.\n * \n * If any of values produced by [selector] function is `NaN`,
the returned
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minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue =
minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector]
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the returned
result is `NaN`.\n * \n * @throws NoSuchElementException if the array is empty.\n
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.minOf(selector: (UShort) -> Float): Float {\n    if (isEmpty()) throw NoSuchElementException()\n    var
minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        minValue =
minOf(minValue, v)\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector]
function\n * applied to each element in the array.\n * \n * @throws NoSuchElementException if the
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UIntArray.minOf(selector: (UInt) -> R): R {\n    if (isEmpty()) throw
NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> ULongArray.minOf(selector: (ULong) -> R): R {\n    if (isEmpty())
throw NoSuchElementException()\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =
selector(this[i])\n        if (minValue > v) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the
array.\n * \n * @throws NoSuchElementException if the array is empty.\n
*\n * \n *\n */\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution

```



```

ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UByteArray.minOf(selector: (UByte) -> R): R {\n  if (isEmpty()) throw
NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =
selector(this[i])\n    if (minValue > v) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values
produced by [selector] function\n * applied to each element in the array.\n * \n * @throws
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R :
Comparable<R>> UShortArray.minOf(selector: (UShort) -> R): R {\n  if (isEmpty()) throw
NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v =
selector(this[i])\n    if (minValue > v) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to each element in the array
or `null` if there are no elements.\n * \n * If any of values produced by [selector] function is `NaN`, the returned
result is `NaN`.\n
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UIntArray.minOfOrNull(selector: (UInt) -> Double): Double? {\n  if (isEmpty()) return null\n  var
minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue =
minOf(minValue, v)\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value among all values produced
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.minOfOrNull(selector: (ULong) -> Double): Double? {\n  if (isEmpty()) return null\n  var minValue
= selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return
minValue\n}\n\n/**\n * Returns the smallest value among all values produced by [selector] function\n * applied to
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ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.minOfOrNull(selector: (UShort) -> Double): Double? {\n  if (isEmpty()) return null\n  var minValue
= selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    minValue = minOf(minValue, v)\n  }\n  return
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[selector] function is `NaN`, the returned result is `NaN`.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic

```

```

inline fun UIntArray.minOfOrNull(selector: (UInt) -> Float): Float? {
    if (isEmpty()) return null
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

```

\* Returns the smallest value among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.  
 \* If any of values produced by [selector] function is `NaN`, the returned result is `NaN`.

```

@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun
ULongArray.minOfOrNull(selector: (ULong) -> Float): Float? {
    if (isEmpty()) return null
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

```

\* Returns the smallest value among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.  
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```

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public inline fun
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    if (isEmpty()) return null
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
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```

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public inline fun
UShortArray.minOfOrNull(selector: (UShort) -> Float): Float? {
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    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        minValue = minOf(minValue, v)
    }
    return minValue
}

```

\* Returns the smallest value among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.

```

@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>>
UIntArray.minOfOrNull(selector: (UInt) -> R): R? {
    if (isEmpty()) return null
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (minValue > v) {
            minValue = v
        }
    }
    return minValue
}

```

\* Returns the smallest value among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.

```

@SinceKotlin("1.4")
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@kotlin.internal.InlineOnly
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    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (minValue > v) {
            minValue = v
        }
    }
    return minValue
}

```

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@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>>
UByteArray.minOfOrNull(selector: (UByte) -> R): R? {
    if (isEmpty()) return null
    var minValue = selector(this[0])
    for (i in 1..lastIndex) {
        val v = selector(this[i])
        if (minValue > v) {
            minValue = v
        }
    }
    return minValue
}

```

\* Returns the smallest value among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.

```

@SinceKotlin("1.4")
@OptIn(kotlin.experimental.ExperimentalTypeInference::class)
@OverloadResolutionByLambdaReturnType
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R : Comparable<R>>
UShortArray.minOfOrNull(selector: (UShort)

```

```

-> R): R? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (minValue > v) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * @throws NoSuchElementException if the array is empty.\n *\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.minOfWith(comparator: Comparator<in R>, selector: (UInt) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * @throws NoSuchElementException if the array is empty.\n *\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.minOfWith(comparator: Comparator<in R>, selector: (ULong) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * @throws NoSuchElementException if the array is empty.\n *\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.minOfWith(comparator: Comparator<in R>, selector: (UByte) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array.\n * @throws NoSuchElementException if the array is empty.\n *\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.minOfWith(comparator: Comparator<in R>, selector: (UShort) -> R): R {\n  if (isEmpty()) throw NoSuchElementException()\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n *\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (UInt) -> R): R? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n *\n */\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolutionByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (ULong) -> R): R? {\n  if (isEmpty()) return null\n  var minValue = selector(this[0])\n  for (i in 1..lastIndex) {\n    val v = selector(this[i])\n    if (comparator.compare(minValue, v) > 0) {\n      minValue = v\n    }\n  }\n  return minValue\n}\n\n/**\n * Returns the smallest value according to the provided [comparator]\n * among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n *\n */

```

Returns the smallest value according to the provided [comparator]\n

\* among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R>
```

```
UByteArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (UByte) -> R): R? {\n    if (isEmpty())\n        return null\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v = selector(this[i])\n        if (comparator.compare(minValue, v) > 0) {\n            minValue = v\n        }\n    }\n    return minValue\n}\n\n/**\n
```

Returns the smallest value according to the provided [comparator]\n \* among all values produced by [selector] function applied to each element in the array or `null` if there are no elements.\n

```
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
```

```
inline fun <R> UShortArray.minOfWithOrNull(comparator: Comparator<in R>, selector: (UShort) -> R): R? {\n    if (isEmpty()) return null\n    var minValue = selector(this[0])\n    for (i in 1..lastIndex) {\n        val v =\n            selector(this[i])\n        if (comparator.compare(minValue, v) > 0) {\n            minValue = v\n        }\n    }\n    return
```

minValue\n}\n\n/\*\*\n \* Returns the smallest element or `null` if there are no elements.\n

```
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.minOrNull(): UInt? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (min > e) min =\n            e\n    }\n    return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.minOrNull(): ULong? {\n    if (isEmpty()) return null\n
```

```
        var min = this[0]\n        for (i in 1..lastIndex) {\n            val e = this[i]\n            if (min > e) min = e\n        }\n        return
```

min\n}\n\n/\*\*\n \* Returns the smallest element or `null` if there are no elements.\n

```
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.minOrNull(): UByte? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (min > e) min =\n            e\n    }\n    return min\n}\n\n/**\n * Returns the smallest element or `null` if there are no elements.\n
```

```
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.minOrNull(): UShort? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (min > e) min =\n            e\n    }\n    return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
```

[comparator].\n \* \n \* @throws NoSuchElementException if the array is empty.\n

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow-
```

```
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic
```

```
fun UIntArray.minWith(comparator: Comparator<in UInt>): UInt {\n    if (isEmpty()) throw
```

```
NoSuchElementException()\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if
```

```
(comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is
```

empty.\n \* \n \* @throws NoSuchElementException if the array is empty.\n

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow-
```

```
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
```

```
ULongArray.minWith(comparator: Comparator<in ULong>): ULong {\n    if (isEmpty()) throw
```

```
NoSuchElementException()\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if
```

```
(comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n
```

\* Returns the first element having the smallest value according to the provided [comparator].\n \* \n \* @throws

NoSuchElementException if the array is empty.\n

```
*\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow-
```

```
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
```

```
UByteArray.minWith(comparator: Comparator<in UByte>): UByte {\n    if (isEmpty()) throw
```

```
NoSuchElementException()\n    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if
```

```
(comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n * Returns the first element having the
```

```

smallest value according to the provided [comparator].\n * \n * @throws NoSuchElementException if the array is
empty.\n *\n@SinceKotlin("1.7")\n@kotlin.jvm.JvmName("minWithOrThrow-
U")\n@ExperimentalUnsignedTypes\n@Suppress("CONFLICTING_OVERLOADS")\npublic fun
UShortArray.minWith(comparator: Comparator<in UShort>): UShort {\n    if (isEmpty()) throw
NoSuchElementException()\n
    var min = this[0]\n    for (i in 1..lastIndex) {\n        val e = this[i]\n        if (comparator.compare(min, e) > 0) min =
e\n    }\n    return min\n}\n\n/**\n * Returns the first element having the smallest value according to the provided
[comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UIntArray.minWithOrNull(comparator:
Comparator<in UInt>): UInt? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n
        val e = this[i]\n        if (comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n * Returns the first
element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun ULongArray.minWithOrNull(comparator:
Comparator<in ULong>): ULong? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n
        val
        e = this[i]\n        if (comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n * Returns the first
element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UByteArray.minWithOrNull(comparator:
Comparator<in UByte>): UByte? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n
        val e = this[i]\n        if (comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n * Returns the
first element having the smallest value according to the provided [comparator] or `null` if there are no elements.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\npublic fun UShortArray.minWithOrNull(comparator:
Comparator<in UShort>): UShort? {\n    if (isEmpty()) return null\n    var min = this[0]\n    for (i in 1..lastIndex) {\n
        val e = this[i]\n        if (comparator.compare(min, e) > 0) min = e\n    }\n    return min\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n * @sample
samples.collections.Collections.Aggregates.none\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.none(): Boolean {\n    return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n *
@sample samples.collections.Collections.Aggregates.none\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.none(): Boolean {\n    return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n *
@sample samples.collections.Collections.Aggregates.none\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.none(): Boolean {\n    return isEmpty()\n}\n\n/**\n * Returns `true` if the array has no elements.\n * \n *
@sample samples.collections.Collections.Aggregates.none\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UShortArray.none(): Boolean {\n    return isEmpty()\n}\n\n/**\n * Returns `true` if no elements match
the given [predicate].\n * \n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.none(predicate: (UInt) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return
false\n    return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.none(predicate: (ULong) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return
false\n    return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n
*\n * @sample samples.collections.Collections.Aggregates.noneWithPredicate\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.none(predicate: (UByte) -> Boolean): Boolean {\n    for (element in this) if (predicate(element)) return

```

```

false\n    return true\n}\n\n/**\n * Returns `true` if no elements match the given [predicate].\n * \n * @sample
samples.collections.Collections.Aggregates.noneWithPredicate\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.none(predicate: (UShort) -> Boolean): Boolean {\n    for (element in this) if (predicate(element))
return false\n    return true\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself
afterwards.\n *\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UIntArray.onEach(action: (UInt) -> Unit): UIntArray {\n    return apply { for (element
in this) action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself
afterwards.\n *\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun ULongArray.onEach(action: (ULong) -> Unit): ULongArray {\n    return apply { for (element in this)
action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself
afterwards.\n *\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UByteArray.onEach(action: (UByte) -> Unit): UByteArray {\n    return apply { for (element in this)
action(element) }\n}\n\n/**\n * Performs the given [action] on each element and returns the array itself
afterwards.\n *\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UShortArray.onEach(action: (UShort) -> Unit): UShortArray {\n    return apply { for (element in this)
action(element) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and returns the
array itself afterwards.\n * @param [action] function that takes the index of an element and the element itself\n *
and performs the action on the element.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.onEachIndexed(action: (index: Int, UInt) -> Unit): UIntArray {\n    return apply {
forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index
with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an
element and the element itself\n * and performs the action on the element.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.onEachIndexed(action: (index: Int, ULong) -> Unit): ULongArray {\n    return apply {
forEachIndexed(action)
}\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index with the element,\n * and
returns the array itself afterwards.\n * @param [action] function that takes the index of an element and the element
itself\n * and performs the action on the element.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.onEachIndexed(action: (index: Int, UByte) -> Unit): UByteArray {\n    return apply {
forEachIndexed(action) }\n}\n\n/**\n * Performs the given [action] on each element, providing sequential index
with the element,\n * and returns the array itself afterwards.\n * @param [action] function that takes the index of an
element and the element itself\n * and performs the action on the element.\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.onEachIndexed(action: (index: Int, UShort) -> Unit): UShortArray {\n    return apply {
forEachIndexed(action)
}\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to
current accumulator value and each element.\n * \n * Throws an exception if this array is empty. If the array can be
empty in an expected way,\n * please use [reduceOrNull] instead. It returns `null` when its receiver is empty.\n * \n
* @param [operation] function that takes current accumulator value and an element,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reduce(operation: (acc: UInt, UInt) -> UInt): UInt {\n    if (isEmpty())\n        throw
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in
1..lastIndex) {\n        accumulator = operation(accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n *

```

Accumulates value starting with the first element and applying [operation] from left to right  
\* to current accumulator value and each element.  
\* Throws an exception if this array is empty. If the array can be empty in an expected way,  
\* please use [reduceOrNull] instead. It returns `null` when its receiver is empty.  
\* @param [operation] function that takes current accumulator value and an element,  
\* and calculates the next accumulator value.

```
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
ULongArray.reduce(operation: (acc: ULong, ULong) -> ULong): ULong {\n    if (isEmpty())\n        throw  
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in  
1..lastIndex) {\n        accumulator = operation(accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting
```

with the first element and applying [operation] from left to right  
\* to current accumulator value and each element.  
\* Throws an exception if this array is empty. If the array can be empty in an expected way,  
\* please use [reduceOrNull] instead. It returns `null` when its receiver is empty.  
\* @param [operation] function that takes current accumulator value and an element,  
\* and calculates the next accumulator value.

```
@sample samples.collections.Collections.Aggregates.reduce\n*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
UByteArray.reduce(operation: (acc: UByte, UByte) -> UByte): UByte {\n    if (isEmpty())\n        throw  
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in  
1..lastIndex) {\n        accumulator = operation(accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element
```

and applying [operation] from left to right  
\* to current accumulator value and each element.  
\* Throws an exception if this array is empty. If the array can be empty in an expected way,  
\* please use [reduceOrNull] instead. It returns `null` when its receiver is empty.  
\* @param [operation] function that takes current accumulator value and an element,  
\* and calculates the next accumulator value.

```
@sample samples.collections.Collections.Aggregates.reduce\n*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
UShortArray.reduce(operation: (acc: UShort, UShort) -> UShort): UShort {\n    if (isEmpty())\n        throw  
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in  
1..lastIndex) {\n        accumulator = operation(accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation]
```

from left to right  
\* to current accumulator value and each element with its index in the original array.  
\* Throws an exception if this array is empty. If the array can be empty in an expected way,  
\* please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.  
\* @param [operation] function that takes the index of an element, current accumulator value and the element itself,  
\* and calculates the next accumulator value.

```
@sample samples.collections.Collections.Aggregates.reduce\n*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
UIntArray.reduceIndexed(operation: (index: Int, acc: UInt, UInt) -> UInt): UInt {\n    if (isEmpty())\n        throw  
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in  
1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return  
accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right
```

with the first element and applying [operation] from left to right  
\* to current accumulator value and each element with its index in the original array.  
\* Throws an exception if this array is empty. If the array can be empty in an expected way,  
\* please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.  
\* @param [operation] function that takes the index of an element, current accumulator value and the element itself,  
\* and calculates the next accumulator value.

```
@sample samples.collections.Collections.Aggregates.reduce\n*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun  
ULongArray.reduceIndexed(operation: (index: Int, acc: ULong, ULong) -> ULong): ULong {\n    if (isEmpty())\n
```

```

throw UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for
(index in 1..lastIndex) {\n        accumulator = operation(index,
accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first
element and applying [operation] from left to right\n * to current accumulator value and each element with its index
in the original array.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected
way,\n * please use [reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param
[operation] function that takes the index of an element, current accumulator value and the element itself,\n * and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n
*\n*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.reduceIndexed(operation: (index: Int, acc: UByte, UByte) -> UByte): UByte {\n    if (isEmpty())\n    throw UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator
= this[0]\n    for (index in 1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from
left to right\n * to current accumulator value and each element with its index in the original array.\n * \n * Throws
an exception if this array is empty. If the array can be empty in an expected way,\n * please use
[reduceIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n * @param [operation] function
that takes the index of an element, current accumulator value and the element itself,\n * and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.reduce\n
*\n*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.reduceIndexed(operation: (index: Int, acc: UShort, UShort) -> UShort): UShort {\n    if (isEmpty())\n    throw
UnsupportedOperationException("Empty array can't be reduced.")\n    var accumulator = this[0]\n    for (index in
1..lastIndex) {\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return
accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to
right\n * to current accumulator value and each element with its index in the original array.\n * \n * Returns `null`
if the array is empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator
value and the element itself,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reduceIndexedOrNull(operation: (index: Int, acc: UInt, UInt) -> UInt): UInt? {\n    if (isEmpty())\n    return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex)
{\n        accumulator = operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current
accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is
empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the
element itself,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.reduceIndexedOrNull(operation: (index: Int, acc: ULong, ULong) -> ULong): ULong? {\n    if
(isEmpty())\n    return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator =
operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting with the first element and applying [operation] from left to right\n * to current
accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is
empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the
element itself,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.reduceIndexedOrNull(operation: (index: Int, acc: UByte, UByte) -> UByte): UByte? {\n    if

```



```

(isEmpty())\n    return null\n    var accumulator = this[0]\n    for (index in 1..lastIndex) {\n        accumulator =
operation(index, accumulator, this[index])\n    }\n    return accumulator\n}\n\n/**\n * Accumulates value starting
with the first element and applying [operation] from left to right\n * to
current accumulator value and each element with its index in the original array.\n * \n * Returns `null` if the array is
empty.\n * \n * @param [operation] function that takes the index of an element, current accumulator value and the
element itself,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.reduceIndexedOrNull(operation: (index: Int, acc: UShort, UShort) -> UShort): UShort? {\n    if
(isEmpty())\n        return null\n        var accumulator = this[0]\n        for (index in 1..lastIndex) {\n            accumulator =
operation(index, accumulator, this[index])\n        }\n        return accumulator\n}\n\n/**\n * Accumulates value starting
with the first element and applying [operation] from left to right\n * to current accumulator value and each
element.\n * \n * Returns `null` if the array is empty.\n * \n * @param
[operation] function that takes current accumulator value and an element,\n * and calculates the next accumulator
value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reduceOrNull(operation: (acc: UInt, UInt) -> UInt): UInt?
{\n    if (isEmpty())\n        return null\n        var accumulator = this[0]\n        for (index in 1..lastIndex) {\n
            accumulator = operation(accumulator, this[index])\n        }\n        return accumulator\n}\n\n/**\n * Accumulates value
starting with the first element and applying [operation] from left to right\n * to current accumulator value and each
element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current
accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun ULongArray.reduceOrNull(operation: (acc: ULong, ULong) ->
ULong): ULong? {\n    if (isEmpty())\n        return null\n        var accumulator = this[0]\n        for (index in 1..lastIndex)
{\n            accumulator = operation(accumulator, this[index])\n        }\n        return accumulator\n}\n\n/**\n * Accumulates value
starting with the first element and applying [operation] from left to right\n * to current accumulator value and
each element.\n * \n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current
accumulator value and an element,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic
inline fun UByteArray.reduceOrNull(operation: (acc: UByte, UByte) -> UByte): UByte? {\n    if (isEmpty())\n
return null\n        var accumulator = this[0]\n        for (index in 1..lastIndex) {\n            accumulator =
operation(accumulator, this[index])\n        }\n        return accumulator\n}\n\n/**\n * Accumulates value starting with the
first element and applying [operation] from left to right\n * to current accumulator value and each element.\n * \n *
Returns `null` if the array is empty.\n * \n * @param [operation] function that takes current accumulator value and
an element,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceOrNull\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UShortArray.reduceOrNull(operation: (acc: UShort, UShort) ->
UShort): UShort? {\n    if (isEmpty())\n        return null\n        var accumulator
= this[0]\n        for (index in 1..lastIndex) {\n            accumulator = operation(accumulator, this[index])\n        }\n
return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is empty. If the
array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n *

```

```

and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reduceRight(operation: (UInt, acc: UInt) -> UInt): UInt {\n  var index = lastIndex\n  if (index < 0)
throw UnsupportedOperationException("Empty array can't be reduced.")\n  var accumulator
= get(index--)\n  while (index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is empty. If the
array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n *
and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.reduceRight(operation: (ULong, acc: ULong) -> ULong): ULong {\n  var index = lastIndex\n  if
(index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")\n  var accumulator
= get(index--)\n  while (index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is empty. If the
array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null` when its
receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator value,\n *
and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.reduceRight(operation: (UByte, acc: UByte) -> UByte): UByte {\n  var index = lastIndex\n  if (index
< 0) throw UnsupportedOperationException("Empty array can't be reduced.")\n  var
accumulator = get(index--)\n  while (index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n
}\n  return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation]
from right to left\n * to each element and current accumulator value.\n * \n * Throws an exception if this array is
empty. If the array can be empty in an expected way,\n * please use [reduceRightOrNull] instead. It returns `null`
when its receiver is empty.\n * \n * @param [operation] function that takes an element and current accumulator
value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.reduceRight(operation: (UShort, acc: UShort) -> UShort): UShort {\n  var index = lastIndex\n  if
(index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")\n
var accumulator = get(index--)\n  while (index >= 0) {\n    accumulator = operation(get(index--),
accumulator)\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and
applying [operation] from right to left\n * to each element with its index in the original array and current
accumulator value.\n * \n * Throws an exception if this array is empty. If the array can be empty in an expected
way,\n * please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.\n * \n *
@param [operation] function that takes the index of an element, the element itself and current accumulator value,\n
* and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRight\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reduceRightIndexed(operation: (index: Int, UInt, acc: UInt) -> UInt): UInt {\n  var index = lastIndex\n
if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")\n  var accumulator =
get(index--)\n  while (index >= 0) {\n    accumulator = operation(index, get(index), accumulator)\n    --index\n
}\n  return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation]

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from right to left to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

*^@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly\npublic inline
fun ULongArray.reduceRightIndexed(operation: (index: Int, ULong, acc: ULong) -> ULong): ULong {
    var index = lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

*^@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.reduceRightIndexed(operation: (index: Int, UByte, acc: UByte) -> UByte): UByte {
    var index = lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Throws an exception if this array is empty. If the array can be empty in an expected way, please use [reduceRightIndexedOrNull] instead. It returns `null` when its receiver is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

*^@SinceKotlin("1.3")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.reduceRightIndexed(operation: (index: Int, UShort, acc: UShort) -> UShort): UShort {
    var index = lastIndex
    if (index < 0) throw UnsupportedOperationException("Empty array can't be reduced.")
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

*^@SinceKotlin("1.4")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.reduceRightIndexedOrNull(operation: (index: Int, UInt, acc: UInt) -> UInt): UInt? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(index, get(index), accumulator)
        --index
    }
    return accumulator
}

```

Accumulates value starting with the last element and applying [operation] from right to left to each element with its index in the original array and current accumulator value. Returns `null` if the array is empty.

@param [operation] function that takes the index of an element, the element itself and current accumulator value, and calculates the next accumulator value.

```

*^@SinceKotlin("1.4")@ExperimentalUnsignedTypes@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.reduceRightIndexedOrNull(operation: (index: Int, ULong, acc: ULong) -> ULong): ULong? {
    var

```

```

index = lastIndex\n  if (index < 0) return null\n  var accumulator = get(index--)\n  while (index >= 0) {\n
accumulator = operation(index, get(index), accumulator)\n    --index\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to left\n * to each element with its index in the original array and current accumulator value.\n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UByteArray.reduceRightIndexedOrNull(operation: (index: Int, UByte, acc: UByte) -> UByte): UByte?
{\n  var index = lastIndex\n  if (index < 0) return null\n  var accumulator = get(index--)\n  while (index >= 0)
{\n    accumulator = operation(index, get(index), accumulator)\n    --index\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element with its index in the original array and current accumulator value.\n * Returns `null` if
the array is empty.\n * \n * @param [operation] function that takes the index of an element, the element itself and
current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UShortArray.reduceRightIndexedOrNull(operation: (index: Int, UShort, acc: UShort) -> UShort):
UShort? {\n  var index = lastIndex\n  if (index < 0) return null\n  var accumulator = get(index--)\n  while (index
>= 0) {\n    accumulator = operation(index, get(index), accumulator)\n    --index\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element and applying [operation] from right to
left\n * to each element and current accumulator value.\n * Returns `null` if the array is empty.\n * \n * @param
[operation] function that takes an element and current accumulator value,\n * and calculates the next accumulator
value.\n * \n * @sample samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UIntArray.reduceRightOrNull(operation: (UInt, acc: UInt) -> UInt):
UInt? {\n
  var index = lastIndex\n  if (index < 0) return null\n  var accumulator = get(index--)\n  while (index >= 0) {\n
accumulator = operation(get(index--), accumulator)\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value
starting with the last element and applying [operation] from right to left\n * to each element and current accumulator
value.\n * Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and
current accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun ULongArray.reduceRightOrNull(operation: (ULong, acc: ULong) ->
ULong): ULong? {\n  var index = lastIndex\n  if (index < 0) return null\n  var accumulator = get(index--)\n
while (index >= 0) {\n    accumulator
= operation(get(index--), accumulator)\n  }\n  return accumulator\n}\n\n/**\n * Accumulates value starting with
the last element and applying [operation] from right to left\n * to each element and current accumulator value.\n *
Returns `null` if the array is empty.\n * \n * @param [operation] function that takes an element and current
accumulator value,\n * and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.reduceRightOrNull\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun UByteArray.reduceRightOrNull(operation: (UByte, acc: UByte) ->
UByte): UByte? {\n  var index = lastIndex\n  if (index < 0) return null\n  var accumulator = get(index--)\n
while (index >= 0) {\n    accumulator = operation(get(index--), accumulator)\n  }\n  return
accumulator\n}\n\n/**\n * Accumulates value starting with the last element

```

and applying [operation] from right to left to each element and current accumulator value. Returns null if the array is empty. @param [operation] function that takes an element and current accumulator value, and calculates the next accumulator value. @sample

```

samples.collections.Collections.Aggregates.reduceRightOrNull
*/
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@WasExperimental(ExperimentalStdlibApi::class)
@kotlin.internal.InlineOnly
public inline fun UShortArray.reduceRightOrNull(operation: (UShort, acc: UShort) -> UShort): UShort? {
    var index = lastIndex
    if (index < 0) return null
    var accumulator = get(index--)
    while (index >= 0) {
        accumulator = operation(get(index--), accumulator)
    }
    return accumulator
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element and current accumulator value that starts with [initial] value. Note that acc value passed to [operation] function should not be mutated; otherwise it would affect the previous value in resulting list. @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value. @sample

```

samples.collections.Collections.Aggregates.runningFold
*/
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R> UIntArray.runningFold(initial: R, operation: (acc: R, UInt) -> R): List<R> {
    if (isEmpty()) return listOf(initial)
    val result = ArrayList<R>(size + 1).apply { add(initial) }
    var accumulator = initial
    for (element in this) {
        accumulator = operation(accumulator, element)
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element and current accumulator value that starts with [initial] value. Note that acc value passed to [operation] function should not be mutated; otherwise it would affect the previous value in resulting list. @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value. @sample

```

samples.collections.Collections.Aggregates.runningFold
*/
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R> ULongArray.runningFold(initial: R, operation: (acc: R, ULong) -> R): List<R> {
    if (isEmpty()) return listOf(initial)
    val result = ArrayList<R>(size + 1).apply { add(initial) }
    var accumulator = initial
    for (element in this) {
        accumulator = operation(accumulator, element)
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element and current accumulator value that starts with [initial] value. Note that acc value passed to [operation] function should not be mutated; otherwise it would affect the previous value in resulting list. @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value. @sample

```

samples.collections.Collections.Aggregates.runningFold
*/
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R> UByteArray.runningFold(initial: R, operation: (acc: R, UByte) -> R): List<R> {
    if (isEmpty()) return listOf(initial)
    val result = ArrayList<R>(size + 1).apply { add(initial) }
    var accumulator = initial
    for (element in this) {
        accumulator = operation(accumulator, element)
        result.add(accumulator)
    }
    return result
}

```

Returns a list containing successive accumulation values generated by applying [operation] from left to right to each element and current accumulator value that starts with [initial] value. Note that acc value passed to [operation] function should not be mutated; otherwise it would affect the previous value in resulting list. @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value. @sample

```

samples.collections.Collections.Aggregates.runningFold
*/
@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
@kotlin.internal.InlineOnly
public inline fun <R> UShortArray.runningFold(initial: R, operation: (acc: R, UShort) -> R): List<R> {
    if (isEmpty()) return listOf(initial)
    val result = ArrayList<R>(size + 1).apply { add(initial) }
    var accumulator = initial
    for (element in this) {
        accumulator = operation(accumulator, element)
        result.add(accumulator)
    }
    return result
}

```

return result\n}\n\n/\*\*\n \* Returns a list containing successive accumulation values generated by applying [operation] from left to right\n \* to each element, its index in the original array and current accumulator value that starts with [initial] value.\n \* \n \* Note that `acc` value passed to [operation] function should not be mutated;\n \* otherwise it would affect the previous value in resulting list.\n \* \n \* @param [operation] function that takes the index of an element, current accumulator value\n \* and the element itself, and calculates the next accumulator value.\n \* \n \* @sample samples.collections.Collections.Aggregates.runningFold\n

```

*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, UInt) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\n    for (index in indices) {\n        accumulator = operation(index, accumulator, this[index])\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n

```

```

*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, ULong) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\n    for (index in indices) {\n        accumulator = operation(index, accumulator, this[index])\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n

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```

*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, UByte) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\n    for (index in indices) {\n        accumulator = operation(index, accumulator, this[index])\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningFold\n

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*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.runningFoldIndexed(initial: R, operation: (index: Int, acc: R, UShort) -> R): List<R> {\n    if (isEmpty()) return listOf(initial)\n    val result = ArrayList<R>(size + 1).apply { add(initial) }\n    var accumulator = initial\n    for (index in indices) {\n        accumulator = operation(index, accumulator, this[index])\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n * to each element and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n

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* @sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.runningReduce(operation: (acc: UInt, UInt) -> UInt): List<UInt> {\n if (isEmpty()) return
emptyList()\n var accumulator = this[0]\n val result = ArrayList<UInt>(size).apply { add(accumulator) }\n for
(index in 1 until size) {\n accumulator = operation(accumulator, this[index])\n result.add(accumulator)\n
}\n return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with the first element of
this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value
and an element,
and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.runningReduce(operation: (acc: ULong, ULong) -> ULong): List<ULong> {\n if (isEmpty()) return
emptyList()\n var accumulator = this[0]\n val result = ArrayList<ULong>(size).apply { add(accumulator) }\n
for (index in 1 until size) {\n accumulator = operation(accumulator, this[index])\n result.add(accumulator)\n
}\n return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with the first element of
this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation]
function that takes current accumulator value and an element, and calculates the next accumulator value.\n * \n *
@sample samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.runningReduce(operation: (acc: UByte, UByte) -> UByte): List<UByte> {\n if (isEmpty()) return
emptyList()\n var accumulator = this[0]\n val result = ArrayList<UByte>(size).apply { add(accumulator) }\n
for (index in 1 until size) {\n accumulator = operation(accumulator, this[index])\n result.add(accumulator)\n
}\n return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element and current accumulator value that starts with the first element of
this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the
previous value in resulting list.\n * \n * @param [operation] function that takes current accumulator value and an
element, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.runningReduce(operation: (acc: UShort, UShort) -> UShort): List<UShort> {\n if (isEmpty()) return
emptyList()\n var accumulator = this[0]\n val result = ArrayList<UShort>(size).apply { add(accumulator) }\n
for (index in 1 until size) {\n accumulator = operation(accumulator, this[index])\n result.add(accumulator)\n
}\n return result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying
[operation] from left to right\n * to each element, its index in the original array and current accumulator value that
starts with the first element of this array.\n * \n * Note that
`acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n *
and the element itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.runningReduceIndexed(operation: (index: Int, acc: UInt, UInt) -> UInt): List<UInt> {\n if (isEmpty())
return emptyList()\n var accumulator = this[0]\n val result = ArrayList<UInt>(size).apply { add(accumulator)
}\n for (index in 1 until size) {\n accumulator = operation(index, accumulator, this[index])\n
}

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result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation
values generated by applying [operation] from left to right\n
 * to each element, its index in the original array and current accumulator value that starts with the first element of
this array.\n * \n * Note that `acc` value passed to [operation] function should not be mutated;\n * otherwise it would
affect the previous value in resulting list.\n * \n * @param [operation] function that takes the index of an element,
current accumulator value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.runningReduceIndexed(operation: (index: Int, acc: ULong, ULong) -> ULong): List<ULong> {\n    if
(isEmpty()) return emptyList()\n    var accumulator = this[0]\n    val result = ArrayList<ULong>(size).apply {
add(accumulator) }\n    for (index in 1 until size) {\n        accumulator = operation(index, accumulator, this[index])\n
        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive accumulation
values generated by applying
[operation] from left to right\n * to each element, its index in the original array and current accumulator value that
starts with the first element of this array.\n * \n * Note that `acc` value passed to [operation] function should not be
mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that
takes the index of an element, current accumulator value\n * and the element itself, and calculates the next
accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.runningReduce\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.runningReduceIndexed(operation: (index: Int, acc: UByte, UByte) -> UByte): List<UByte> {\n    if
(isEmpty()) return emptyList()\n    var accumulator = this[0]\n    val result = ArrayList<UByte>(size).apply
{ add(accumulator) }\n    for (index in 1 until size) {\n        accumulator = operation(index, accumulator,
this[index])\n        result.add(accumulator)\n    }\n    return result\n}\n\n/**\n * Returns a list containing successive
accumulation values generated by applying [operation] from left to right\n * to each element, its index in the original
array and current accumulator value that starts with the first element of this array.\n * \n * Note that `acc` value
passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting
list.\n * \n * @param [operation] function that takes the index of an element, current accumulator value\n * and the
element itself, and calculates the next accumulator value.\n * \n * @sample
samples.collections.Collections.Aggregates.runningReduce\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.runningReduceIndexed(operation: (index: Int,
acc: UShort, UShort) -> UShort): List<UShort> {\n    if (isEmpty()) return emptyList()\n    var accumulator =
this[0]\n    val result = ArrayList<UShort>(size).apply { add(accumulator) }\n    for (index in 1 until size) {\n
accumulator = operation(index, accumulator, this[index])\n        result.add(accumulator)\n    }\n    return
result\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation] from
left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc`
value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic
inline fun <R> UIntArray.scan(initial: R, operation: (acc: R, UInt) -> R): List<R> {\n    return runningFold(initial,
operation)\n}\n\n/**\n * Returns a list containing successive accumulation values generated by applying [operation]
from left to right\n * to each element and current accumulator value that starts with [initial] value.\n * \n * Note that
`acc` value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
resulting list.\n * \n * @param [operation] function that takes current accumulator value and an element, and
calculates the next accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
*/\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n

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@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.scan(initial: R, operation: (acc: R, ULong) -> R):
List<R> {\n    return runningFold(initial, operation)\n}\n\n/**\n
    * Returns a list containing successive accumulation values generated by applying [operation] from left to right\n *
    to each element and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to
    [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n *
    @param [operation] function that takes current accumulator value and an element, and calculates the next
    accumulator value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
    */\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.scan(initial: R, operation: (acc: R, UByte) -> R):
List<R> {\n    return runningFold(initial, operation)\n}\n\n/**\n
    * Returns a list containing successive accumulation
    values generated by applying [operation] from left to right\n * to each element and current accumulator
    value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function should not be
    mutated;\n * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that
    takes current accumulator value and an element, and calculates the next accumulator value.\n * \n * @sample
    samples.collections.Collections.Aggregates.scan\n
    */\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.scan(initial: R, operation: (acc: R, UShort) -> R):
List<R> {\n    return runningFold(initial, operation)\n}\n\n/**\n
    * Returns a list containing successive accumulation
    values generated by applying [operation] from left to right\n * to each element, its index in the original array and
    current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed to [operation] function
    should not be mutated;\n
    * otherwise it would affect the previous value in resulting list.\n * \n * @param [operation] function that takes the
    index of an element, current accumulator value\n * and the element itself, and calculates the next accumulator
    value.\n * \n * @sample samples.collections.Collections.Aggregates.scan\n
    */\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun <R> UIntArray.scanIndexed(initial: R, operation: (index: Int, acc: R,
    UInt) -> R): List<R> {\n    return runningFoldIndexed(initial, operation)\n}\n\n/**\n
    * Returns a list containing
    successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in
    the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed
    to [operation] function should not be mutated;\n * otherwise it would affect the previous value in resulting list.\n *
    \n *
    @param [operation] function that takes the index of an element, current accumulator value\n * and the element
    itself, and calculates the next accumulator value.\n * \n * @sample
    samples.collections.Collections.Aggregates.scan\n
    */\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun <R> ULongArray.scanIndexed(initial: R, operation: (index: Int, acc:
    R, ULong) -> R): List<R> {\n    return runningFoldIndexed(initial, operation)\n}\n\n/**\n
    * Returns a list
    containing successive accumulation values generated by applying [operation] from left to right\n * to each element,
    its index in the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc`
    value passed to [operation] function should not be mutated;\n * otherwise it would affect the previous value in
    resulting list.\n * \n * @param [operation] function that takes the index of an element, current accumulator
    value\n * and the element itself, and calculates the next accumulator value.\n * \n * @sample
    samples.collections.Collections.Aggregates.scan\n
    */\n\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n
@kotlin.internal.InlineOnly\npublic inline fun <R> UByteArray.scanIndexed(initial: R, operation: (index: Int, acc:
    R, UByte) -> R): List<R> {\n    return runningFoldIndexed(initial, operation)\n}\n\n/**\n
    * Returns a list containing
    successive accumulation values generated by applying [operation] from left to right\n * to each element, its index in
    the original array and current accumulator value that starts with [initial] value.\n * \n * Note that `acc` value passed
    to [operation] function should not be mutated;\n

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to [operation] function should not be mutated;\n \* otherwise it would affect the previous value in resulting list.\n \*  
\n \* @param [operation] function that takes the index of an element, current accumulator value\n \* and the element itself, and calculates the next accumulator value.\n \* \n \* @sample samples.collections.Collections.Aggregates.scan\n

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*\n@SinceKotlin("1.4")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun <R> UShortArray.scanIndexed(initial: R, operation: (index: Int, acc: R, UShort) -> R): List<R> {\n    return runningFoldIndexed(initial, operation)\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumBy(selector: (UInt) -> UInt): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumBy(selector: (ULong) -> UInt): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumBy(selector: (UByte) -> UInt): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumBy(selector: (UShort) -> UInt): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumByDouble(selector: (UInt) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumByDouble(selector: (ULong) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumByDouble(selector: (UByte) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in the array.\n */\n@Deprecated("Use sumOf instead.", ReplaceWith("this.sumOf(selector)"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UShortArray.sumByDouble(selector: (UShort) -> Double): Double {\n    var sum: Double = 0.0\n    for (element in

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this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfDouble")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector:
(UInt) -> Double): Double {\n  var sum: Double = 0.toDouble()\n  for (element in this) {\n    sum +=
selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each
element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfDouble")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector:
(ULong) -> Double): Double {\n  var sum: Double = 0.toDouble()\n  for (element in this) {\n    sum +=
selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfDouble")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.sumOf(selector: (UByte) -> Double): Double {\n  var sum: Double = 0.toDouble()\n  for (element in
this) {\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfDouble")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.sumOf(selector:
(UShort) -> Double): Double {\n  var sum: Double = 0.toDouble()\n  for (element in this) {\n    sum +=
selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function
applied to each element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfInt")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UIntArray.sumOf(selector: (UInt) -> Int): Int {\n  var sum: Int = 0.toInt()\n  for (element in this) {\n
sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector]
function applied to each element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfInt")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.sumOf(selector:
(ULong) -> Int): Int {\n  var sum: Int = 0.toInt()\n  for (element in this) {\n    sum += selector(element)\n  }\n
return sum\n}\n\n/**\n * Returns the sum of all values produced by [selector] function applied to each element in
the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfInt")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun UByteArray.sumOf(selector: (UByte) -> Int): Int {\n  var sum: Int = 0.toInt()\n  for (element in this)
{\n    sum += selector(element)\n  }\n  return sum\n}\n\n/**\n * Returns the sum of all values produced by
[selector] function applied to each element in the array.\n
*\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfInt")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.sumOf(selector:

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(UShort) -> Int): Int {\n    var sum: Int = 0.toInt()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all values produced by [selector] function applied to each element in the array.\n\n*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfLong")\n\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UIntArray.sumOf(selector: (UInt)\n-> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all values produced by [selector] function applied to each element in\nthe array.\n\n*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfLong")\n\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun ULongArray.sumOf(selector:\n(ULong) -> Long): Long {\n    var\n    sum: Long = 0.toLong()\n    for (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all values produced by [selector] function applied to each element in the array.\n\n*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfLong")\n\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun UByteArray.sumOf(selector:\n(UByte) -> Long): Long {\n    var sum: Long = 0.toLong()\n    for (element in this) {\n        sum +=\n        selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all values produced by [selector] function\napplied to each element in the array.\n\n*\n\n@SinceKotlin("1.4")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfLong")\n\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic\n    inline fun UShortArray.sumOf(selector: (UShort) -> Long): Long {\n        var sum: Long = 0.toLong()\n        for\n        (element in this) {\n            sum += selector(element)\n        }\n        return sum\n}\n\n/* Returns the sum of all values\nproduced by [selector] function applied to each element in the array.\n\n*\n\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfUInt")\n\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inline\nOnly\npublic inline fun UIntArray.sumOf(selector: (UInt) -> UInt): UInt {\n    var sum: UInt = 0.toUInt()\n    for\n    (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all values\nproduced by [selector] function applied to each element in the array.\n\n*\n\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfUInt")\n\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inline\nOnly\npublic\n    inline fun ULongArray.sumOf(selector: (ULong) -> UInt): UInt {\n        var sum: UInt = 0.toUInt()\n        for (element in\n        this) {\n            sum += selector(element)\n        }\n        return sum\n}\n\n/* Returns the sum of all values produced by\n[selector] function applied to each element in the array.\n\n*\n\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfUInt")\n\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inline\nOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> UInt): UInt {\n    var sum: UInt = 0.toUInt()\n    for\n    (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all\nvalues produced by [selector] function applied to each element in the array.\n\n*\n\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution\nByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfUInt")\n\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inline\nOnly\npublic inline fun UShortArray.sumOf(selector: (UShort) -> UInt): UInt {\n    var sum: UInt = 0.toUInt()\n    for\n    (element in this) {\n        sum += selector(element)\n    }\n    return sum\n}\n\n/* Returns the sum of all\nvalues produced by [selector] function applied to each element in the array.

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n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inline
Only\npublic inline fun UShortArray.sumOf(selector: (UShort) -> UInt): UInt {\n    var sum: UInt = 0.toUInt()\n
for (element in this) {\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all
values produced by [selector] function applied to each element in the array.\n
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfULong\
")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inli
neOnly\npublic
inline fun UIntArray.sumOf(selector: (UInt) -> ULong): ULong {\n    var sum: ULong = 0.toULong()\n    for
(element in this) {\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all values
produced by [selector] function applied to each element in the array.\n
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfULong\
")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inli
neOnly\npublic inline fun ULongArray.sumOf(selector: (ULong) -> ULong): ULong {\n    var sum: ULong =
0.toULong()\n    for (element in this) {\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns
the sum of all values produced by [selector]
function applied to each element in the array.\n
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfULong\
")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inli
neOnly\npublic inline fun UByteArray.sumOf(selector: (UByte) -> ULong): ULong {\n    var sum: ULong =
0.toULong()\n    for (element in this) {\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns
the sum of all values produced by [selector] function applied to each element in the array.\n
*\n@SinceKotlin("1.5")\n@OptIn(kotlin.experimental.ExperimentalTypeInference::class)\n@OverloadResolution
ByLambdaReturnType\n@Suppress("INAPPLICABLE_JVM_NAME")\n@kotlin.jvm.JvmName("sumOfULong\
")\n@ExperimentalUnsignedTypes\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.Inli
neOnly\npublic inline
fun UShortArray.sumOf(selector: (UShort) -> ULong): ULong {\n    var sum: ULong = 0.toULong()\n    for
(element in this) {\n    sum += selector(element)\n    }\n    return sum\n}\n\n/**\n * Returns a list of pairs built
from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the
shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UIntArray.zip(other: Array<out
R>): List<Pair<UInt, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from
the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest
collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> ULongArray.zip(other:
Array<out R>): List<Pair<ULong, R>>
{\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this`
array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n *
@sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UByteArray.zip(other: Array<out
R>): List<Pair<UByte, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built
from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the
shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UShortArray.zip(other:
Array<out R>): List<Pair<UShort, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of
values built from the elements of `this` array

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and the [other] array with the same index\n \* using the provided [transform] function applied to each pair of elements.\n \* The returned list has length of the shortest collection.\n \* \n \* @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n

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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
UIntArray.zip(other: Array<out R>, transform: (a: UInt, b: R) -> V): List<V> {\n    val size = minOf(size,
other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i], other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array
with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned
list has length of the shortest collection.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun <R, V> ULongArray.zip(other: Array<out R>, transform: (a: ULong, b: R) -> V): List<V> {\n    val size
= minOf(size, other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n
list.add(transform(this[i], other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements
of `this` array and the [other] array with the same index\n * using the provided [transform] function applied to each
pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
UByteArray.zip(other: Array<out R>, transform: (a: UByte, b: R) -> V): List<V> {\n    val size = minOf(size,
other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i],
other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the
[other] array with the same index\n * using the provided [transform] function applied to each pair of elements.\n *
The returned list has length of the shortest collection.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
UShortArray.zip(other: Array<out R>, transform: (a: UShort, b: R) -> V): List<V> {\n    val size = minOf(size,
other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i],
other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` collection and [other] array with
the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UIntArray.zip(other:
Iterable<R>): List<Pair<UInt, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs
built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of
the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> ULongArray.zip(other:
Iterable<R>): List<Pair<ULong, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs
built from the elements of `this` collection and [other] array with the same index.\n * The returned list has length of
the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UByteArray.zip(other:
Iterable<R>):
List<Pair<UByte, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the
elements of `this` collection and [other] array with the same index.\n * The returned list has length of the shortest
collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun <R> UShortArray.zip(other:
Iterable<R>): List<Pair<UShort, R>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of
values built from the elements of `this` array and the [other] collection with the same index\n * using the provided
[transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n *
\n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n

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*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
UIntArray.zip(other:
    Iterable<R>, transform: (a: UInt, b: R) -> V): List<V> {\n    val arraySize = size\n    val list =
    ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n    var i = 0\n    for (element in other) {\n
    if (i >= arraySize) break\n        list.add(transform(this[i++], element))\n    }\n    return list\n}\n\n/**\n * Returns a
    list of values built from the elements of `this` array and the [other] collection with the same index\n * using the
    provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest
    collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
ULongArray.zip(other: Iterable<R>, transform: (a: ULong, b: R) -> V): List<V> {\n    val arraySize = size\n    val
    list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n    var i = 0\n    for (element in
    other) {\n        if (i >= arraySize) break\n        list.add(transform(this[i++], element))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] collection with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
UByteArray.zip(other: Iterable<R>, transform: (a: UByte, b: R) -> V): List<V> {\n    val arraySize = size\n    val list
    = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n    var i = 0\n    for (element in other) {\n
    if (i >= arraySize) break\n        list.add(transform(this[i++], element))\n    }\n    return list\n}\n\n/**\n * Returns a
    list of values built from the elements of `this` array and
    the [other] collection with the same index\n * using the provided [transform] function applied to each pair of
    elements.\n * The returned list has length of the shortest collection.\n * \n * @sample
    samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <R, V>
UShortArray.zip(other: Iterable<R>, transform: (a: UShort, b: R) -> V): List<V> {\n    val arraySize = size\n    val
    list = ArrayList<V>(minOf(other.collectionSizeOrDefault(10), arraySize))\n    var i = 0\n    for (element in other)
    {\n        if (i >= arraySize) break\n        list.add(transform(this[i++], element))\n    }\n    return list\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample
    samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
    infix fun UIntArray.zip(other: UIntArray): List<Pair<UInt, UInt>> {\n    return zip(other) { t1, t2 -> t1 to t2
    }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with the same
    index.\n * The returned list has length of the shortest collection.\n * \n * @sample
    samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun ULongArray.zip(other: ULongArray):
    List<Pair<ULong, ULong>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built
    from the elements of `this` array and the [other] array with the same index.\n * The returned list has length of the
    shortest collection.\n * \n * @sample samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun UByteArray.zip(other: UByteArray):
    List<Pair<UByte, UByte>> {\n    return zip(other) { t1,
    t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of pairs built from the elements of `this` array and the [other] array with
    the same index.\n * The returned list has length of the shortest collection.\n * \n * @sample
    samples.collections.Iterables.Operations.zipIterable\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic infix fun UShortArray.zip(other: UShortArray):
    List<Pair<UShort, UShort>> {\n    return zip(other) { t1, t2 -> t1 to t2 }\n}\n\n/**\n * Returns a list of values built
    from the elements of `this` array and the [other] array with the same index\n * using the provided [transform]
    function applied to each pair of elements.\n * The returned list has length of the shortest array.\n * \n * @sample

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samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V>
UIntArray.zip(other: UIntArray, transform: (a: UInt, b: UInt) -> V): List<V> {\n    val size = minOf(size,
    other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i], other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array
with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned
list has length of the shortest array.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V>
ULongArray.zip(other: ULongArray, transform: (a: ULong, b: ULong) -> V): List<V> {\n    val size = minOf(size,
other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i], other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array
with the same index\n * using the
provided [transform] function applied to each pair of elements.\n * The returned list has length of the shortest
array.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun <V>
UByteArray.zip(other: UByteArray, transform: (a: UByte, b: UByte) -> V): List<V> {\n    val size = minOf(size,
other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n        list.add(transform(this[i], other[i]))\n    }\n    return list\n}\n\n/**\n * Returns a list of values built from the elements of `this` array and the [other] array
with the same index\n * using the provided [transform] function applied to each pair of elements.\n * The returned
list has length of the shortest array.\n * \n * @sample
samples.collections.Iterables.Operations.zipIterableWithTransform\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic
inline fun <V> UShortArray.zip(other: UShortArray, transform: (a: UShort, b: UShort) -> V): List<V> {\n    val
size = minOf(size, other.size)\n    val list = ArrayList<V>(size)\n    for (i in 0 until size) {\n
list.add(transform(this[i], other[i]))\n    }\n    return list\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*\n@kotlin.jvm.JvmName("sumOfUInt")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedT
ypes::class)\npublic fun Array<out UInt>.sum(): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n
sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*\n@kotlin.jvm.JvmName("sumOfULong")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Array<out ULong>.sum(): ULong {\n    var sum: ULong = 0uL\n    for (element in this)
{\n    sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*\n@kotlin.jvm.JvmName("sumOfUByte")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic
fun Array<out UByte>.sum(): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n    sum += element\n
}\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*\n@kotlin.jvm.JvmName("sumOfUShort")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsigned
Types::class)\npublic fun Array<out UShort>.sum(): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n
sum += element\n    }\n    return sum\n}\n\n/**\n * Returns the sum of all elements in the array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UIntArray.sum(): UInt {\n    return storage.sum().toUInt()\n}\n\n/**\n * Returns the sum of all elements in the
array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
ULongArray.sum(): ULong {\n    return storage.sum().toULong()\n}\n\n/**\n
* Returns the sum of all elements in the array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UByteArray.sum(): UInt {\n    return sumOf { it.toUInt() }\n}\n\n/**\n * Returns the sum of all elements in the
array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\n@kotlin.internal.InlineOnly\npublic inline fun
UShortArray.sum(): UInt {\n    return sumOf { it.toUInt() }\n}\n\n", "*/\n * Copyright 2010-2022 JetBrains s.r.o. and

```



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```
*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("UCollectionsKt")\n\npackage kotlin.collections\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.random.*\nimport kotlin.ranges.contains\nimport
```

```
kotlin.ranges.reversed\n\n * Returns an array of UByte containing all of the elements of this collection.\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Collection<UByte>.toUByteArray(): UByteArray {\n    val result = UByteArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return result\n}\n\n * Returns an array of UInt containing all of the elements of this collection.\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Collection<UInt>.toUIntArray(): UIntArray {\n    val result = UIntArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return result\n}\n\n * Returns an array of ULong containing all of the elements of this collection.\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Collection<ULong>.toULongArray(): ULongArray {\n    val result = ULongArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return result\n}\n\n * Returns an array of UShort containing all of the elements of this collection.\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Collection<UShort>.toUShortArray(): UShortArray {\n    val result = UShortArray(size)\n    var index = 0\n    for (element in this)\n        result[index++] = element\n    return result\n}\n\n * Returns the sum of all elements in the collection.\n\n@kotlin.jvm.JvmName("sumOfUInt")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Iterable<UInt>.sum(): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n * Returns the sum of all elements in the collection.\n\n@kotlin.jvm.JvmName("sumOfULong")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Iterable<ULong>.sum(): ULong {\n    var sum: ULong = 0uL\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n * Returns the sum of all elements in the collection.\n\n@kotlin.jvm.JvmName("sumOfUByte")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Iterable<UByte>.sum(): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n * Returns the sum of all elements in the collection.\n\n@kotlin.jvm.JvmName("sumOfUShort")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Iterable<UShort>.sum(): UInt {\n    var sum: UInt = 0u\n    for (element in this) {\n        sum += element\n    }\n    return sum\n}\n\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
```

```
*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("UComparisonsKt")\n\npackage kotlin.comparisons\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.random.*\n\n * Returns the greater of two values.\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: UInt, b: UInt): UInt {\n    return if (a >= b) a else b\n}\n\n * Returns the greater of two values.\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: ULong, b: ULong): ULong {\n    return if (a >= b) a else b\n}\n\n * Returns the greater of two values.\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: UByte, b: UByte): UByte {\n    return if (a >= b) a else b\n}\n\n * Returns the greater of two values.\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun maxOf(a: UShort, b: UShort): UShort {\n    return if (a >= b) a else b\n}\n\n * Returns the greater of three values.\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly
```

```

public inline fun maxOf(a: UInt, b: UInt, c: UInt): UInt {
    return maxOf(a, maxOf(b, c))
}
// Returns the greater of three values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun maxOf(a: ULong, b: ULong, c: ULong): ULong {
    return maxOf(a, maxOf(b, c))
}
// Returns the greater of three values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun maxOf(a: UByte, b: UByte, c: UByte): UByte {
    return maxOf(a, maxOf(b, c))
}
// Returns the greater of three values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun maxOf(a: UShort, b: UShort, c: UShort): UShort {
    return maxOf(a, maxOf(b, c))
}
// Returns the greater of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun maxOf(a: UInt, vararg other: UInt): UInt {
    var max = a
    for (e in other) max = maxOf(max, e)
    return max
}
// Returns the greater of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun maxOf(a: ULong, vararg other: ULong): ULong {
    var max = a
    for (e in other) max = maxOf(max, e)
    return max
}
// Returns the greater of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun maxOf(a: UByte, vararg other: UByte): UByte {
    var max = a
    for (e in other) max = maxOf(max, e)
    return max
}
// Returns the greater of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun maxOf(a: UShort, vararg other: UShort): UShort {
    var max = a
    for (e in other) max = maxOf(max, e)
    return max
}
// Returns the smaller of two values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
public fun minOf(a: UInt, b: UInt): UInt {
    return if (a <= b) a else b
}
// Returns the smaller of two values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
public fun minOf(a: ULong, b: ULong): ULong {
    return if (a <= b) a else b
}
// Returns the smaller of two values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
public fun minOf(a: UByte, b: UByte): UByte {
    return if (a <= b) a else b
}
// Returns the smaller of two values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
public fun minOf(a: UShort, b: UShort): UShort {
    return if (a <= b) a else b
}
// Returns the smaller of two values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun minOf(a: UInt, b: UInt, c: UInt): UInt {
    return minOf(a, minOf(b, c))
}
// Returns the smaller of three values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun minOf(a: ULong, b: ULong, c: ULong): ULong {
    return minOf(a, minOf(b, c))
}
// Returns the smaller of three values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun minOf(a: UByte, b: UByte, c: UByte): UByte {
    return minOf(a, minOf(b, c))
}
// Returns the smaller of three values.

@SinceKotlin("1.5")
@WasExperimental(ExperimentalUnsignedTypes::class)
@kotlin.internal.InlineOnly
public inline fun minOf(a: UShort, b: UShort, c: UShort): UShort {
    return minOf(a, minOf(b, c))
}
// Returns the smaller of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun minOf(a: UInt, vararg other: UInt): UInt {
    var min = a
    for (e in other) min = minOf(min, e)
    return min
}
// Returns the smaller of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun minOf(a: ULong, vararg other: ULong): ULong {
    var min = a
    for (e in other) min = minOf(min, e)
    return min
}
// Returns the smaller of the given values.

@SinceKotlin("1.4")
@ExperimentalUnsignedTypes
public fun minOf(a: UByte, vararg other: UByte): UByte {
    var min = a
    for (e in other) min = minOf(min, e)
    return min
}
// Returns the smaller of the given values.

```

```

Returns the smaller of the given values.
 * Since Kotlin("1.4")
 @ExperimentalUnsignedTypes
 public fun
 minOf(a: UShort, vararg other: UShort): UShort {
     var min = a
     for (e in other) min = minOf(min, e)
     return min
 }

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 *
 * @file: kotlin.jvm.JvmMultifileClass
 * @file: kotlin.jvm.JvmName("URangesKt")
 * @package
 kotlin.ranges
 * // NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt
 * // See:
 https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib
 * //
 * import kotlin.random.*
 * Returns the
 first element.
 * @throws NoSuchElementException if the progression is empty.
 *
 * Since Kotlin("1.7")
 public fun UIntProgression.first(): UInt {
     if (isEmpty())
         throw
 NoSuchElementException("Progression $this is empty.")
     return this.first()
 }

 * Returns the first
 element.
 * @throws NoSuchElementException if the progression is empty.
 *
 * Since Kotlin("1.7")
 public fun ULongProgression.first(): ULong {
     if (isEmpty())
         throw
 NoSuchElementException("Progression $this is empty.")
     return this.first()
 }

 * Returns the first element, or `null` if the progression is empty.
 * Since Kotlin("1.7")
 public fun
 UIntProgression.firstOrNull(): UInt? {
     return if (isEmpty()) null else this.first()
 }

 * Returns the first
 element, or `null` if the progression is empty.
 * Since Kotlin("1.7")
 public fun
 ULongProgression.firstOrNull(): ULong? {
     return if (isEmpty()) null else this.first()
 }

 * Returns the last
 element.
 * @throws NoSuchElementException if the progression is empty.
 * @sample
 samples.collections.Collections.Elements.last
 * Since Kotlin("1.7")
 public fun UIntProgression.last(): UInt
 {
     if (isEmpty())
         throw NoSuchElementException("Progression $this is empty.")
     return
 this.last()
 }

 * Returns the last element.
 * @throws NoSuchElementException if the progression is
 empty.
 * @sample
 samples.collections.Collections.Elements.last
 * Since Kotlin("1.7")
 public fun
 ULongProgression.last(): ULong
 {
     if (isEmpty())
         throw NoSuchElementException("Progression $this is empty.")
     return
 this.last()
 }

 * Returns the last element, or `null` if the progression is empty.
 * @sample
 samples.collections.Collections.Elements.last
 * Since Kotlin("1.7")
 public fun
 UIntProgression.lastOrNull(): UInt? {
     return if (isEmpty()) null else this.last()
 }

 * Returns the last
 element, or `null` if the progression is empty.
 * @sample
 samples.collections.Collections.Elements.last
 * Since Kotlin("1.7")
 public fun ULongProgression.lastOrNull(): ULong? {
     return if (isEmpty()) null else
 this.last()
 }

 * Returns a random element from this range.
 * @throws IllegalArgumentException if this
 range is empty.
 *
 * Since Kotlin("1.5")
 @WasExperimental(ExperimentalUnsignedTypes::class)
 @kotlin.internal.InlineOnly
 public inline fun UIntRange.random(): UInt {
     return random(Random)
 }

 * Returns a random element
 from
 this range.
 * @throws IllegalArgumentException if this range is empty.
 *
 * Since Kotlin("1.5")
 @WasExperimental(ExperimentalUnsignedTypes::class)
 @kotlin.internal.InlineOnly
 public inline fun ULongRange.random(): ULong {
     return random(Random)
 }

 * Returns a random
 element from this range using the specified source of randomness.
 * @throws IllegalArgumentException if
 this range is empty.
 * Since Kotlin("1.5")
 @WasExperimental(ExperimentalUnsignedTypes::class)
 public fun
 UIntRange.random(random: Random): UInt {
     try {
         return random.nextUInt(this)
     } catch (e:
 IllegalArgumentException) {
         throw NoSuchElementException(e.message)
     }
 }

 * Returns a
 random element from this range using the specified source of randomness.
 * @throws
 IllegalArgumentException if this range is empty.
 *
 * Since Kotlin("1.5")
 @WasExperimental(ExperimentalUnsignedTypes::class)
 public fun
 ULongRange.random(random: Random):
 ULong {
     try {
         return random.nextULong(this)
     } catch (e:
 IllegalArgumentException) {
         throw
 NoSuchElementException(e.message)
     }
 }

 * Returns a random element from this range, or `null` if this

```

```

range is empty.\n *\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UIntRange.randomOrNull():
UInt? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range, or `null` if this
range is empty.\n *\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULongRange.randomOrNull():
ULong? {\n    return randomOrNull(Random)\n}\n\n/**\n * Returns a random element from this range using the
specified source of randomness, or `null` if this range is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\npublic
fun UIntRange.randomOrNull(random: Random): UInt? {\n    if (isEmpty())\n        return null\n    return
random.nextUInt(this)\n}\n\n/**\n * Returns a random element from this range using the specified source of
randomness, or `null` if this range is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\npublic fun ULongRange.randomOrNull(random: Random): ULong? {\n    if
(isEmpty())\n        return null\n    return random.nextULong(this)\n}\n\n/**\n * Returns `true` if this range contains
the specified [element].\n * \n * Always returns `false` if the [element] is `null`.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\n
public inline operator fun UIntRange.contains(element: UInt?): Boolean {\n    return element != null &&
contains(element)\n}\n\n/**\n * Returns `true` if this range contains the specified [element].\n * \n *
Always returns `false` if the [element] is `null`.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\n
public inline operator fun ULongRange.contains(element: ULong?): Boolean {\n    return element != null &&
contains(element)\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun
UIntRange.contains(value: UByte): Boolean {\n    return contains(value.toUInt())\n}\n\n/**\n * Checks if the
specified [value] belongs to this range.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun
ULongRange.contains(value: UByte): Boolean {\n    return contains(value.toULong())\n}\n\n/**\n * Checks if the
specified [value] belongs to this range.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun
ULongRange.contains(value: UInt): Boolean
{\n    return contains(value.toULong())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun
UIntRange.contains(value: ULong): Boolean {\n    return (value shr UInt.SIZE_BITS) == 0uL &&
contains(value.toUInt())\n}\n\n/**\n * Checks if the specified [value] belongs to this range.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun
UIntRange.contains(value: UShort): Boolean {\n    return contains(value.toUInt())\n}\n\n/**\n * Checks if the
specified [value] belongs to this range.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic operator fun
ULongRange.contains(value: UShort): Boolean {\n    return contains(value.toULong())\n}\n\n/**\n * Returns a
progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should be less
than or equal to `this`
value.\n * If the [to] value is greater than `this` value the returned progression is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
UByte.downTo(to: UByte): UIntProgression {\n    return UIntProgression.fromClosedRange(this.toUInt(),
to.toUInt(), -1)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -
1.\n * \n * The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value
the returned progression is empty.\n

```

```

*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
UInt.downTo(to: UInt): UIntProgression {\n    return UIntProgression.fromClosedRange(this, to, -1)\n}\n\n/**\n *
Returns a progression from this value down to the specified [to] value with the step -1.\n * \n * The [to] value should
be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the returned
progression is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
ULong.downTo(to: ULong): ULongProgression {\n    return ULongProgression.fromClosedRange(this, to, -
1L)\n}\n\n/**\n * Returns a progression from this value down to the specified [to] value with the step -1.\n * \n *
The [to] value should be less than or equal to `this` value.\n * If the [to] value is greater than `this` value the
returned progression is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
UShort.downTo(to: UShort): UIntProgression {\n    return UIntProgression.fromClosedRange(this.toUInt(),
to.toUInt(), -1)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the
same step.\n *\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UIntProgression.reversed(): UIntProgression {\n    return UIntProgression.fromClosedRange(last,
first, -step)\n}\n\n/**\n * Returns a progression that goes over the same range in the opposite direction with the
same step.\n *\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
ULongProgression.reversed(): ULongProgression {\n    return ULongProgression.fromClosedRange(last, first, -
step)\n}\n\n/**\n * Returns a progression that goes over the same range with the given step.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
UIntProgression.step(step: Int): UIntProgression {\n    checkStepIsPositive(step > 0, step)\n    return
UIntProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\n/**\n * Returns a progression
that goes over the same range with the given step.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
ULongProgression.step(step: Long): ULongProgression {\n    checkStepIsPositive(step > 0, step)\n    return
ULongProgression.fromClosedRange(first, last, if (this.step > 0) step else -step)\n}\n\n/**\n * Returns a range from
this value up to but excluding the specified [to] value.\n * \n * If the [to] value is less than or equal to `this`
value, then the returned range is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
UByte.until(to: UByte): UIntRange {\n    if (to <= UByte.MIN_VALUE) return UIntRange.EMPTY\n    return
this.toUInt() .. (to - 1u).toUInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to]
value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun UInt.until(to:
UInt): UIntRange {\n    if (to <= UInt.MIN_VALUE) return UIntRange.EMPTY\n    return this .. (to -
1u).toUInt()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified
[to] value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
ULong.until(to: ULong): ULongRange {\n    if (to <= ULong.MIN_VALUE) return ULongRange.EMPTY\n
return this .. (to - 1u).toULong()\n}\n\n/**\n * Returns a range from this value up to but excluding the specified [to]
value.\n * \n * If the [to] value is less than or equal to `this` value, then the returned range is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic infix fun
UShort.until(to: UShort): UIntRange {\n    if (to <= UShort.MIN_VALUE) return UIntRange.EMPTY\n    return
this.toUInt() .. (to - 1u).toUInt()\n}\n\n/**\n * Ensures that this value is not less than the specified
[minimumValue].\n * \n * @return this value if it's greater than or equal to the [minimumValue] or the
[minimumValue] otherwise.\n * \n * @sample samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UInt.coerceAtLeast(minimumValue: UInt): UInt {\n    return if (this < minimumValue) minimumValue else
this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value

```

```

if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
ULong.coerceAtLeast(minimumValue: ULong): ULong {\n    return if (this < minimumValue) minimumValue else
this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this value
if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun UByte.coerceAtLeast(minimumValue: UByte): UByte {\n    return if (this < minimumValue) minimumValue
else this\n}\n\n/**\n * Ensures that this value is not less than the specified [minimumValue].\n * \n * @return this
value if it's greater than or equal to the [minimumValue] or the [minimumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtLeastUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UShort.coerceAtLeast(minimumValue: UShort): UShort {\n    return if (this < minimumValue) minimumValue else
this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this
value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMostUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun UInt.coerceAtMost(maximumValue: UInt): UInt {\n    return if (this > maximumValue) maximumValue else
this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this
value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMostUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
ULong.coerceAtMost(maximumValue: ULong): ULong {\n    return if (this > maximumValue) maximumValue else
this\n}\n\n/**\n * Ensures that this value is not greater than the specified [maximumValue].\n * \n * @return this
value if it's less than or equal to the [maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMostUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UByte.coerceAtMost(maximumValue:
UByte): UByte {\n    return if (this > maximumValue) maximumValue else this\n}\n\n/**\n * Ensures that this
value is not greater than the specified [maximumValue].\n * \n * @return this value if it's less than or equal to the
[maximumValue] or the [maximumValue] otherwise.\n * \n * @sample
samples.comparisons.ComparableOps.coerceAtMostUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UShort.coerceAtMost(maximumValue: UShort): UShort {\n    return if (this > maximumValue) maximumValue
else this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n
* @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or
[maximumValue] if this value is greater than [maximumValue].\n * \n * @sample
samples.comparisons.ComparableOps.coerceInUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UInt.coerceIn(minimumValue:
UInt, maximumValue: UInt): UInt {\n    if (minimumValue > maximumValue) throw
IllegalArgumentException("Cannot coerce value to an empty range: maximum $maximumValue is less than
minimum $minimumValue.")\n    if (this < minimumValue) return minimumValue\n    if (this > maximumValue)
return maximumValue\n    return this\n}\n\n/**\n * Ensures that this value lies in the specified range
[minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value
is less than [minimumValue], or [maximumValue] if this value is greater than [maximumValue].\n * \n * @sample
samples.comparisons.ComparableOps.coerceInUnsigned\n

```

```

*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
ULong.coerceIn(minimumValue: ULong, maximumValue: ULong): ULong {\n if (minimumValue >
maximumValue) throw IllegalArgumentException("Cannot coerce value to an empty range: maximum
$maximumValue is less than minimum $minimumValue.")\n
if (this < minimumValue) return minimumValue\n if (this > maximumValue) return maximumValue\n return
this\n}\n\n/**\n * Ensures that this value lies in the specified range [minimumValue]..[maximumValue].\n * \n *
@return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or
[maximumValue] if this value is greater than [maximumValue].\n * \n * @sample
samples.comparisons.ComparableOps.coerceInUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UByte.coerceIn(minimumValue: UByte, maximumValue: UByte): UByte {\n if (minimumValue >
maximumValue) throw IllegalArgumentException("Cannot coerce value to an empty range: maximum
$maximumValue is less than minimum $minimumValue.")\n if (this < minimumValue) return minimumValue\n
if (this > maximumValue) return maximumValue\n return this\n}\n\n/**\n * Ensures that this value lies in the
specified range [minimumValue]..[maximumValue].\n * \n * @return this value if it's in the range, or [minimumValue] if this value is less than [minimumValue], or
[maximumValue] if this value is greater than [maximumValue].\n * \n * @sample
samples.comparisons.ComparableOps.coerceInUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UShort.coerceIn(minimumValue: UShort, maximumValue: UShort): UShort {\n if (minimumValue >
maximumValue) throw IllegalArgumentException("Cannot coerce value to an empty range: maximum
$maximumValue is less than minimum $minimumValue.")\n if (this < minimumValue) return minimumValue\n
if (this > maximumValue) return maximumValue\n return this\n}\n\n/**\n * Ensures that this value lies in the
specified [range].\n * \n * @return this value if it's in the [range], or `range.start` if this value is less than
`range.start`, or `range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample
samples.comparisons.ComparableOps.coerceInUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
UInt.coerceIn(range: ClosedRange<UInt>): UInt {\n if (range is ClosedFloatingPointRange) {\n return
this.coerceIn<UInt>(range)\n }\n if (range.isEmpty()) throw IllegalArgumentException("Cannot coerce value to
an empty range: $range.")\n return when {\n this < range.start -> range.start\n this > range.endInclusive -
> range.endInclusive\n else -> this\n }\n}\n\n/**\n * Ensures that this value lies in the specified [range].\n * \n *
@return this value if it's in the [range], or `range.start` if this value is less than `range.start`, or
`range.endInclusive` if this value is greater than `range.endInclusive`.\n * \n * @sample
samples.comparisons.ComparableOps.coerceInUnsigned\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
ULong.coerceIn(range: ClosedRange<ULong>): ULong {\n if (range
is ClosedFloatingPointRange) {\n return this.coerceIn<ULong>(range)\n }\n if (range.isEmpty()) throw
IllegalArgumentException("Cannot coerce value to an empty range: $range.")\n return when {\n this <
range.start -> range.start\n this > range.endInclusive -> range.endInclusive\n else -> this\n }\n}\n\n"/**\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("USequencesKt")\n\npackage
kotlin.sequences\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\nimport kotlin.random.*\n\n/**\n * Returns the
sum of all elements in the sequence.\n * \n * The operation is _terminal_.\n
*\n@kotlin.jvm.JvmName("sumOfUInt")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedT
ypes::class)\npublic

```

```

fun Sequence<UInt>.sum(): UInt {
    var sum: UInt = 0
    for (element in this) {
        sum += element
    }
    return sum
}

* Returns the sum of all elements in the sequence.
* The operation is _terminal_.

*\n@kotlin.jvm.JvmName("sumOfULong")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<ULong>.sum(): ULong {
    var sum: ULong = 0UL
    for (element in this) {
        sum += element
    }
    return sum
}

* Returns the sum of all elements in the sequence.
* The operation is _terminal_.

*\n@kotlin.jvm.JvmName("sumOfUByte")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<UByte>.sum(): UInt {
    var sum: UInt = 0
    for (element in this) {
        sum += element
    }
    return sum
}

* Returns the sum of all elements in the sequence.
* The operation is _terminal_.

*\n@kotlin.jvm.JvmName("sumOfUShort")\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Sequence<UShort>.sum(): UInt {
    var sum: UInt = 0
    for (element in this) {
        sum += element
    }
    return sum
}

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*\npackage kotlin\n\npublic expect open class Error : Throwable {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
    constructor(cause: Throwable?)
}

\npublic expect open class Exception : Throwable {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
    constructor(cause: Throwable?)
}

\npublic expect open class RuntimeException : Exception {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
    constructor(cause: Throwable?)
}

\npublic expect open class IllegalArgumentException : RuntimeException {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
    constructor(cause: Throwable?)
}

\npublic expect open class IllegalStateException : RuntimeException {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
    constructor(cause: Throwable?)
}

\npublic expect open class IndexOutOfBoundsException : RuntimeException {
    constructor()
    constructor(message: String?)
}

\npublic expect open class ConcurrentModificationException : RuntimeException {
    constructor()
    constructor(message: String?)
}

@Deprecated("The constructor is not supported on all platforms and will be removed from kotlin-stdlib-common soon.", level = DeprecationLevel.ERROR)
    constructor(message: String?, cause: Throwable?)
}

@Deprecated("The constructor is not supported on all platforms and will be removed from kotlin-stdlib-common soon.", level = DeprecationLevel.ERROR)
    constructor(cause: Throwable?)
}

\npublic expect open class UnsupportedOperationException : RuntimeException {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
    constructor(cause: Throwable?)
}

\npublic expect open class NumberFormatException : IllegalArgumentException {
    constructor()
    constructor(message: String?)
}

\npublic expect open class NullPointerException : RuntimeException {
    constructor()
    constructor(message: String?)
}

\npublic expect open class ClassCastException : RuntimeException {
    constructor()
    constructor(message: String?)
}

\npublic expect open class AssertionError : Error {
    constructor()
    constructor(message: Any?)
}

\npublic expect open class NoSuchElementException : RuntimeException {
    constructor()
    constructor(message: String?)
}

*\n@SinceKotlin("1.3")\npublic expect open class ArithmeticException : RuntimeException {
    constructor()
    constructor(message: String?)
}

@Deprecated("This exception type is not supposed to be thrown or caught in common code and will be removed from kotlin-stdlib-common soon.", level = DeprecationLevel.ERROR)
\npublic expect open class NoWhenBranchMatchedException : RuntimeException {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause: Throwable?)
}

*\n@Deprecated("This exception type is not supposed to be thrown or caught in common code and will be removed from kotlin-stdlib-common soon.", level = DeprecationLevel.ERROR)
\npublic expect class UninitializedPropertyAccessException : RuntimeException {
    constructor()
    constructor(message: String?)
    constructor(message: String?, cause:

```



Throwable?)\n

constructor(cause: Throwable?)\n}\n\n/\*\*\n \* Thrown after invocation of a function or property that was expected to return `Nothing`, but returned something instead.\n \*/\n@SinceKotlin("1.4")\n@PublishedApi\ninternal class KotlinNothingValueException : RuntimeException {\n constructor(): super()\n constructor(message: String?): super(message)\n constructor(message: String?, cause: Throwable?): super(message, cause)\n constructor(cause: Throwable?): super(cause)\n}\n\n/\*\*\n \* Returns the detailed description of this throwable with its stack trace.\n \*/\n \* The detailed description includes:\n \* - the short description (see [Throwable.toString]) of this throwable;\n \* - the complete stack trace;\n \* - detailed descriptions of the exceptions that were [suppressed][suppressedExceptions] in order to deliver this exception;\n \* - the detailed description of each throwable in the [Throwable.cause] chain.\n \*/\n@SinceKotlin("1.4")\npublic expect fun

Throwable.stackTraceToString():

String\n\n/\*\*\n \* Prints the [detailed description][Throwable.stackTraceToString] of this throwable to the standard output or standard error output.\n

\*\n@SinceKotlin("1.4")\n@Suppress("EXTENSION\_SHADOWED\_BY\_MEMBER")\npublic expect fun

Throwable.printStackTrace(): Unit\n\n/\*\*\n \* When supported by the platform, adds the specified exception to the list of exceptions that were\n \* suppressed in order to deliver this exception.\n

\*\n@SinceKotlin("1.4")\n@Suppress("EXTENSION\_SHADOWED\_BY\_MEMBER")\npublic expect fun

Throwable.addSuppressed(exception: Throwable)\n\n/\*\*\n \* Returns a list of all exceptions that were suppressed in order to deliver this exception.\n \*/\n \* The list can be empty:\n \* - if no exceptions were suppressed;\n \* - if the platform doesn't support suppressed exceptions;\n \* - if this [Throwable] instance has disabled the suppression.\n

\*\n@SinceKotlin("1.4")\npublic expect val Throwable.suppressedExceptions: List<Throwable>\n"/\*\n \*

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2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n \*/\n\npackage kotlin.js\n\nimport kotlin.annotation.AnnotationTarget.\*\n\n/\*\*\n \* Gives a declaration (a function, a property or a class) specific name in JavaScript.\n \*/\n@Target(CLASS, FUNCTION, PROPERTY, CONSTRUCTOR, PROPERTY\_GETTER, PROPERTY\_SETTER)\n@OptionalExpectation\npublic expect annotation class JsName(val name: String)\n\n/\*\*\n \* Marks experimental JS export annotations.\n \*/\n \* Note that behavior of these annotations will likely be changed in the future.\n \* Usages of such annotations will be reported as warnings unless an explicit opt-in with\n \* the [OptIn] annotation, e.g. `@OptIn(ExperimentalJsExport::class)`,\n \* or with the `opt-in=kotlin.js.ExperimentalJsExport` compiler option is given.\n \*/\n@RequiresOptIn(level = RequiresOptIn.Level.WARNING)\n@MustBeDocumented\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin("1.4")\npublic

annotation class ExperimentalJsExport\n\n/\*\*\n \* Exports top-level declaration on JS platform.\n \*/\n \* Compiled module exposes declarations that are marked with this annotation without name mangling.\n \*/\n \* This annotation can be applied to either files or top-level declarations.\n \*/\n \* It is currently prohibited to export the following kinds of declarations:\n \* \* `expect` declarations\n \* \* inline functions with reified type parameters\n \* \* suspend functions\n \* \* secondary constructors without `@JsName`\n \* \* extension properties\n \* \* enum classes\n \* \* annotation classes\n \* \* Signatures of exported declarations must only contain `"exportable"` types:\n \* \* \* `dynamic`, `Any`, `String`, `Boolean`, `Byte`, `Short`, `Int`, `Float`, `Double`\n \* \* \* `BooleanArray`, `ByteArray`, `ShortArray`, `IntArray`, `FloatArray`, `DoubleArray`\n \* \* \* `Array<exportable-type>`\n \* \* \* Function types with exportable parameters and return types\n \* \* \* `external` or `@JsExport` classes and interfaces\n \* \* \* Nullable counterparts of types above\n \* \* \* Unit return type. Must not be nullable\n \* \* \* This annotation is experimental, meaning that restrictions mentioned above are subject to change.\n

\*\n@ExperimentalJsExport\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, PROPERTY, FUNCTION, FILE)\n@SinceKotlin("1.4")\n@OptionalExpectation\npublic expect annotation class

JsExport(),"/\*\n \* Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n

```

* Prints the line separator to the standard output stream.
public expect fun println() Prints the given [message] and the line separator to the standard output stream.
public expect fun println(message: Any?) Prints the given [message] to the standard output stream.
public expect fun print(message: Any?) Reads a line of input from the standard input stream and returns it, or throws a [RuntimeException] if EOF has already been reached when [readln] is called.
LF or CRLF is treated as the line terminator. Line terminator is not included in the returned string.
Currently this function is not supported in Kotlin/JS and throws [UnsupportedOperationException].
@SinceKotlin("1.6")
public expect fun readln(): String Reads a line of input from the standard input stream and returns it, or return `null` if EOF has already been reached when [readlnOrNull] is called.
LF or CRLF is treated as the line terminator. Line terminator is not included in the returned string.
Currently this function is not supported in Kotlin/JS and throws [UnsupportedOperationException].
@SinceKotlin("1.6")
public expect fun readlnOrNull(): String?
internal class ReadAfterEOFException(message: String?) : RuntimeException(message)
internal expect interface Serializable, /* Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.
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package kotlin.collections
import kotlin.internal.PlatformDependent
Classes that inherit from this interface can be represented as a sequence of elements that can be iterated over.
@param T the type of element being iterated over. The iterator is covariant in its element type.
public interface Iterable<out T> {
    /** Returns an iterator over the elements of this object.
    public operator fun iterator(): Iterator<T>
Classes that inherit from this interface can be represented as a sequence of elements that can be iterated over and that supports removing elements during iteration.
@param T the type of element being iterated over. The mutable iterator is invariant in its element type.
public interface MutableIterable<out T> : Iterable<T> {
    /** Returns an iterator over the elements of this sequence that supports removing elements during iteration.
    override fun iterator(): MutableIterator<T>
A generic collection of elements. Methods in this interface support only read-only access to the collection; read/write access is supported through the [MutableCollection] interface.
@param E the type of elements contained in the collection. The collection is covariant in its element type.
public interface Collection<out E> : Iterable<E> {
    // Query Operations
    /** Returns the size of the collection.
    public val size: Int
    /** Returns `true` if the collection is empty (contains no elements), `false` otherwise.
    public fun isEmpty(): Boolean
    /** Checks if the specified element is contained in this collection.
    public operator fun contains(element: @UnsafeVariance E): Boolean
    override fun iterator(): Iterator<E>
    // Bulk Operations
    /** Checks if all elements in the specified collection are contained in this collection.
    public fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean
A generic collection of elements that supports adding and removing elements.
@param E the type of elements contained in the collection. The mutable collection is invariant in its element type.
public interface MutableCollection<E> : Collection<E>, MutableIterable<E> {
    // Query Operations
    override fun iterator(): MutableIterator<E>
    // Modification Operations
    /** Adds the specified element to the collection.
    * @return `true` if the element has been added, `false` if the collection does not support duplicates and the element is already contained in the collection.
    public fun add(element: E): Boolean
    /** Removes a single instance of the specified element from this collection, if it is present.
    * @return `true` if the element has been successfully removed; `false` if it was not present in the collection.
    public fun remove(element: E): Boolean
    // Bulk Modification Operations
    /** Adds all of the elements of the specified collection to this collection.
    * @return `true` if any of the specified elements was added to the collection, `false` if the collection was not modified.
    public fun addAll(elements: Collection<E>): Boolean
    /** Removes all of this collection's elements that are also contained in the specified collection.
    * @return `true` if any of the specified elements was removed from the collection, `false` if the collection was not modified.

```

```

*^n public fun removeAll(elements:
Collection<E>): Boolean\n\n /**\n * Retains only the elements in this collection that are contained in the
specified collection.\n *^n * @return `true` if any element was removed from the collection, `false` if the
collection was not modified.\n *^n public fun retainAll(elements: Collection<E>): Boolean\n\n /**\n *
Removes all elements from this collection.\n *^n public fun clear(): Unit\n\n/**\n * A generic ordered
collection of elements. Methods in this interface support only read-only access to the list;\n * read/write access is
supported through the [MutableList] interface.\n * @param E the type of elements contained in the list. The list is
covariant in its element type.\n */\npublic interface List<out E> : Collection<E> {\n // Query Operations\n\n
override val size: Int\n override fun isEmpty(): Boolean\n override fun contains(element: @UnsafeVariance E):
Boolean\n override fun iterator(): Iterator<E>\n\n // Bulk Operations\n
override fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean\n\n // Positional Access
Operations\n /**\n * Returns the element at the specified index in the list.\n *^n public operator fun
get(index: Int): E\n\n // Search Operations\n /**\n * Returns the index of the first occurrence of the specified
element in the list, or -1 if the specified\n * element is not contained in the list.\n *^n public fun
indexOf(element: @UnsafeVariance E): Int\n\n /**\n * Returns the index of the last occurrence of the specified
element in the list, or -1 if the specified\n * element is not contained in the list.\n *^n public fun
lastIndexOf(element: @UnsafeVariance E): Int\n\n // List Iterators\n /**\n * Returns a list iterator over the
elements in this list (in proper sequence).\n *^n public fun listIterator(): ListIterator<E>\n\n /**\n * Returns
a list iterator over the elements in this list
(in proper sequence), starting at the specified [index].\n *^n public fun listIterator(index: Int):
ListIterator<E>\n\n // View\n /**\n * Returns a view of the portion of this list between the specified
[fromIndex] (inclusive) and [toIndex] (exclusive).\n * The returned list is backed by this list, so non-structural
changes in the returned list are reflected in this list, and vice-versa.\n *^n * Structural changes in the base list
make the behavior of the view undefined.\n *^n public fun subList(fromIndex: Int, toIndex: Int):
List<E>\n\n/**\n * A generic ordered collection of elements that supports adding and removing elements.\n *
@param E the type of elements contained in the list. The mutable list is invariant in its element type.\n */\npublic
interface MutableList<E> : List<E>, MutableCollection<E> {\n // Modification Operations\n /**\n * Adds the
specified element to the end of this list.\n *^n * @return `true` because the
list is always modified as the result of this operation.\n *^n override fun add(element: E): Boolean\n\n
override fun remove(element: E): Boolean\n\n // Bulk Modification Operations\n /**\n * Adds all of the
elements of the specified collection to the end of this list.\n *^n * The elements are appended in the order they
appear in the [elements] collection.\n *^n * @return `true` if the list was changed as the result of the
operation.\n *^n override fun addAll(elements: Collection<E>): Boolean\n\n /**\n * Inserts all of the
elements of the specified collection [elements] into this list at the specified [index].\n *^n * @return `true` if the
list was changed as the result of the operation.\n *^n public fun addAll(index: Int, elements: Collection<E>):
Boolean\n\n override fun removeAll(elements: Collection<E>): Boolean\n override fun retainAll(elements:
Collection<E>): Boolean\n override fun clear(): Unit\n\n
// Positional Access Operations\n /**\n * Replaces the element at the specified position in this list with the
specified element.\n *^n * @return the element previously at the specified position.\n *^n public operator
fun set(index: Int, element: E): E\n\n /**\n * Inserts an element into the list at the specified [index].\n *^n
public fun add(index: Int, element: E): Unit\n\n /**\n * Removes an element at the specified [index] from the
list.\n *^n * @return the element that has been removed.\n *^n public fun removeAt(index: Int): E\n\n //
List Iterators\n override fun listIterator(): MutableListIterator<E>\n\n override fun listIterator(index: Int):
MutableListIterator<E>\n\n // View\n override fun subList(fromIndex: Int, toIndex: Int):
MutableList<E>\n\n/**\n * A generic unordered collection of elements that does not support duplicate
elements.\n * Methods in this interface support only read-only access to
the set;\n * read/write access is supported through the [MutableSet] interface.\n * @param E the type of elements
contained in the set. The set is covariant in its element type.\n */\npublic interface Set<out E> : Collection<E> {\n

```

```

// Query Operations\n\n override val size: Int\n\n override fun isEmpty(): Boolean\n\n override fun
contains(element: @UnsafeVariance E): Boolean\n\n override fun iterator(): Iterator<E>\n\n // Bulk Operations\n
override fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean\n\n}\n\n/**\n * A generic unordered
collection of elements that does not support duplicate elements, and supports\n * adding and removing elements.\n *
@param E the type of elements contained in the set. The mutable set is invariant in its element type.\n */\npublic
interface MutableSet<E> : Set<E>, MutableCollection<E> {\n\n // Query Operations\n\n override fun iterator():
MutableIterator<E>\n\n // Modification Operations\n\n /**\n * Adds the specified
element to the set.\n * \n * @return `true` if the element has been added, `false` if the element is already
contained in the set.\n */\n\n override fun add(element: E): Boolean\n\n override fun remove(element: E):
Boolean\n\n // Bulk Modification Operations\n\n override fun addAll(elements: Collection<E>): Boolean\n\n
override fun removeAll(elements: Collection<E>): Boolean\n\n override fun retainAll(elements: Collection<E>):
Boolean\n\n override fun clear(): Unit\n\n}\n\n/**\n * A collection that holds pairs of objects (keys and values) and
supports efficiently retrieving\n * the value corresponding to each key. Map keys are unique; the map holds only one
value for each key.\n * Methods in this interface support only read-only access to the map; read-write access is
supported through\n * the [MutableMap] interface.\n * @param K the type of map keys. The map is invariant in its
key type, as it\n * can accept key as a parameter (of [containsKey] for example)
and return it in [keys] set.\n * @param V the type of map values. The map is covariant in its value type.\n */\n
public interface Map<K, out V> {\n\n // Query Operations\n\n /**\n * Returns the number of key/value pairs
in the map.\n */\n\n public val size: Int\n\n /**\n * Returns `true` if the map is empty (contains no elements),
`false` otherwise.\n */\n\n public fun isEmpty(): Boolean\n\n /**\n * Returns `true` if the map contains the
specified [key].\n */\n\n public fun containsKey(key: K): Boolean\n\n /**\n * Returns `true` if the map maps
one or more keys to the specified [value].\n */\n\n public fun containsValue(value: @UnsafeVariance V):
Boolean\n\n /**\n * Returns the value corresponding to the given [key], or `null` if such a key is not present in
the map.\n */\n\n public operator fun get(key: K): V?\n\n /**\n * Returns the value corresponding to the given
[key], or [defaultValue] if such a key is not present
in the map.\n */\n\n * @since JDK 1.8\n */\n\n @SinceKotlin("1.1")\n\n @PlatformDependent\n\n public fun
getOrDefault(key: K, defaultValue: @UnsafeVariance V): V {\n\n // See default implementation in JDK
sources\n\n throw NotImplementedError()\n\n }\n\n // Views\n\n /**\n * Returns a read-only [Set] of all keys
in this map.\n */\n\n public val keys: Set<K>\n\n /**\n * Returns a read-only [Collection] of all values in this
map. Note that this collection may contain duplicate values.\n */\n\n public val values: Collection<V>\n\n /**\n
* Returns a read-only [Set] of all key/value pairs in this map.\n */\n\n public val entries: Set<Map.Entry<K,
V>>\n\n /**\n * Represents a key/value pair held by a [Map].\n */\n\n public interface Entry<out K, out V>
{\n\n /**\n * Returns the key of this key/value pair.\n */\n\n public val key: K\n\n /**\n *
Returns the value of this key/value
pair.\n */\n\n public val value: V\n\n }\n\n}\n\n/**\n * A modifiable collection that holds pairs of objects
(keys and values) and supports efficiently retrieving\n * the value corresponding to each key. Map keys are unique;
the map holds only one value for each key.\n * @param K the type of map keys. The map is invariant in its key
type.\n * @param V the type of map values. The mutable map is invariant in its value type.\n */\n\n public interface
MutableMap<K, V> : Map<K, V> {\n\n // Modification Operations\n\n /**\n * Associates the specified [value]
with the specified [key] in the map.\n * \n * @return the previous value associated with the key, or `null` if the
key was not present in the map.\n */\n\n public fun put(key: K, value: V): V?\n\n /**\n * Removes the
specified key and its corresponding value from this map.\n * \n * @return the previous value associated with the
key, or `null` if the key was not present in the map.\n */\n\n public fun remove(key: K): V?\n\n /**\n * Removes
the entry for the specified key only if it is mapped to the
specified value.\n * \n * @return true if entry was removed\n */\n\n @SinceKotlin("1.1")\n\n @PlatformDependent\n\n public fun remove(key: K, value: V): Boolean {\n\n // See default implementation in
JDK sources\n\n return true\n\n }\n\n // Bulk Modification Operations\n\n /**\n * Updates this map with
key/value pairs from the specified map [from].\n */\n\n public fun putAll(from: Map<out K, V>): Unit\n\n /**\n

```

```

    * Removes all elements from this map.\n    */\n    public fun clear(): Unit\n\n    // Views\n    /**\n    * Returns a [MutableSet] of all keys in this map.\n    */\n    override val keys: MutableSet<K>\n\n    /**\n    * Returns a [MutableCollection] of all values in this map. Note that this collection may contain duplicate values.\n    */\n    override val values: MutableCollection<V>\n\n    /**\n    * Returns a [MutableSet] of all key/value pairs in this map.\n    */\n    override val entries: MutableSet<MutableMap.MutableEntry<K, V>>\n\n    /**\n    * Represents a key/value pair held by a [MutableMap].\n    */\n    public interface MutableEntry<K, V> : Map.Entry<K, V> {\n        /**\n        * Changes the value associated with the key of this entry.\n        */\n        * @return the previous value corresponding to the key.\n        */\n        public fun setValue(newValue: V): V\n    }\n\n    /*\n    * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n    * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n    */\n\n    // Auto-generated file. DO NOT EDIT!\n\n    package kotlin.collections\n\n    /** An iterator over a sequence of values of type `Byte`. */\n    public abstract class ByteIterator : Iterator<Byte> {\n        override final fun next() = nextByte()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextByte(): Byte\n    }\n\n    /** An iterator over a sequence of values of type `Char`. */\n    public abstract class CharIterator : Iterator<Char> {\n        override final fun next() = nextChar()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextChar(): Char\n    }\n\n    /** An iterator over a sequence of values of type `Short`. */\n    public abstract class ShortIterator : Iterator<Short> {\n        override final fun next() = nextShort()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextShort(): Short\n    }\n\n    /** An iterator over a sequence of values of type `Int`. */\n    public abstract class IntIterator : Iterator<Int> {\n        override final fun next() = nextInt()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextInt(): Int\n    }\n\n    /** An iterator over a sequence of values of type `Long`. */\n    public abstract class LongIterator : Iterator<Long> {\n        override final fun next() = nextLong()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextLong(): Long\n    }\n\n    /** An iterator over a sequence of values of type `Float`. */\n    public abstract class FloatIterator : Iterator<Float> {\n        override final fun next() = nextFloat()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextFloat(): Float\n    }\n\n    /** An iterator over a sequence of values of type `Double`. */\n    public abstract class DoubleIterator : Iterator<Double> {\n        override final fun next() = nextDouble()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextDouble(): Double\n    }\n\n    /** An iterator over a sequence of values of type `Boolean`. */\n    public abstract class BooleanIterator : Iterator<Boolean> {\n        override final fun next() = nextBoolean()\n\n        /** Returns the next value in the sequence without boxing. */\n        public abstract fun nextBoolean(): Boolean\n    }\n\n    /*\n    * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n    * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n    */\n\n    // Auto-generated file. DO NOT EDIT!\n\n    package kotlin.ranges\n\n    /** An iterator over a progression of values of type `Char`. */\n    * @property step the number by which the value is incremented on each step.\n    * @internal class CharProgressionIterator(first: Char, last: Char, val step: Int) : CharIterator() {\n        private val finalElement: Int = last.code\n        private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n        private var next: Int = if (hasNext) first.code else finalElement\n\n        override fun hasNext(): Boolean = hasNext\n\n        override fun nextChar(): Char {\n            val value = next\n            if (value == finalElement) {\n                if (!hasNext) throw kotlin.NoSuchElementException()\n                hasNext = false\n            } else {\n                next += step\n            }\n            return value.toChar()\n        }\n    }\n\n    /** An iterator over a progression of values of type `Int`. */\n    * @property step the number by which the value is incremented on each step.\n    * @internal class IntProgressionIterator(first: Int, last: Int, val step: Int) : IntIterator() {\n        private val finalElement: Int = last\n        private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n        private var next: Int = if (hasNext) first else finalElement\n\n        override fun hasNext(): Boolean = hasNext\n\n        override fun nextInt(): Int {\n            val value = next\n            if (value == finalElement) {\n                if (!hasNext) throw kotlin.NoSuchElementException()\n                hasNext = false\n            } else {\n                next += step\n            }\n            return value\n        }\n    }\n\n    /** An iterator over a progression of values of type `Long`. */\n    *

```

@property step the number by

```
which the value is incremented on each step.\n * internal class LongProgressionIterator(first: Long, last: Long, val step: Long) : LongIterator() {\n    private val finalElement: Long = last\n    private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n    private var next: Long = if (hasNext) first else finalElement\n    override fun hasNext(): Boolean = hasNext\n    override fun nextLong(): Long {\n        val value = next\n        if (value == finalElement) {\n            if (!hasNext) throw kotlin.NoSuchElementException()\n            hasNext = false\n        }\n        else {\n            next += step\n        }\n        return value\n    }\n}\n\n"/**\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT EDIT!\n\npackage kotlin.ranges\n\nimport kotlin.internal.getProgressionLastElement\n\n/**\n * A progression of values of type `Char`.\n */\npublic open class CharProgression\n    internal constructor\n    (\n        start: Char,\n        endInclusive: Char,\n        step: Int\n    ) : Iterable<Char> {\n    init {\n        if (step == 0)\n            throw kotlin.IllegalArgumentException("Step must be non-zero.")\n        if (step == Int.MIN_VALUE)\n            throw kotlin.IllegalArgumentException("Step must be greater than Int.MIN_VALUE to avoid overflow on negation.")\n    }\n\n    /**\n     * The first element in the progression.\n     */\n    public val first: Char = start\n\n    /**\n     * The last element in the progression.\n     */\n    public val last: Char = getProgressionLastElement(start.code, endInclusive.code, step).toChar()\n\n    /**\n     * The step of the progression.\n     */\n    public val step: Int = step\n\n    override fun iterator(): CharIterator = CharProgressionIterator(first, last, step)\n\n    /**\n     * Checks if the progression is empty.\n     */\n    * Progression with a positive step is empty if its first element is greater than the last element.\n    * Progression with a negative step is empty if its first element is less than the last element.\n    * Progression with a negative step is empty if its first element is less than the last element.\n\n    /**\n     * public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n    override fun equals(other: Any?): Boolean =\n        other is CharProgression && (isEmpty() && other.isEmpty()) ||\n        first == other.first && last == other.last && step == other.step\n\n    override fun hashCode(): Int =\n        if (isEmpty()) -1 else (31 * (31 * first.code + last.code) + step)\n\n    override fun toString(): String = if (step > 0) "$first..$last step $step" else "$first downTo $last step ${-step}"\n\n    companion object {\n        /**\n         * Creates CharProgression within the specified bounds of a closed range.\n         */\n        * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n        * In order to go backwards the [step] must be negative.\n        * [step] must be greater than `Int.MIN_VALUE` and not equal to zero.\n\n        /**\n         * public fun fromClosedRange(rangeStart: Char, rangeEnd: Char, step: Int): CharProgression = CharProgression(rangeStart, rangeEnd, step)\n    }\n}\n\n"/**\n * A progression of values of type `Int`.\n */\npublic open class IntProgression\n    internal constructor\n    (\n        start: Int,\n        endInclusive: Int,\n        step: Int\n    ) : Iterable<Int> {\n    init {\n        if (step == 0)\n            throw kotlin.IllegalArgumentException("Step must be non-zero.")\n        if (step == Int.MIN_VALUE)\n            throw kotlin.IllegalArgumentException("Step must be greater than Int.MIN_VALUE to avoid overflow on negation.")\n    }\n\n    /**\n     * The first element in the progression.\n     */\n    public val first: Int = start\n\n    /**\n     * The last element in the progression.\n     */\n    * public val last: Int = getProgressionLastElement(start, endInclusive, step)\n\n    /**\n     * The step of the progression.\n     */\n    public val step: Int = step\n\n    override fun iterator(): IntIterator = IntProgressionIterator(first, last, step)\n\n    /**\n     * Checks if the progression is empty.\n     */\n    * Progression with a positive step is empty if its first element is greater than the last element.\n    * Progression with a negative step is empty if its first element is less than the last element.\n\n    /**\n     * public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n    override fun equals(other: Any?): Boolean =\n        other is IntProgression && (isEmpty() && other.isEmpty()) ||\n        first == other.first && last == other.last && step == other.step\n\n    override fun hashCode(): Int =\n        if (isEmpty()) -1 else (31 * (31 * first + last) + step)\n\n    override fun toString(): String = if (step > 0) "$first..$last step $step" else "$first downTo $last step ${-step}"\n\n    companion object {\n        /**\n         * Creates IntProgression within the specified bounds of a closed range.\n         */\n        * The progression starts with the
```

```

[rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the specified [step].\n      * In order
to go backwards the [step] must be negative.\n      *\n      * [step] must be greater than `Int.MIN_VALUE` and
not equal to zero.\n      *\n      public fun fromClosedRange(rangeStart: Int, rangeEnd: Int, step: Int):
IntProgression = IntProgression(rangeStart, rangeEnd, step)\n    }\n\n\n/**\n * A progression of values of type
`Long`.\n */\npublic open class LongProgression\n    internal constructor\n    (start: Long,\n    endInclusive: Long,\n    step: Long\n    ): Iterable<Long> {\n    init {\n    if (step == 0L) throw
kotlin.IllegalArgumentException("Step must be non-zero.")\n
    if (step == Long.MIN_VALUE) throw kotlin.IllegalArgumentException("Step must be greater than
Long.MIN_VALUE to avoid overflow on negation.")\n    }\n\n    /**\n     * The first element in the progression.\n
*/\n    public val first: Long = start\n\n    /**\n     * The last element in the progression.\n
*/\n    public val last: Long = getProgressionLastElement(start, endInclusive, step)\n\n    /**\n     * The step of the progression.\n
*/\n    public val step: Long = step\n
    override fun iterator(): LongIterator = LongProgressionIterator(first, last, step)\n\n    /**\n     * Checks if the progression is empty.\n
*/\n     * Progression with a positive step is empty if its first
element is greater than the last element.\n     * Progression with a negative step is empty if its first element is less
than the last element.\n
*/\n    public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n
    override fun equals(other: Any?): Boolean =\n    other is LongProgression && (isEmpty() && other.isEmpty() ||\n    first == other.first && last == other.last && step == other.step)\n\n
    override fun hashCode(): Int =\n    if (isEmpty()) -1 else (31 * (31 * (first xor (first ushr 32)) + (last xor (last ushr 32))) + (step xor (step ushr 32))).toInt()\n\n
    override fun toString(): String = if (step > 0) "$first..$last step $step" else "$first downTo $last step ${-step}"\n\n
    companion object {\n
    /**\n     * Creates LongProgression within the specified bounds of a closed range.\n
*/\n     * The
progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not excluding it, with the
specified [step].\n     * In order to go backwards the [step] must be negative.\n     *\n     * [step] must be
greater than `Long.MIN_VALUE` and not equal to zero.\n     *\n     * public fun fromClosedRange(rangeStart: Long, rangeEnd: Long, step: Long): LongProgression
= LongProgression(rangeStart, rangeEnd, step)\n    }\n\n\n"/**\n * Copyright 2010-2019 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.ranges\n\n/**\n * Represents a range of values
(for example, numbers or characters).\n * See the [Kotlin language
documentation](https://kotlinlang.org/docs/reference/ranges.html) for more information.\n */\npublic interface
ClosedRange<T: Comparable<T>> {\n    /**\n     * The minimum value in the range.\n
*/\n    public val start: T\n\n    /**\n     * The maximum value in the range (inclusive).\n
*/\n    public val endInclusive: T\n\n    /**\n     * Checks whether the specified [value] belongs to the range.\n
*/\n    public operator fun contains(value: T): Boolean = value >= start && value <= endInclusive\n\n
    /**\n     * Checks whether the range is empty.\n
*/\n     * The range
is empty if its start value is greater than the end value.\n
*/\n    public fun isEmpty(): Boolean = start > endInclusive\n}\n"/**\n * Copyright 2010-2015 JetBrains s.r.o.\n * Licensed under the Apache License,
Version 2.0 (the "License");\n * you may not use this file except in compliance with the License.\n * You may
obtain a copy of the License at\n * http://www.apache.org/licenses/LICENSE-2.0\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an "AS IS"
BASIS,\n * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n * See the
License for the specific language governing permissions and\n * limitations under the License.\n */\n\npackage
kotlin\n\n/**\n * The type with only one value: the `Unit` object. This type corresponds to the `void` type in Java.\n
*/\n\npublic object Unit {\n    override fun toString() = "kotlin.Unit"\n}\n"/**\n * Copyright 2010-2015 JetBrains
s.r.o.\n * Licensed under the Apache License, Version 2.0 (the "License");\n * you may not use this file except
in compliance with the License.\n * You may obtain a copy of the License at\n * http://www.apache.org/licenses/LICENSE-2.0\n * Unless required by
applicable law or agreed to in writing, software\n * distributed under the License is distributed on an "AS IS"
BASIS,\n * WITHOUT WARRANTIES

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OR CONDITIONS OF ANY KIND, either express or implied.\n \* See the License for the specific language governing permissions and\n \* limitations under the License.\n \*\n\npackage kotlin.annotation\n\nimport kotlin.annotation.AnnotationTarget.\*\n\n/\*\*\n \* Contains the list of code elements which are the possible annotation targets\n \*\npublic enum class AnnotationTarget {\n\n /\*\* Class, interface or object, annotation class is also included\n CLASS,\n /\*\* Annotation class only\n ANNOTATION\_CLASS,\n /\*\* Generic type parameter\n TYPE\_PARAMETER,\n\n /\*\* Field, including property's backing field\n FIELD,\n /\*\* Local variable\n LOCAL\_VARIABLE,\n /\*\* Value parameter of a function or a constructor\n VALUE\_PARAMETER,\n /\*\* Constructor only (primary or secondary)\n CONSTRUCTOR,\n /\*\* Function (constructors are not included)\n FUNCTION,\n /\*\* Property getter only\n PROPERTY\_GETTER,\n /\*\* Property setter only\n PROPERTY\_SETTER,\n /\*\* Type usage\n TYPE,\n /\*\* Any expression\n EXPRESSION,\n /\*\* File\n FILE,\n /\*\* Type alias\n TYPE\_ALIAS\n}\n\n/\*\*\n \* Contains the list of possible annotation's retentions.\n \*\n \* Determines how an annotation is stored in binary output.\n \*\npublic enum class AnnotationRetention {\n\n /\*\* Annotation isn't stored in binary output\n SOURCE,\n /\*\* Annotation is stored in binary output, but invisible for reflection\n BINARY,\n /\*\* Annotation is stored in binary output and visible for reflection (default retention)\n RUNTIME\n}\n\n/\*\*\n \* This meta-annotation indicates the kinds of code elements which are possible targets of an annotation.\n \*\n \* If the target meta-annotation is not present on an annotation declaration, the annotation is applicable to the following elements:\n \* [CLASS], [PROPERTY], [FIELD], [LOCAL\_VARIABLE], [VALUE\_PARAMETER], [CONSTRUCTOR], [FUNCTION], [PROPERTY\_GETTER], [PROPERTY\_SETTER].\n \*\n \* @property allowedTargets list of allowed annotation targets\n \*\n\n@Target(AnnotationTarget.ANNOTATION\_CLASS)\n@MustBeDocumented\npublic annotation class Target(vararg val allowedTargets: AnnotationTarget)\n\n/\*\*\n \* This meta-annotation determines whether an annotation is stored in binary output and visible for reflection. By default, both are true.\n \*\n \* @property value necessary annotation retention (RUNTIME, BINARY or SOURCE)\n \*\n\n@Target(AnnotationTarget.ANNOTATION\_CLASS)\npublic annotation class Retention(val value: AnnotationRetention = AnnotationRetention.RUNTIME)\n\n/\*\*\n \* This meta-annotation determines that an annotation is applicable twice or more on a single code element\n \*\n\n@Target(AnnotationTarget.ANNOTATION\_CLASS)\npublic annotation class Repeatable\n\n/\*\*\n \* This meta-annotation determines that an annotation is a part of public API and therefore should be included in the generated\n \* documentation for the element to which the annotation is applied.\n \*\n\n@Target(AnnotationTarget.ANNOTATION\_CLASS)\npublic annotation class MustBeDocumented\n\n"/\n \* Copyright 2010-2016 JetBrains s.r.o.\n \*\n \* Licensed under the Apache License, Version 2.0 (the "License");\n \* you may not use this file except in compliance with the License.\n \* You may obtain a copy of the License at\n \*\n \* <http://www.apache.org/licenses/LICENSE-2.0>\n \*\n \* Unless required by applicable law or agreed to in writing, software\n \* distributed under the License is distributed on an "AS IS" BASIS,\n \* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.\n \* See the License for the specific language governing permissions and\n \* limitations under the License.\n \*\n\npackage kotlin.internal\n\n/\*\*\n \* Specifies that the corresponding type parameter is not used for unsafe operations such as casts or 'is' checks\n \* That means it's completely safe to use generic types as argument for such parameter.\n \*\n\n@Target(AnnotationTarget.TYPE\_PARAMETER)\n@Retention(AnnotationRetention.BINARY)\ninternal annotation class PureReifiable\n\n/\*\*\n \* Specifies that the corresponding built-in method exists depending on platform.\n \* Current implementation for JVM looks whether method with same JVM descriptor exists in the module JDK.\n \* For example MutableMap.remove(K, V) available only if corresponding\n \* method 'java.util.Map.remove(Ljava/lang/Object;Ljava/lang/Object;)Z' is defined in JDK (i.e. for major versions >= 8)\n \*\n\n@Target(AnnotationTarget.FUNCTION)\n@Retention(AnnotationRetention.BINARY)\ninternal



```

annotation class PlatformDependent {
    When applied to a function or property, enables a compiler
    optimization that evaluates that function or property at compile-time and replaces calls to it with the computed
    result.
    @Target(AnnotationTarget.CONSTRUCTOR, AnnotationTarget.FUNCTION,
    AnnotationTarget.PROPERTY)
    @Retention(AnnotationRetention.BINARY)
    @SinceKotlin("1.7")
    internal annotation class IntrinsicConstEvaluation {
        Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
        Language contributors.
        Use of this source code is governed by the Apache 2.0 license that can be found in the
        license/LICENSE.txt file.
        package kotlin.internal {
            a mod b (in arithmetical sense)
            private fun mod(a: Int, b: Int): Int {
                val mod = a % b
                return if (mod >= 0) mod else mod + b
            }
            private fun mod(a: Long, b: Long): Long {
                val mod = a % b
                return if (mod >= 0) mod else mod + b
            }
            (a - b) mod
            private fun differenceModulo(a: Int, b: Int, c: Int): Int {
                return mod(mod(a, c) - mod(b, c), c)
            }
            private fun differenceModulo(a: Long, b: Long, c: Long): Long {
                return mod(mod(a, c) - mod(b, c), c)
            }
        }
        Calculates the final element of a bounded arithmetic progression, i.e. the last element of the progression which is in
        the range from [start] to [end] in case of a positive [step], or from [end] to [start] in case of a negative
        [step].
        No validation on passed parameters is performed. The given parameters should satisfy the
        condition:
        - either `step > 0` and `start <= end`,
        - or `step < 0` and `start >= end`.
        @param start first element of the progression
        @param end ending bound for the progression
        @param step increment, or difference of successive elements in the progression
        @return the final element of the progression
        @suppress
        @PublishedApi
        internal fun getProgressionLastElement(start: Int, end: Int,
        step: Int): Int = when {
            step > 0 -> if (start >= end) end else end - differenceModulo(end, start, step)
            step < 0 -> if (start <= end) end else end + differenceModulo(start, end, -step)
            else -> throw
        }
        kotlin.IllegalArgumentException("Step is zero.")
    }
    Calculates the final element of a bounded
    arithmetic progression, i.e. the last element of the progression which is in the range from [start] to [end] in case
    of a positive [step], or from [end] to [start] in case of a negative [step].
    No validation on passed
    parameters is performed. The given parameters should satisfy the condition:
    - either `step > 0` and `start <=
    end`,
    - or `step < 0` and `start >= end`.
    @param start first element of the progression
    @param end
    ending bound for the progression
    @param step increment, or difference of successive elements in the
    progression
    @return the final element of the progression
    @suppress
    @PublishedApi
    internal fun
    getProgressionLastElement(start: Long, end: Long, step: Long): Long = when {
        step > 0 -> if (start >= end) end
        else end - differenceModulo(end, start, step)
        step < 0 -> if (start <= end) end else end + differenceModulo(start,
        end, -step)
        else -> throw kotlin.IllegalArgumentException("Step is zero.")
    }
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    Use of this source code is governed by the
    Apache 2.0 license that can be found in the license/LICENSE.txt file.
    @JsName("arrayIterator")
    internal fun arrayIterator(array: dynamic, type: String?) = when (type) {
        null -> {
            val arr: Array<dynamic> =
            array
            object : Iterator<dynamic> {
                var index = 0
                override fun hasNext() = index < arr.size
                override fun next() = if (index < arr.size) arr[index++] else throw NoSuchElementException("$index")
            }
            if ("BooleanArray" -> booleanArrayIterator(array)
            "ByteArray" -> byteArrayIterator(array)
            "ShortArray" -> shortArrayIterator(array)
            "CharArray" ->
            charArrayIterator(array)
            "IntArray" -> intArrayIterator(array)
            "LongArray" -> longArrayIterator(array)
            "FloatArray" -> floatArrayIterator(array)
            "DoubleArray" -> doubleArrayIterator(array)
            else -> throw
            IllegalStateException("Unsupported type argument for arrayIterator:
            $type")
        }
        @JsName("booleanArrayIterator")
        internal fun booleanArrayIterator(array: BooleanArray) =
        object : BooleanIterator() {
            var index = 0
            override fun hasNext() = index < array.size
            override fun
            nextBoolean() = if (index < array.size) array[index++] else throw
            NoSuchElementException("$index")
        }
        @JsName("byteArrayIterator")
        internal fun byteArrayIterator(array:
        ByteArray) = object : ByteIterator() {
            var index = 0
            override fun hasNext() = index < array.size
            override
            fun nextByte() = if (index < array.size) array[index++]
            else throw NoSuchElementException("$index")
        }
        @JsName("shortArrayIterator")
        internal fun
        shortArrayIterator(array: ShortArray) = object : ShortIterator() {
            var index = 0
            override fun hasNext() =
    }

```

```

index < array.size\n  override fun nextShort() = if (index < array.size) array[index++] else throw
NoSuchElementException("$index")\n}\n\n@JsName("charArrayIterator")\ninternal fun charArrayIterator(array:
CharArray) = object : CharIterator() {\n  var index = 0\n  override fun hasNext() = index < array.size\n  override
fun nextChar() = if (index < array.size) array[index++] else throw
NoSuchElementException("$index")\n}\n\n@JsName("intArrayIterator")\ninternal fun intArrayIterator(array:
IntArray) = object : IntIterator() {\n  var index = 0\n  override fun hasNext() = index < array.size\n  override fun
nextInt() = if (index < array.size) array[index++] else throw
NoSuchElementException("$index")\n}\n\n@JsName("floatArrayIterator")\ninternal fun
floatArrayIterator(array: FloatArray) = object : FloatIterator() {\n  var index = 0\n  override fun hasNext() =
index < array.size\n  override fun nextFloat() = if (index < array.size) array[index++] else throw
NoSuchElementException("$index")\n}\n\n@JsName("doubleArrayIterator")\ninternal fun
doubleArrayIterator(array: DoubleArray) = object : DoubleIterator() {\n  var index = 0\n  override fun hasNext()
= index < array.size\n  override fun nextDouble() = if (index < array.size) array[index++] else throw
NoSuchElementException("$index")\n}\n\n@JsName("longArrayIterator")\ninternal fun longArrayIterator(array:
LongArray) = object : LongIterator() {\n  var index = 0\n  override fun hasNext() = index < array.size\n
override fun nextLong() = if (index < array.size) array[index++] else throw
NoSuchElementException("$index")\n}\n\n@JsName("PropertyMetadata")\ninternal class
PropertyMetadata(@JsName("callableName") val name:
String)\n\n@JsName("noWhenBranchMatched")\ninternal
fun noWhenBranchMatched(): Nothing = throw
NoWhenBranchMatchedException()\n\n@JsName("subSequence")\ninternal fun subSequence(c: CharSequence,
startIndex: Int, endIndex: Int): CharSequence {\n  if (c is String) {\n    return c.substring(startIndex, endIndex)\n
} else {\n    return c.asDynamic().`subSequence_vux9f0$`(startIndex, endIndex)\n
}\n}\n\n@JsName("captureStack")\ninternal fun captureStack(@Suppress("UNUSED_PARAMETER")
baseClass: JsClass<in Throwable>, instance: Throwable) {\n  if (js("Error").captureStackTrace) {\n    // Using
uncropped stack traces due to KT-37563.\n    // Precise stack traces are implemented in JS IR compiler and
stdlib\n    js("Error").captureStackTrace(instance);\n  } else {\n    instance.asDynamic().stack = js("new
Error()").stack;\n  }\n}\n\n@JsName("newThrowable")\ninternal fun newThrowable(message: String?, cause:
Throwable?): Throwable {\n  val throwable = js("new Error()")\n
throwable.message = if (jsTypeOf(message) == "undefined") {\n    if (cause != null) cause.toString() else
null\n  } else {\n    message\n  }\n  throwable.cause = cause\n  throwable.name = "Throwable"\n  return
throwable\n}\n\n@JsName("BoxedChar")\ninternal class BoxedChar(val c: Int) : Comparable<Int> {\n  override
fun equals(other: Any?): Boolean {\n    return other is BoxedChar && c == other.c\n  }\n  override fun
hashCode(): Int {\n    return c\n  }\n  override fun toString(): String {\n    return
js("this.c").unsafeCast<Char>().toString()\n  }\n  override fun compareTo(other: Int): Int {\n    return
js("this.c - other").unsafeCast<Int>()\n  }\n  @JsName("valueOf")\n  public fun valueOf(): Int {\n
return c\n  }\n}\n\n@kotlin.internal.InlineOnly\ninternal inline fun <T> concat(args: Array<T>): T {\n  val typed
= js("Array")(args.size)\n  for (i in args.indices) {\n    val arr = args[i]\n
if (arr !is Array<*>) {\n    typed[i] = js("[]").slice.call(arr)\n  } else {\n    typed[i] = arr\n  }\n
}\n  return js("[]").concat.apply(js("[]"), typed);\n}\n\n/** Concat regular Array's and TypedArray's into an
Array.\n * \n@PublishedApi\n@JsName("arrayConcat")\n@Suppress("UNUSED_PARAMETER")\ninternal fun
<T> arrayConcat(a: T, b: T): T {\n  return concat(js("arguments"))\n}\n\n/** Concat primitive arrays. Main use:
prepare vararg arguments.\n * For compatibility with 1.1.0 the arguments may be a mixture of Array's and
TypedArray's.\n * \n * If the first argument is TypedArray (Byte-, Short-, Char-, Int-, Float-, and DoubleArray)
returns a TypedArray, otherwise an Array.\n * If the first argument has the $type$ property (Boolean-, Char-, and
LongArray) copy its value to result.$type$.\n * If the first argument is a regular Array without the $type$ property
default to arrayConcat.\n
 * \n@PublishedApi\n@JsName("primitiveArrayConcat")\n@Suppress("UNUSED_PARAMETER")\ninternal

```

```

fun <T> primitiveArrayConcat(a: T, b: T): T {
    val args: Array<T> = js("arguments")
    if (a is Array<*> &&
a.asDynamic().`$type$` === undefined) {
        return concat(args)
    } else {
        var size = 0
        for (i in
args.indices) {
            size += args[i].asDynamic().length as Int
        }
        val result = js("new
a.constructor(size)")
        kotlin.copyArrayType(a, result)
        size = 0
        for (i in args.indices) {
            val
arr = args[i].asDynamic()
            for (j in 0 until arr.length) {
                result[size++] = arr[j]
            }
        }
        return result
    }
}

@JsName("booleanArrayOf")
internal fun booleanArrayOf() =
withType("BooleanArray", js("[].slice.call(arguments)"))

@JsName("charArrayOf")
internal fun
charArrayOf() = withType("CharArray", js("new
Uint16Array(arguments)"))

@JsName("longArrayOf")
internal fun longArrayOf()
= withType("LongArray",
js("[].slice.call(arguments)"))

@JsName("withType")
@kotlin.internal.InlineOnly
internal inline fun
withType(type: String, array: dynamic): dynamic {
    array.`$type$` = type
    return array
}

/*
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by the Apache 2.0 license that can be found in the license/LICENSE.txt file.
 */
package kotlin.js

/**
 * Function corresponding to JavaScript's `typeof` operator
 */
@kotlin.internal.InlineOnly
@Suppress("UNUSED_PARAMETER")
public inline fun jsTypeOf(a: Any?):
String = js("typeof a")

/*
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contributors.
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license/LICENSE.txt file.
 */
@file:Suppress("UNUSED_PARAMETER",
"NOTHING_TO_INLINE")
package kotlin

/**
 * Returns an empty array
of the specified type [T].
 */
public inline fun <T> emptyArray(): Array<T> = js("[]")

@library
public fun <T> arrayOf(vararg elements: T): Array<T> = definedExternally

@library
public fun doubleArrayOf(vararg
elements: Double): DoubleArray = definedExternally

@library
public fun floatArrayOf(vararg elements: Float):
FloatArray = definedExternally

@library
public fun longArrayOf(vararg elements: Long): LongArray =
definedExternally

@library
public fun intArrayOf(vararg elements: Int): IntArray =
definedExternally

@library
public fun charArrayOf(vararg elements: Char): CharArray =
definedExternally

@library
public fun shortArrayOf(vararg elements: Short): ShortArray =
definedExternally

@library
public fun byteArrayOf(vararg elements: Byte): ByteArray =
definedExternally

@library
public fun booleanArrayOf(vararg elements: Boolean): BooleanArray =
definedExternally

/**
 * Creates a new instance of the [Lazy] that uses the specified initialization
function [initializer].
 */
public actual fun <T> lazy(initializer: () -> T): Lazy<T> =
UnsafeLazyImpl(initializer)

/**
 * Creates a new instance of the [Lazy] that uses the specified initialization
function [initializer].
 * The [mode] parameter is ignored.
 */
public actual fun <T> lazy(mode:
LazyThreadSafetyMode, initializer: () -> T): Lazy<T> =
UnsafeLazyImpl(initializer)

/**
 * Creates a new
instance of the [Lazy] that uses the specified initialization function [initializer].
 * The [lock] parameter is
ignored.
 */
public actual fun <T> lazy(lock: Any?, initializer: () -> T): Lazy<T> =
UnsafeLazyImpl(initializer)

internal fun fillFrom(src: dynamic, dst: dynamic): dynamic {
    val srcLen: Int =
src.length
    val dstLen: Int = dst.length
    var index: Int = 0
    while (index < srcLen && index < dstLen)
dst[index] = src[index++]
    return dst
}

internal fun arrayCopyResize(source: dynamic, newSize: Int,
defaultValue: Any?): dynamic {
    val result = source.slice(0, newSize)
    copyArrayType(source, result)
    var index: Int = source.length
    if
(newSize > index) {
        result.length = newSize
        while (index < newSize)
result[index++] = defaultValue
    }
    return result
}

internal fun <T> arrayPlusCollection(array: dynamic, collection: Collection<T>): dynamic
{
    val result = array.slice()
    result.length += collection.size
    copyArrayType(array, result)
    var index: Int
= array.length
    for (element in collection) result[index++] = element
    return result
}

internal fun <T>
fillFromCollection(dst: dynamic, startIndex: Int, collection: Collection<T>): dynamic {
    var index = startIndex
    for (element in collection) dst[index++] = element
    return dst
}

internal inline fun copyArrayType(from:
dynamic, to: dynamic) {
    if (from.`$type$` !== undefined) {
        to.`$type$` = from.`$type$`
    }
}

```

```

}\n}\n\ninternal inline fun jsIsType(obj: dynamic, jsClass:
dynamic) = js("\Kotlin\").isType(obj, jsClass)", /*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *^\n\npackage kotlin\n\n/**\n * Creates a Char with the specified [code].\n
*\n * @sample samples.text.Chars.charFromCode\n
*\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
actual inline fun Char(code: UShort): Char {\n    return code.toInt().toChar()\n}\n", /*\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *^\n\npackage kotlin.coroutines\n\nimport
kotlin.coroutines.intrinsics.COROUTINE_SUSPENDED\n\n@SinceKotlin("1.3")\n@JsName("\CoroutineImpl\")\n
\ninternal abstract class CoroutineImpl(private val resultContinuation:
Continuation<Any?>) : Continuation<Any?> {\n    protected var state = 0\n    protected var exceptionState = 0\n
protected var result: Any? = null\n    protected var exception: Throwable? = null\n    protected var finallyPath:
Array<Int?> = null\n\n    public override val context: CoroutineContext = resultContinuation.context\n\n    private
var intercepted_: Continuation<Any?>? = null\n\n    public fun intercepted(): Continuation<Any?> =\nintercepted_
\n        ?: (context[ContinuationInterceptor]?.interceptContinuation(this) ?: this)\n        .also {
intercepted_ = it }\n\n    override fun resumeWith(result: Result<Any?>) {\n        var current = this\n        var
currentResult: Any? = result.getOrNull()\n        var currentException: Throwable? = result.exceptionOrNull()\n
\n        // This loop unrolls recursion in current.resumeWith(param) to make saner and shorter stack traces on resume\n
while (true) {\n            with(current) {\n
\n                val completion = resultContinuation\n\n                // Set result and exception fields in the current continuation\n
                if (currentException == null) {\n                    this.result = currentResult\n                    } else {\n
                        state =
exceptionState\n                    exception = currentException\n                    }\n\n                    try {\n                        val
outcome = doResume()\n                        if (outcome === COROUTINE_SUSPENDED) return\n
\n                        currentResult = outcome\n                        currentException = null\n                    } catch (exception: dynamic) { // Catch
all exceptions\n                        currentResult = null\n                        currentException =
exception.unsafeCast<Throwable>()\n                    }\n\n                    releaseIntercepted() // this state machine instance is
terminating\n\n                    if (completion is CoroutineImpl) {\n                        // unrolling recursion via loop\n
                        current = completion\n                    } else {\n                        // top-level completion reached -- invoke and return\n
                        currentException?.let {\n                            completion.resumeWithException(it)\n                        } ?:
completion.resume(currentResult)\n                        return\n                    }\n                }\n            }\n\n            private fun
releaseIntercepted() {\n                val intercepted = intercepted_
\n                if (intercepted != null && intercepted !== this) {\n
                    context[ContinuationInterceptor]!!.releaseInterceptedContinuation(intercepted)\n                }\n                this.intercepted_
= CompletedContinuation // just in case\n            }\n\n            protected abstract fun doResume(): Any?\n}\n\n\ninternal object
CompletedContinuation : Continuation<Any?> {\n    override val context: CoroutineContext\n        get() =
error("\This continuation is already complete")\n\n    override fun resumeWith(result: Result<Any?>) {\n
error("\This continuation
is already complete")\n    }\n\n    override fun toString(): String = "\This continuation is already
complete"\n}\n", /*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:Suppress("\UNCHECKED_CAST", "\RedundantVisibilityModifier")\n\npackage kotlin\n\nimport
kotlin.contracts.*\nimport kotlin.internal.InlineOnly\nimport kotlin.jvm.JvmField\nimport
kotlin.jvm.JvmInline\nimport kotlin.jvm.JvmName\n\n/**\n * A discriminated union that encapsulates a successful
outcome with a value of type [T]\n * or a failure with an arbitrary [Throwable] exception.\n
*\n\n@SinceKotlin("1.3")\n@JvmInline\npublic value class Result<out T> @PublishedApi internal constructor(\n
@PublishedApi\n    internal val value: Any?\n) : Serializable {\n    // discovery\n    /**\n     * Returns `true` if this
instance represents a successful outcome.\n

```

```

    * In this case [isFailure] returns `false`.
    */
    public val isSuccess: Boolean get() = value !is Failure

    * Returns `true` if this instance represents a failed outcome.
    * In this case [isSuccess] returns `false`.
    */
    public val isFailure: Boolean get() = value is Failure // value & exception retrieval
    /**
     * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or `null` if it is
     [failure][Result.isFailure].
     */
    * This function is a shorthand for `getOrElse { null }` (see [getOrElse]) or
    * `fold(onSuccess = { it }, onFailure = { null })` (see [fold]).
    */
    @InlineOnly
    public inline fun
    getOrNull(): T? =
        when {
            isFailure -> null
            else -> value as T
        }
    /**
     * Returns the encapsulated [Throwable] exception if this instance represents [failure][isFailure] or `null` if it is
     [success][isSuccess].
     */
    * This function is a shorthand for `fold(onSuccess = { null }, onFailure = { it })` (see [fold]).
    */
    public fun exceptionOrNull(): Throwable? =
        when (value) {
            is Failure -> value.exception
            else -> null
        }
    /**
     * Returns a string `Success(v)` if this instance represents
     [success][Result.isSuccess]
     * where `v` is a string representation of the value or a string `Failure(x)` if
     * it is [failure][isFailure] where `x` is a string representation of the exception.
    */
    public override fun toString():
    String =
        when (value) {
            is Failure -> value.toString() // "Failure($exception)"
            else ->
            "Success($value)"
        }
    // companion with constructors
    /**
     * Companion object for [Result]
     class that contains its constructor functions
     * [success] and [failure].
    */
    public companion object {
        /**
         * Returns
         an instance that encapsulates the given [value] as successful value.
        */
        @Suppress("INAPPLICABLE_JVM_NAME")
        @InlineOnly
        @JvmName("success")
        public
        inline fun <T> success(value: T): Result<T> =
            Result(value)
        /**
         * Returns an instance that
         encapsulates the given [Throwable] [exception] as failure.
        */
        @Suppress("INAPPLICABLE_JVM_NAME")
        @InlineOnly
        @JvmName("failure")
        public
        inline fun <T> failure(exception: Throwable): Result<T> =
            Result(createFailure(exception))
    }
    internal class Failure(
        @JvmField
        val exception: Throwable
    ): Serializable {
        override fun
        equals(other: Any?): Boolean = other is Failure && exception == other.exception
        override fun hashCode():
        Int = exception.hashCode()
        override fun toString(): String = "Failure($exception)"
    }
    /**
     * Creates an instance of
     internal marker [Result.Failure] class to
     * make sure that this class is not exposed in ABI.
    */
    @PublishedApi
    @SinceKotlin("1.3")
    internal fun createFailure(exception: Throwable): Any =
    Result.Failure(exception)
    /**
     * Throws exception if the result is failure. This internal function minimizes
     * inlined bytecode for [getOrThrow] and makes sure that in the future we can
     * add some exception-augmenting
     logic here (if needed).
    */
    @PublishedApi
    @SinceKotlin("1.3")
    internal fun Result<*>.throwOnFailure() {
        if (value is Result.Failure) throw value.exception
    }
    /**
     * Calls the specified function [block] and returns its
     encapsulated result if invocation was successful,
     * catching any [Throwable] exception that was thrown from the
     [block] function execution and encapsulating it as a failure.
    */
    @InlineOnly
    @SinceKotlin("1.3")
    public
    inline fun <R> runCatching(block: () -> R): Result<R> {
        return try {
            Result.success(block())
        }
        catch (e: Throwable) {
            Result.failure(e)
        }
    }
    /**
     * Calls the specified function [block] with `this`
     value as its receiver and returns its encapsulated result if invocation was successful,
     * catching any [Throwable]
     exception that was thrown from the [block] function execution and encapsulating it as a failure.
    */
    @InlineOnly
    @SinceKotlin("1.3")
    public inline fun <T, R> T.runCatching(block: T.() -> R): Result<R> {
        return try {
            Result.success(block())
        } catch (e: Throwable) {
            Result.failure(e)
        }
    }
    /**
     * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or
     throws the encapsulated [Throwable] exception
     * if it is [failure][Result.isFailure].
    */
    * This function is a
    shorthand for `getOrElse { throw it }` (see [getOrElse]).
    */
    @InlineOnly
    @SinceKotlin("1.3")
    public inline
    fun <T> Result<T>.getOrThrow(): T {
        throwOnFailure()
        return value as T
    }
    /**
     * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or the
     * result of
     [onFailure] function for the encapsulated [Throwable] exception if it is [failure][Result.isFailure].
     * Note, that
    */

```

this function rethrows any [Throwable] exception thrown by [onFailure] function.

\* This function is a shorthand for `fold(onSuccess = { it }, onFailure = onFailure)` (see [fold]).

```

* \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T : R> Result<T>.getOrElse(onFailure: (exception: Throwable) -> R): R { \n contract { \n callsInPlace(onFailure, InvocationKind.AT_MOST_ONCE) \n } \n return when (val exception = exceptionOrNull()) { \n null -> value as T \n else -> onFailure(exception) \n } \n } \n \n /** \n * Returns the encapsulated value if this instance represents [success][Result.isSuccess] or the \n * [defaultValue] if it is [failure][Result.isFailure]. \n * \n * This function is a shorthand for `getOrElse { defaultValue }` (see [getOrElse]). \n * \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T : R> Result<T>.getOrDefault(defaultValue: R): R { \n if (isFailure) return defaultValue \n return value as T \n } \n \n /** \n * Returns the result of [onSuccess] for the encapsulated value if this instance represents [success][Result.isSuccess] \n * or the result of [onFailure] function for the encapsulated [Throwable] exception if it is [failure][Result.isFailure]. \n * \n * Note, that this function rethrows any [Throwable] exception thrown by [onSuccess] or by [onFailure] function. \n * \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T> Result<T>.fold(\n onSuccess: (value: T) -> R, \n onFailure: (exception: Throwable) -> R): R { \n contract { \n callsInPlace(onSuccess, InvocationKind.AT_MOST_ONCE) \n callsInPlace(onFailure, InvocationKind.AT_MOST_ONCE) \n } \n return when (val exception = exceptionOrNull()) { \n null -> onSuccess(value as T) \n else -> onFailure(exception) \n } \n } \n \n // transformation \n \n /** \n * Returns the encapsulated result of the given [transform] function applied to the encapsulated value \n * if this instance represents [success][Result.isSuccess] or the \n * original encapsulated [Throwable] exception if it is [failure][Result.isFailure]. \n * \n * Note, that this function rethrows any [Throwable] exception thrown by [transform] function. \n * \n * See [mapCatching] for an alternative that encapsulates exceptions. \n * \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T> Result<T>.map(transform: (value: T) -> R): Result<R> { \n contract { \n callsInPlace(transform, InvocationKind.AT_MOST_ONCE) \n } \n return when { \n isSuccess -> Result.success(transform(value as T)) \n else -> Result(value) \n } \n } \n \n /** \n * Returns the encapsulated result of the given [transform] function applied to the encapsulated value \n * if this instance represents [success][Result.isSuccess] or the \n * original encapsulated [Throwable] exception if it is [failure][Result.isFailure]. \n * \n * This function catches any [Throwable] exception thrown by [transform] function and encapsulates it as a failure. \n * \n * See [map] for an alternative that rethrows exceptions from `transform` function. \n * \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T> Result<T>.mapCatching(transform: (value: T) -> R): Result<R> { \n return when { \n isSuccess -> runCatching { transform(value as T) } \n else -> Result(value) \n } \n } \n \n /** \n * Returns the encapsulated result of the given [transform] function applied to the encapsulated [Throwable] exception \n * if this instance represents [failure][Result.isFailure] or the \n * original encapsulated value if it is [success][Result.isSuccess]. \n * \n * Note, that this function rethrows any [Throwable] exception thrown by [transform] function. \n * \n * See [recoverCatching] for an alternative that encapsulates exceptions. \n * \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T : R> Result<T>.recover(transform: (exception: Throwable) -> R): Result<R> { \n contract { \n callsInPlace(transform, InvocationKind.AT_MOST_ONCE) \n } \n return when (val exception = exceptionOrNull()) { \n null -> this \n else -> Result.success(transform(exception)) \n } \n } \n \n /** \n * Returns the encapsulated result of the given [transform] function applied to the encapsulated [Throwable] exception \n * if this instance represents [failure][Result.isFailure] or the \n * original encapsulated value if it is [success][Result.isSuccess]. \n * \n * This function catches any [Throwable] exception thrown by [transform] function and encapsulates it as a failure. \n * \n * See [recover] for an alternative that rethrows exceptions. \n * \n @InlineOnly \n @SinceKotlin("1.3") \n public inline fun <R, T : R> Result<T>.recoverCatching(transform: (exception: Throwable) -> R): Result<R> { \n return when (val exception = exceptionOrNull()) { \n null -> this \n else -> runCatching { transform(exception) } \n } \n } \n \n // "peek" onto value/exception and pipe \n \n /** \n * Performs the given [action] on the encapsulated [Throwable] exception if this instance represents [failure][Result.isFailure]. \n * \n * Returns the original `Result` unchanged. \n

```



completion).intercepted(), COROUTINE\_SUSPENDED)\n\n/\*\*\n \* Starts a coroutine without a receiver and with result type [T].\n \* This function creates and starts a new, fresh instance of suspendable computation every time it is invoked.\n \* The [completion] continuation is invoked when the coroutine completes with a result or an exception.\n \*/\n@SinceKotlin("1.3")\n@Suppress("UNCHECKED\_CAST")\npublic fun <T> (suspend () -> T).startCoroutine(\n completion: Continuation<T>)\n) {\n createCoroutineUnintercepted(completion).intercepted().resume(Unit)\n}\n\n/\*\*\n \* Starts a coroutine with receiver type [R] and result type [T].\n \* This function creates and starts a new, fresh instance of suspendable computation every time it is invoked.\n \* The [completion] continuation is invoked when the coroutine completes with a result or an exception.\n \*/\n@SinceKotlin("1.3")\n@Suppress("UNCHECKED\_CAST")\npublic fun <R, T> (suspend R.() -> T).startCoroutine(\n receiver: R,\n completion: Continuation<T>)\n) {\n createCoroutineUnintercepted(receiver, completion).intercepted().resume(Unit)\n}\n\n/\*\*\n \* Obtains the current continuation instance inside suspend functions and suspends\n \* the currently running coroutine.\n \*/\n \* In this function both [Continuation.resume] and [Continuation.resumeWithException] can be used either synchronously in\n \* the same stack-frame where the suspension function is run or asynchronously later in the same thread or\n \* from a different thread of execution. Subsequent invocation of any resume function will produce an [IllegalStateException].\n \*/\n@SinceKotlin("1.3")\n@InlineOnly\npublic suspend inline fun <T> suspendCoroutine(crossinline block: (Continuation<T>) -> Unit): T {\n contract { callsInPlace(block, InvocationKind.EXACTLY\_ONCE) }\n return suspendCoroutineUninterceptedOrReturn { c: Continuation<T> -> \n val safe = SafeContinuation(c.intercepted())\n block(safe)\n safe.getOrThrow()\n }\n}\n\n/\*\*\n \* Returns the context of the current coroutine.\n \*/\n@SinceKotlin("1.3")\n@Suppress("WRONG\_MODIFIER\_TARGET")\n@InlineOnly\npublic suspend inline val coroutineContext: CoroutineContext\n get() {\n throw NotImplementedError("Implemented as intrinsic")\n }\n},"/\*\n \* Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n \* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n \*/\n@npackage kotlin.coroutines.intrinsics\n@nimport kotlin.coroutines.\*\n@nimport kotlin.internal.InlineOnly\n\n/\*\*\n \* Starts an unintercepted coroutine without a receiver and with result type [T] and executes it until its first suspension.\n \* Returns the result of the coroutine or throws its exception if it does not suspend or [COROUTINE\_SUSPENDED] if it suspends.\n \* In the latter case, the [completion] continuation is invoked when the coroutine completes with a result or an exception.\n \*/\n \* The coroutine is started directly in the invoker's thread without going through the [ContinuationInterceptor] that might\n \* be present in the completion's [CoroutineContext]. It is the invoker's responsibility to ensure that a proper invocation\n \* context is established.\n \*/\n \* This function is designed to be used from inside of [suspendCoroutineUninterceptedOrReturn] to resume the execution of the suspended\n \* coroutine using a reference to the suspending function.\n \*/\n@SinceKotlin("1.3")\n@InlineOnly\npublic actual inline fun <T> (suspend () -> T).startCoroutineUninterceptedOrReturn(\n completion: Continuation<T>)\n): Any? = this.asDynamic()(completion, false)\n\n/\*\*\n \* Starts an unintercepted coroutine with receiver type [R] and result type [T] and executes it until its first suspension.\n \* Returns the result of the coroutine or throws its exception if it does not suspend or [COROUTINE\_SUSPENDED] if it suspends.\n \* In the latter case, the [completion] continuation is invoked when the coroutine completes with a result or an exception.\n \*/\n \* The coroutine is started directly in the invoker's thread without going through the [ContinuationInterceptor] that might\n \* be present in the completion's [CoroutineContext]. It is the invoker's responsibility to ensure that a proper invocation\n \* context is established.\n \*/\n \* This function is designed to be used from inside of [suspendCoroutineUninterceptedOrReturn] to resume the execution of the suspended\n \* coroutine using a reference to the suspending function.\n \*/\n@SinceKotlin("1.3")\n@InlineOnly\npublic actual inline fun <R, T> (suspend R.() -> T).startCoroutineUninterceptedOrReturn(\n receiver: R,\n completion: Continuation<T>)\n): Any? = this.asDynamic()(receiver, completion, false)\n\n@nimport kotlin.internal\npublic actual inline fun <R, P, T> (suspend R.(P) -> T).startCoroutineUninterceptedOrReturn(\n receiver: R,\n param: P,\n completion: Continuation<T>)\n):



```

Any? = this.asDynamic()(receiver, param, completion, false)\n\n/**\n * Creates unintercepted coroutine without receiver and with result type [T].\n * This function creates a new, fresh instance of suspendable computation every time it is invoked.\n * To start executing the created coroutine, invoke `resume(Unit)` on the returned [Continuation] instance.\n * The [completion] continuation is invoked when coroutine completes with result or exception.\n * This function returns unintercepted continuation.\n * Invocation of `resume(Unit)` starts coroutine immediately in the invoker's call stack without going through the\n * [ContinuationInterceptor] that might be present in the completion's [CoroutineContext].\n * It is the invoker's responsibility to ensure that a proper invocation context is established.\n * Note that [completion] of this function may get invoked in an arbitrary context.\n *\n * [Continuation.intercepted] can be used to acquire the intercepted continuation.\n * Invocation of `resume(Unit)` on intercepted continuation guarantees that execution of\n * both the coroutine and [completion] happens in the invocation context established by\n * [ContinuationInterceptor].\n *\n * Repeated invocation of any resume function on the resulting continuation corrupts the\n * state machine of the coroutine and may result in arbitrary behaviour or exception.\n */\n@SinceKotlin("1.3")\npublic actual fun <T> (suspend () -> T).createCoroutineUnintercepted(\n    completion: Continuation<T>): Continuation<Unit> =\n    // Kotlin/JS suspend lambdas have an extra parameter `suspended`\n    if (this.asDynamic().length == 2) {\n        // When `suspended` is true the continuation is created, but not executed\n        this.asDynamic()(completion, true)\n    } else {\n        createCoroutineFromSuspendFunction(completion) {\n            this.asDynamic()(completion)\n        }\n    }\n\n/**\n * Creates unintercepted coroutine with receiver type [R] and result type [T].\n * This function creates a new, fresh instance of suspendable computation every time it is invoked.\n * To start executing the created coroutine, invoke `resume(Unit)` on the returned [Continuation] instance.\n * The [completion] continuation is invoked when coroutine completes with result or exception.\n * This function returns unintercepted continuation.\n * Invocation of `resume(Unit)` starts coroutine immediately in the invoker's call stack without going through the\n * [ContinuationInterceptor] that might be present in the completion's [CoroutineContext].\n * It is the invoker's responsibility to ensure that a proper invocation context is established.\n *\n * Note that [completion] of this function may get invoked in an arbitrary context.\n *\n * [Continuation.intercepted] can be used to acquire the intercepted continuation.\n * Invocation of `resume(Unit)` on intercepted continuation guarantees that execution of\n * both the coroutine and [completion] happens in the invocation context established by\n * [ContinuationInterceptor].\n *\n * Repeated invocation of any resume function on the resulting continuation corrupts the\n * state machine of the coroutine and may result in arbitrary behaviour or exception.\n */\n@SinceKotlin("1.3")\npublic actual fun <R, T> (suspend R.() -> T).createCoroutineUnintercepted(\n    receiver: R,\n    completion: Continuation<T>): Continuation<Unit> =\n    // Kotlin/JS suspend lambdas have an extra parameter `suspended`\n    if (this.asDynamic().length == 3) {\n        // When `suspended` is true the continuation is created, but not executed\n        this.asDynamic()(receiver, completion, true)\n    } else {\n        createCoroutineFromSuspendFunction(completion) {\n            this.asDynamic()(receiver, completion)\n        }\n    }\n\n/**\n * Intercepts this continuation with [ContinuationInterceptor].\n * This function shall be used on the immediate result of [createCoroutineUnintercepted] or [suspendCoroutineUninterceptedOrReturn],\n * in which case it checks for [ContinuationInterceptor] in the continuation's [context][Continuation.context],\n * invokes [ContinuationInterceptor.interceptContinuation], caches and returns the result.\n * If this function is invoked on other [Continuation] instances it returns `this` continuation unchanged.\n */\n@SinceKotlin("1.3")\npublic actual fun <T> Continuation<T>.intercepted(): Continuation<T> =\n    (this as? CoroutineImpl)?.intercepted() ?: this\n\nprivate inline fun <T> createCoroutineFromSuspendFunction(\n    completion: Continuation<T>,\n    crossinline block: () -> Any?): Continuation<Unit> {\n    @Suppress("UNCHECKED_CAST")\n    return object : CoroutineImpl(completion as Continuation<Any?>) {\n        override fun doResume(): Any? {\n            exception?.let { throw it }\n            return block()\n        }\n    }\n}\n\n"/**\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n// Mirrors signature from JS IR BE\n// Used for

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js.translator/testData/box/number/mulInt32.kt\n@library\n@jsName("\nimulEmulated")\n@Suppress("\UNUSED_P
ARAMETER")\ninternal fun imul(x: Int, y: Int): Int =
definedExternally\n\n@Suppress("\NOTHING_TO_INLINE")\ninternal inline fun isArrayish(o: dynamic) =
js("\Kotlin").isArrayish(o)\n",/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin\n\n// NOTE: Do not author your exceptions as they are written in
this file, instead use this template:\n/*\npublic open class MyException : Exception {\n    constructor() : super()\n    constructor(message: String?) : super(message)\n    constructor(message: String?, cause: Throwable?) :
super(message,
cause)\n    constructor(cause: Throwable?) : super(cause)\n}\n*/\n\n// TODO: remove primary constructors, make
all secondary KT-22055\n\n@Suppress("\USELESS_ELVIS_RIGHT_IS_NULL")\npublic actual open class Error
actual constructor(message: String?, cause: Throwable?) : Throwable(message, cause ?: null) {\n    actual
constructor() : this(null, null)\n    actual constructor(message: String?) : this(message, null)\n    actual
constructor(cause: Throwable?) : this(undefine
cause)\n}\n\n@Suppress("\USELESS_ELVIS_RIGHT_IS_NULL")\npublic actual open class Exception actual
constructor(message: String?, cause: Throwable?) : Throwable(message, cause ?: null) {\n    actual constructor() :
this(null, null)\n    actual constructor(message: String?) : this(message, null)\n    actual constructor(cause:
Throwable?) : this(undefine
Throwable?) : this(undefine, cause)\n}\n\npublic actual open class RuntimeException actual constructor(message:
String?, cause: Throwable?) : Exception(message, cause) {\n    actual constructor()
: this(null, null)\n    actual constructor(message: String?) : this(message, null)\n    actual constructor(cause:
Throwable?) : this(undefine, cause)\n}\n\npublic actual open class IllegalArgumentException actual
constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n    actual constructor() :
this(null, null)\n    actual constructor(message: String?) : this(message, null)\n    actual constructor(cause:
Throwable?) : this(undefine, cause)\n}\n\npublic actual open class IllegalStateException actual
constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n    actual constructor() :
this(null, null)\n    actual constructor(message: String?) : this(message, null)\n    actual constructor(cause:
Throwable?) : this(undefine, cause)\n}\n\npublic actual open class IndexOutOfBoundsException actual
constructor(message: String?) : RuntimeException(message) {\n    actual constructor() : this(null)\n}\n\npublic
actual open class
ConcurrentModificationException actual constructor(message: String?, cause: Throwable?) :
RuntimeException(message, cause) {\n    actual constructor() : this(null, null)\n    actual constructor(message:
String?) : this(message, null)\n    actual constructor(cause: Throwable?) : this(undefine, cause)\n}\n\npublic actual
open class UnsupportedOperationException actual constructor(message: String?, cause: Throwable?) :
RuntimeException(message, cause) {\n    actual constructor() : this(null, null)\n    actual constructor(message:
String?) : this(message, null)\n    actual constructor(cause: Throwable?) : this(undefine, cause)\n}\n\npublic
actual open class NumberFormatException actual constructor(message: String?) :
IllegalArgumentException(message) {\n    actual constructor() : this(null)\n}\n\npublic actual open class
NullPointerException actual constructor(message: String?) : RuntimeException(message) {\n    actual constructor() :
this(null)\n}\n\npublic actual open class ClassCastException
actual constructor(message: String?) : RuntimeException(message) {\n    actual constructor() :
this(null)\n}\n\npublic actual open class AssertionError\n@jsSinceKotlin("\1.4")\nconstructor(message: String?,
cause: Throwable?) : Error(message, cause) {\n    actual constructor() : this(null)\n    constructor(message: String?) :
this(message, null)\n    actual constructor(message: Any?) : this(message.toString(), message as?
Throwable)\n}\n\npublic actual open class NoSuchElementException actual constructor(message: String?) :
RuntimeException(message) {\n    actual constructor() : this(null)\n}\n\n@jsSinceKotlin("\1.3")\npublic actual open
class ArithmeticException actual constructor(message: String?) : RuntimeException(message) {\n    actual
constructor() : this(null)\n}\n\npublic actual open class NoWhenBranchMatchedException actual
constructor(message: String?, cause: Throwable?) : RuntimeException(message, cause) {\n    actual constructor() :

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this(null, null)\n    actual
    constructor(message: String?) : this(message, null)\n    actual constructor(cause: Throwable?) : this(undefined,
cause)\n}\n\npublic actual open class UninitializedPropertyAccessException actual constructor(message: String?,
cause: Throwable?) : RuntimeException(message, cause) {\n    actual constructor() : this(null, null)\n    actual
constructor(message: String?) : this(message, null)\n    actual constructor(cause: Throwable?) : this(undefined,
cause)\n}\n", "/*\n * Copyright 2010-2019 JetBrains s.r.o. Use of this source code is governed by the Apache 2.0
license\n * that can be found in the license/LICENSE.txt file.\n
*\n\n@file:Suppress("UNUSED_PARAMETER")\n\npackage kotlin.js\n\n@kotlin.internal.InlineOnly\n\ninternal
inline fun jsDeleteProperty(obj: Any, property: Any) {\n    js("delete
obj[property]")\n}\n\n@kotlin.internal.InlineOnly\n\ninternal inline fun jsBitwiseOr(lhs: Any?, rhs: Any?): Int =\njs("lhs | rhs").unsafeCast<Int>()", "/*\n * Copyright 2010-2018 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n
*\n\npackage kotlin.math\n\n/**\n * Returns this value
with the sign bit same as of the [sign] value.\n * If [sign] is `NaN` the sign of the result is undefined.\n
*\n\n@SinceKotlin("1.2")\n\npublic actual fun Double.withSign(sign: Double): Double {\n    val thisSignBit =
js("Kotlin").doubleSignBit(this).unsafeCast<Int>()\n    val newSignBit =
js("Kotlin").doubleSignBit(sign).unsafeCast<Int>()\n    return if (thisSignBit == newSignBit) this else -
this\n}\n", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\npackage kotlin\n\n/**\n * Returns a bit representation of the specified floating-point value as [Long]\n *
according to the IEEE 754 floating-point
\n"double format" bit layout.\n
*\n\n@SinceKotlin("1.2")\n\n@library("doubleToBits")\n\npublic actual fun
Double.toBits(): Long = definedExternally\n\n/**\n * Returns a bit representation of the specified floating-point
value as [Long]\n * according to the IEEE 754 floating-point "double format" bit layout,\n * preserving `NaN`
values exact layout.\n
*\n\n@SinceKotlin("1.2")\n\n@library("doubleToRawBits")\n\npublic actual fun
Double.toRawBits(): Long = definedExternally\n\n/**\n * Returns the [Double] value corresponding to a given bit
representation.\n
*\n\n@SinceKotlin("1.2")\n\n@kotlin.internal.InlineOnly\n\npublic actual inline fun
Double.Companion.fromBits(bits: Long): Double =
js("Kotlin").doubleFromBits(bits).unsafeCast<Double>()\n\n/**\n * Returns a bit representation of the specified
floating-point value as [Int]\n * according to the IEEE 754 floating-point "single format" bit layout.\n
*\n
*\n * Note
that in Kotlin/JS [Float] range is wider than "single format" bit layout
can represent,\n * so some [Float] values may overflow, underflow or loose their accuracy after conversion to bits
and back.\n
*\n\n@SinceKotlin("1.2")\n\n@library("floatToBits")\n\npublic actual fun Float.toBits(): Int =
definedExternally\n\n/**\n * Returns a bit representation of the specified floating-point value as [Int]\n * according
to the IEEE 754 floating-point "single format" bit layout,\n * preserving `NaN` values exact layout.\n
*\n
*\n * Note
that in Kotlin/JS [Float] range is wider than "single format" bit layout can represent,\n * so some [Float] values
may overflow, underflow or loose their accuracy after conversion to bits and back.\n
*\n\n@SinceKotlin("1.2")\n\n@library("floatToRawBits")\n\npublic actual fun Float.toRawBits(): Int =
definedExternally\n\n/**\n * Returns the [Float] value corresponding to a given bit representation.\n
*\n\n@SinceKotlin("1.2")\n\n@kotlin.internal.InlineOnly\n\npublic actual inline fun Float.Companion.fromBits(bits:
Int): Float =
js("Kotlin").floatFromBits(bits).unsafeCast<Float>()\n\n\n@Suppress("NOTHING_TO_INLINE")\n\ninternal
inline fun Long(low: Int, high: Int) = js("Kotlin").Long.fromBits(low, high).unsafeCast<Long>()\n\ninternal inline
val Long.low: Int get() = this.asDynamic().getLowBits().unsafeCast<Int>()\n\ninternal inline val Long.high: Int get()
= this.asDynamic().getHighBits().unsafeCast<Int>()\n", "/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n
*\n\nimport kotlin.reflect.KClass\n\n@PublishedApi\n\ninternal fun <T :
Annotation> KClass<*>.findAssociatedObject(@Suppress("UNUSED_PARAMETER") annotationClass:

```





```

    decodedRangeCategory = decodeVarLenBase64(rangeCategory, fromBase64, 1343)\n    }\n}\n\nprivate fun
categoryValueFrom(code: Int, ch: Int): Int {\n    return when {\n        code < 0x20 -> code\n        code < 0x400 -> if
((ch and 1) == 1) code shr 5 else code and 0x1f\n        else ->\n        when (ch % 3) {\n            2 -> code shr
10\n            1 -> (code
shr 5) and 0x1f\n            else -> code and 0x1f\n        }\n    }\n}\n\n/**\n * Returns the Unicode general
category of this character as an Int.\n */\n\ninternal fun Char.getCategoryValue(): Int {\n    val ch = this.code\n\n    val
index = binarySearchRange(Category.decodedRangeStart, ch)\n    val start = Category.decodedRangeStart[index]\n
    val code = Category.decodedRangeCategory[index]\n    val value = categoryValueFrom(code, ch - start)\n\n    return if (value == 17) CharCategory.UNASSIGNED.value else value\n}\n}\n\ninternal fun
decodeVarLenBase64(base64: String, fromBase64: IntArray, resultLength: Int): IntArray {\n    val result =
IntArray(resultLength)\n    var index = 0\n    var int = 0\n    var shift = 0\n    for (char in base64) {\n        val sixBit =
fromBase64[char.code]\n        int = int or ((sixBit and 0x1f) shl shift)\n        if (sixBit < 0x20) {\n
result[index++] = int\n            int = 0\n            shift = 0\n        } else {\n            shift
+= 5\n        }\n    }\n    return result\n}\n\n"/**\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED
by the GenerateStandardLib.kt\n\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\nimport
kotlin.js.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n * Reverses elements in the list in-
place.\n */\n\npublic actual fun <T> MutableList<T>.reverse(): Unit {\n    val midPoint = (size / 2) - 1\n    if
(midPoint < 0) return\n    var reverseIndex = lastIndex\n    for (index in 0..midPoint) {\n        val tmp = this[index]\n
this[index] = this[reverseIndex]\n        this[reverseIndex] = tmp\n        reverseIndex--\n    }\n}\n\n"/**\n *
Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n\n//
See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\n// 37 ranges totally\n\nprivate object Digit
{\n    internal val rangeStart = intArrayOf(\n        0x0030, 0x0660, 0x06f0, 0x07c0, 0x0966, 0x09e6, 0x0a66,
0x0ae6, 0x0b66, 0x0be6, 0x0c66, 0x0ce6, 0x0d66, 0x0de6, 0x0e50, 0x0ed0, 0x0f20, 0x1040, 0x1090, 0x17e0, \n
0x1810, 0x1946, 0x19d0, 0x1a80, 0x1a90, 0x1b50, 0x1bb0, 0x1c40, 0x1c50, 0xa620, 0xa8d0, 0xa900, 0xa9d0,
0xa9f0, 0xaa50, 0xabf0, 0xff10, \n    )\n}\n\n/**\n * Returns the index of the largest element in [array] smaller or
equal to the specified [needle],\n * or -1 if [needle] is smaller than the smallest element in [array].\n */\n\ninternal fun
binarySearchRange(array: IntArray, needle: Int): Int {\n    var bottom = 0\n
    var top = array.size - 1\n    var middle = -1\n    var value = 0\n    while (bottom <= top) {\n        middle = (bottom
+ top) / 2\n        value = array[middle]\n        if (needle > value)\n            bottom = middle + 1\n        else if (needle
== value)\n            return middle\n        else\n            top = middle - 1\n    }\n    return middle - (if (needle < value) 1
else 0)\n}\n\n/**\n * Returns an integer from 0..9 indicating the digit this character represents,\n * or -1 if this
character is not a digit.\n */\n\ninternal fun Char.digitToIntImpl(): Int {\n    val ch = this.code\n    val index =
binarySearchRange(Digit.rangeStart, ch)\n    val diff = ch - Digit.rangeStart[index]\n    return if (diff < 10) diff else -
1\n}\n\n/**\n * Returns `true` if this character is a digit.\n */\n\ninternal fun Char.isDigitImpl(): Boolean {\n    return
digitToIntImpl() >= 0\n}\n\n"/**\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source
code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.text\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\n// 222 ranges totally\n\nprivate object Letter {\n
val decodedRangeStart: IntArray\n    val decodedRangeLength: IntArray\n    val decodedRangeCategory: IntArray\n
\n    init {\n        val toBase64 =
\"ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/\n        val fromBase64 =
IntArray(128)\n        for (i in toBase64.indices) {\n            fromBase64[toBase64[i].code] = i\n        }\n        \n        //
rangeStartDiff.length = 356\n        val rangeStartDiff =

```

```

\"hCgBpCQGYHZH5BRpBPPPPPRMP5BPPICPP6BkEPPPPcPXPzBvBrB3BOiDoBHwD+E3DauCnFmBmB2D
6E1BIBTiBmBIBP5BhBiBrBvBjBqBnBPRtBiCmCtBlB0BmB5BiB7BmBgEmChBzGCoEoGVpBsFrhBPqKQ2B
wBYoFgB4CJuTiEvBuCuDrF5DgEgFlJ1DgFmBQtBsBRGsB+BPiBID1EIjDPRPPPPPPPPPGQSQS/DxENVNU+
B9zCwBwBPPCkDPNnBPqDYY1R8B7FkFgTgwGgwUwmBgKwBuBScmEP/BPPPPPPPrBP8B7F1B/ErBqC6B7B
iBmBfQsBUwCw/KwqIwLwETPcPjQgJxFgBIBsD\"\\n
    val diff = decodeVarLenBase64(rangeStartDiff, fromBase64, 222)\\n    val start = IntArray(diff.size)\\n
for (i in diff.indices) {\\n        if (i == 0) start[i] = diff[i]\\n        else start[i] = start[i - 1] + diff[i]\\n    }\\n
decodedRangeStart = start\\n    \\n    // rangeLength.length = 328\\n    val rangeLength =
\"aaMBXHYH5BRpBPPPPPRMP5BPPICPPzBDOOPPcPXPzBvBjB3BOhDmBBpB7DoDYxB+EiBP1DoExBkB
QhBekBPmBgBhBctBiBMWOOXhCsBpBkBUV3Ba4BkB0DICgBXgBtD4FSdBfPhBPpKP0BvBXjEQ2CGsT8Dh
BtCqDpFvD1D3E0IrD2EkBJrBDOBsB+BPiBIB1EIjDPPPPPPPPPPPGPPMNLsBNPNPKCvBvBPPCkDPBmBPh
DXXgD4B6FzEgDguG9vUtkB9JcuBSckEP/BPPPPPPBPf4FrBjEhBpC3B5BKAWPrBOWCk/KsCuLqDHPbPxPsFt
EaaqDL\"\\n    decodedRangeLength = decodeVarLenBase64(rangeLength, fromBase64, 222)\\n    \\n    //
rangeCategory.length = 959\\n    val rangeCategory =
\"GFjgggUHGFFZZZmzpz5qB6s6020B60ptltB6smt2sB60mz22B1+vv+8BZZ5s2850BW5q1ymtB506smzBF3q1
q1qB1q1q1+Bgii4wDTm74g3KigxqM60q1q1Bq1o1q1BF1qlrqrBZ2q5wprBGFZWWZGHFsjiioLowgmOowjkw
CkgoiIk7ligGogioBkwwiYkzj2oNoi+sbkwj04DghhkQ8wgiYkgoioDsgnkwC4gikQ//v+85BkwvoIsgoyl4ygu0whiw
Eowri4CoghsJowgqYowgm4DkwgsY/nwnzPowhmYkg6wI8yggZswikwHgxgmIoxgqYkwgk4DkxgmIkgoioBsgsso
BgzyI8g9L8g9kI0wgwJoxgkoC0wgioFkw/wI0w53iF4gioYowjmgBHGq1qkgwBF1q1q8qBHwghuIwghyKk0go
QkwgoQk3goQHGFHkyg0pBgxj6IoinkxDswno7Ikwhz9Bo0gioB8z48Rwli0xN0mpjoX8w78pDwltoqKHFGGwwg
sIHFH3q1q16BFHWFZ1q10q1B2qlwq1B1q10q1B2q1yq1B6q1gq1Biq1qhxBir1qp1Bqt1q1qB1g1q1+B//3q16B///q
1qBH/qlq9Bholq9B1i00a1q10qD1op1HkwmigEigiy6Cptogq1Bixo1kDq7/j00B2qgoBWGFm1lz50B6s5q1+BG
WhggzhwBFFhgk4//Bo2jigE8wguI8wguI8wguUog1qoB4qjmIwwi2KkgYHHH4IBgiFWkgIWoghssMmz5smrBZ
3q1y50B5sm7gzBtz1smzB5smz50BqzqtmzB5sgzqzBF2/9//5BowgoIwmnkzPkwgk4C8ys65BkgoqI0wgy6FghquZo
2giY0ghiIsgH24B4ghsQ8QF/v1q1OFs0O8iCHHF1qggz/B8wg6Iznv+//B08QgohsjK0QGfK7hsQ4gB\"\\n
    decodedRangeCategory = decodeVarLenBase64(rangeCategory,
fromBase64, 222)\\n    }\\n}\\n\\n/**\\n * Returns `true` if this character is a letter.\\n */\\ninternal fun
Char.isLetterImpl(): Boolean {\\n    return getLetterType() != 0\\n}\\n}\\n/**\\n * Returns `true` if this character is a
lower case letter, or it has contributory property `Other_Lowercase`.\\n */\\ninternal fun Char.isLowercaseImpl():
Boolean {\\n    return getLetterType() == 1 || code.isOtherLowercase()\\n}\\n}\\n/**\\n * Returns `true` if this character is
an upper case letter, or it has contributory property `Other_Uppercase`.\\n */\\ninternal fun Char.isUppercaseImpl():
Boolean {\\n    return getLetterType() == 2 || code.isOtherUppercase()\\n}\\n}\\n/**\\n * Returns\\n * - `1` if the
character is a lower case letter,\\n * - `2` if the character is an upper case letter,\\n * - `3` if the character is a letter
but not a lower or upper case letter,\\n * - `0` otherwise.\\n */\\nprivate fun Char.getLetterType(): Int {\\n    val ch =
this.code\\n    val index = binarySearchRange(Letter.decodedRangeStart,
ch)\\n    val rangeStart = Letter.decodedRangeStart[index]\\n    val rangeEnd = rangeStart +
Letter.decodedRangeLength[index] - 1\\n    val code = Letter.decodedRangeCategory[index]\\n    if (ch > rangeEnd)
{\\n        return 0\\n    }\\n    val lastTwoBits = code and 0x3\\n    if (lastTwoBits == 0) { // gap pattern\\n        var
shift = 2\\n        var threshold = rangeStart\\n        for (i in 0..1) {\\n            threshold += (code shr shift) and 0x7f\\n
            if (threshold > ch) {\\n                return 3\\n            }\\n            shift += 7\\n            threshold += (code shr shift) and
0x7f\\n            if (threshold > ch) {\\n                return 0\\n            }\\n            shift += 7\\n        }\\n        return 3\\n    }\\n
if (code <= 0x7) {\\n        return lastTwoBits\\n    }\\n    val distance = (ch - rangeStart)\\n    val shift = if (code <=
0x1F) distance % 2 else distance\\n    return (code shr (2 * shift)) and 0x3\\n}\\n}\\n\", \"/*\\n * Copyright 2010-2021
JetBrains s.r.o. and Kotlin Programming Language contributors.\\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\\n */\\n\\npackage kotlin.text\\n\\n// NOTE:
THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\\n\\nprivate object OtherLowercase {\\n    internal
val otherLowerStart = intArrayOf(\\n        0x00aa, 0x00ba, 0x02b0, 0x02c0, 0x02e0, 0x0345, 0x037a, 0x1d2c,

```

```

0x1d78, 0x1d9b, 0x2071, 0x207f, 0x2090, 0x2170, 0x24d0, 0x2c7c, 0xa69c, 0xa770, 0xa7f8, 0xab5c, \n )\n
internal val otherLowerLength = intArrayOf(\n      1, 1, 9, 2, 5, 1, 1, 63, 1, 37, 1, 1, 13, 16, 26, 2, 2, 1, 2, 4, \n
)\n}\n\ninternal fun Int.isOtherLowercase(): Boolean {\n    val index =
binarySearchRange(OtherLowercase.otherLowerStart, this)\n    return index >= 0 && this <
OtherLowercase.otherLowerStart[index] + OtherLowercase.otherLowerLength[index]\n}\n\n"/*\n
* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.text\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the GenerateUnicodeData.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\ninternal fun Int.isOtherUppercase(): Boolean
{\n    return this in 0x2160..0x216f\n        || this in 0x24b6..0x24cf\n}\n\n"/*\n
* Copyright 2010-2022 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/\n\n// NOTE: THIS FILE IS
AUTO-GENERATED by the GenerateStandardLib.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\nimport kotlin.js.*\n\n/**\n
* Returns a
character at the given [index] or throws an [IndexOutOfBoundsException]
if the [index] is out of bounds of this char sequence.\n * \n * @sample
samples.collections.Collections.Elements.elementAt\n
*/\n\npublic actual fun CharSequence.elementAt(index: Int):
Char {\n    return elementAtOrElse(index) { throw IndexOutOfBoundsException("\nindex: $index, length:
$length\n") }\n}\n\n"/*\n
* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED by the
GenerateUnicodeData.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\n// 4 ranges
totally\n\ninternal fun Char.titlecaseCharImpl(): Char {\n    val code = this.code\n    // Letters repeating <Lu, Lt, Ll>
sequence and code of the Lt is a multiple of 3, e.g. <\u01c4, \u01c5, \u01c6>\n    if (code in 0x01c4..0x01cc || code
in 0x01f1..0x01f3) {\n        return
(3 * ((code + 1) / 3)).toChar()\n    }\n    // Lower case letters whose title case mapping equivalent is equal to the
original letter\n    if (code in 0x10d0..0x10fa || code in 0x10fd..0x10ff) {\n        return this\n    }\n    return
uppercaseChar()\n}\n\n"/*\n
* Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/\n\n// NOTE: THIS FILE IS AUTO-GENERATED
by the GenerateStandardLib.kt\n// See: https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n/\n\nimport
kotlin.js.*\nimport kotlin.ranges.contains\nimport kotlin.ranges.reversed\n\n/**\n
* Returns an element at the given
[index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAt\n
*/\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
actual fun UIntArray.elementAt(index: Int): UInt {\n    return elementAtOrElse(index) { throw
IndexOutOfBoundsException("\nindex: $index, size: $size\n") }\n}\n\n/**\n
* Returns an element at the given
[index] or throws an [IndexOutOfBoundsException] if the [index] is out of bounds of this array.\n * \n * @sample
samples.collections.Collections.Elements.elementAt\n
*/\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
actual fun ULongArray.elementAt(index: Int):
ULong {\n    return elementAtOrElse(index) { throw IndexOutOfBoundsException("\nindex: $index, size: $size\n")
}\n}\n\n/**\n
* Returns an element at the given [index] or throws an [IndexOutOfBoundsException] if the [index] is
out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n
*/\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
actual fun UByteArray.elementAt(index: Int):
UByte {\n    return elementAtOrElse(index) { throw IndexOutOfBoundsException("\nindex: $index,
size: $size\n") }\n}\n\n/**\n
* Returns an element at the given [index] or throws an [IndexOutOfBoundsException]
if the [index] is out of bounds of this array.\n * \n * @sample samples.collections.Collections.Elements.elementAt\n
*/\n\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic
actual fun UShortArray.elementAt(index: Int):

```



```

UShort {\n  return elementOrElse(index) { throw IndexOutOfBoundsException("index: $index, size: $size")\n
}\n}\n\n/**\n * Returns a [List] that wraps the original array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic actual fun UIntArray.asList(): List<UInt> {\n
return object : AbstractList<UInt>(), RandomAccess {\n  override val size: Int get() = this@asList.size\n
override fun isEmpty(): Boolean = this@asList.isEmpty()\n  override fun contains(element: UInt): Boolean =
this@asList.contains(element)\n  override fun get(index: Int): UInt {\n
AbstractList.checkElementIndex(index, size)\n
    return this@asList[index]\n  }\n  override fun indexOf(element: UInt): Int {\n
@Suppress("USELESS_CAST")\n    if ((element as Any?) !is UInt) return -1\n    return
this@asList.indexOf(element)\n  }\n  override fun lastIndexOf(element: UInt): Int {\n
@Suppress("USELESS_CAST")\n    if ((element as Any?) !is UInt) return -1\n    return
this@asList.lastIndexOf(element)\n  }\n}\n}\n\n/**\n * Returns a [List] that wraps the original array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic actual fun ULongArray.asList(): List<ULong>
{\n  return object : AbstractList<ULong>(), RandomAccess {\n  override val size: Int get() = this@asList.size\n
override fun isEmpty(): Boolean = this@asList.isEmpty()\n  override fun contains(element: ULong):
Boolean = this@asList.contains(element)\n  override fun get(index: Int): ULong {\n
AbstractList.checkElementIndex(index,
size)\n    return this@asList[index]\n  }\n  override fun indexOf(element: ULong): Int {\n
@Suppress("USELESS_CAST")\n    if ((element as Any?) !is ULong) return -1\n    return
this@asList.indexOf(element)\n  }\n  override fun lastIndexOf(element: ULong): Int {\n
@Suppress("USELESS_CAST")\n    if ((element as Any?) !is ULong) return -1\n    return
this@asList.lastIndexOf(element)\n  }\n}\n}\n\n/**\n * Returns a [List] that wraps the original array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic actual fun UByteArray.asList(): List<UByte>
{\n  return object : AbstractList<UByte>(), RandomAccess {\n  override val size: Int get() = this@asList.size\n
override fun isEmpty(): Boolean = this@asList.isEmpty()\n  override fun contains(element: UByte): Boolean
= this@asList.contains(element)\n  override fun get(index: Int): UByte {\n
AbstractList.checkElementIndex(index, size)\n    return this@asList[index]\n  }\n  override fun
indexOf(element: UByte): Int {\n    @Suppress("USELESS_CAST")\n    if ((element as Any?) !is
UByte) return -1\n    return this@asList.indexOf(element)\n  }\n  override fun lastIndexOf(element:
UByte): Int {\n    @Suppress("USELESS_CAST")\n    if ((element as Any?) !is UByte) return -1\n
return this@asList.lastIndexOf(element)\n  }\n}\n}\n\n/**\n * Returns a [List] that wraps the original array.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic actual fun UShortArray.asList(): List<UShort>
{\n  return object : AbstractList<UShort>(), RandomAccess {\n  override val size: Int get() = this@asList.size\n
override fun isEmpty(): Boolean = this@asList.isEmpty()\n  override fun contains(element: UShort):
Boolean = this@asList.contains(element)\n  override
fun get(index: Int): UShort {\n    AbstractList.checkElementIndex(index, size)\n    return
this@asList[index]\n  }\n  override fun indexOf(element: UShort): Int {\n
@Suppress("USELESS_CAST")\n    if ((element as Any?) !is UShort) return -1\n    return
this@asList.indexOf(element)\n  }\n  override fun lastIndexOf(element: UShort): Int {\n
@Suppress("USELESS_CAST")\n    if ((element as Any?) !is UShort) return -1\n    return
this@asList.lastIndexOf(element)\n  }\n}\n}\n\n"/**\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n// NOTE: THIS FILE IS AUTO-
GENERATED by the GenerateUnicodeData.kt\n// See:
https://github.com/JetBrains/kotlin/tree/master/libraries/stdlib\n\n// 9 ranges totally\n\n/**\n
 * Returns `true` if this character is a whitespace.\n\n@internal fun Char.isWhitespaceImpl(): Boolean {\n  val ch =
this.code\n  return ch in 0x0009..0x000d\n    || ch in 0x001c..0x0020\n    || ch == 0x00a0\n    || ch >
0x1000 && (\n      ch == 0x1680\n    || ch in 0x2000..0x200a\n    || ch == 0x2028\n    ||

```

```

ch == 0x2029\n          || ch == 0x202f\n          || ch == 0x205f\n          || ch == 0x3000\n
)\n}\n", /*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this
source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin\n\npublic actual fun interface Comparator<T> {\n    @JsName("compare")\n    public actual
fun compare(a: T, b: T): Int\n}\n", /*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.js\n\nimport kotlin.annotation.AnnotationTarget.*\n\n@Target(FUNCTION)\n@Deprecated("Use inline
extension function with body using dynamic")\npublic annotation class
nativeGetter\n\n@Target(FUNCTION)\n@Deprecated("Use inline extension function with body using
dynamic")\npublic annotation class nativeSetter\n\n@Target(FUNCTION)\n@Deprecated("Use inline extension
function with body using dynamic")\npublic annotation class nativeInvoke\n\n@Target(CLASS, FUNCTION,
PROPERTY)\n\ninternal annotation class library(public val name: String = "")\n\n@Target(CLASS)\n\ninternal
annotation class marker\n\n/**\n * Gives a declaration (a function, a property or a class) specific name in
JavaScript.\n * This may be useful in the following cases:\n * * There are two functions for which the
compiler gives same name in JavaScript, you can\n * mark one with `@JsName(...)` to prevent
the compiler from reporting error.\n * * You are writing a JavaScript library in Kotlin. The compiler produces
mangled names\n * for functions with parameters, which is unnatural for usual JavaScript developer.\n * You
can put `@JsName(...)` on functions you want to be available from JavaScript.\n * * For some reason you want to
rename declaration, e.g. there's common term in JavaScript\n * for a concept provided by the declaration, which
is uncommon in Kotlin.\n * Example:\n * ```\n * kotlin\n * class Person(val name: String) {\n *     fun hello()
{\n *         println("Hello $name!")\n *     }\n *     @JsName("helloWithGreeting")\n *     fun hello(greeting:
String) {\n *         println("$greeting $name!")\n *     }\n * }\n * ```\n * @property name the name which
compiler uses both for declaration itself and for all references to the declaration.\n * It's required to denote a
valid JavaScript identifier.\n * */\n\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS,
FUNCTION, PROPERTY, CONSTRUCTOR, PROPERTY_GETTER, PROPERTY_SETTER)\n\npublic actual
annotation class JsName(actual val name: String)\n\n/**\n * Denotes an `external` declaration that must be imported
from native JavaScript library.\n * The compiler produces the code relevant for the target module system, for
example, in case of CommonJS,\n * it will import the declaration via the `require(...)` function.\n * The
annotation can be used on top-level external declarations (classes, properties, functions) and files.\n * In case of file
(which can't be `external`) the following rule applies: all the declarations in\n * the file must be `external`. By
applying `@JsModule(...)` on a file you tell the compiler to import a JavaScript object\n * that contain all the
declarations from the file.\n * Example:\n * ```\n * kotlin\n * @JsModule("jquery")\n * external abstract class
jQuery() {\n *     // some declarations here\n * }\n * @JsModule("jquery")\n * external fun jQuery(element: Element):
jQuery\n * ```\n * @property import name of a module to import
declaration from.\n * It is not interpreted by the Kotlin compiler, it's passed as is directly to the target module
system.\n * @see JsNonModule\n * */\n\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS,
PROPERTY, FUNCTION, FILE)\n\npublic annotation class JsModule(val import: String)\n\n/**\n * Denotes an
`external` declaration that can be used without module system.\n * By default, an `external` declaration is
available regardless your target module system.\n * However, by applying [JsModule] annotation you can make a
declaration unavailable to *plain* module system.\n * Some JavaScript libraries are distributed both as a standalone
downloadable piece of JavaScript and as a module available\n * as an npm package.\n * To tell the Kotlin compiler
to accept both cases, you can augment [JsModule] with the `@JsNonModule` annotation.\n * For example:\n * ```\n *
kotlin\n * @JsModule("jquery")\n * @JsNonModule\n * @JsName("$")\n * external abstract class
jQuery() {\n *     // some declarations here\n * }\n * @JsModule("jquery")\n * @JsNonModule\n * @JsName("$")\n * external fun jQuery(element: Element):
jQuery\n * ```\n * @see JsModule\n * */\n\n@Retention(AnnotationRetention.BINARY)\n@Target(CLASS, PROPERTY, FUNCTION, FILE)\n\npublic
annotation class JsNonModule\n\n/**\n * Adds prefix to `external` declarations in a source file.\n * JavaScript

```

does not have concept of packages (namespaces). They are usually emulated by nested objects. The compiler turns references to `external` declarations either to plain unprefix names (in case of `plain` modules) or to plain imports. However, if a JavaScript library provides its declarations in packages, you won't be satisfied with this. You can tell the compiler to generate additional prefix before references to `external` declarations using the `@JsQualifier(...)`

annotation. Note that a file marked with the `@JsQualifier(...)` annotation can't contain non-`external` declarations. Example: `@file:JsQualifier("my.jsPackageName") package some.kotlinPackage external fun foo(x: Int) external fun bar(): String` the qualifier to add to the declarations in the generated code. It must be a sequence of valid JavaScript identifiers separated by the `.` character. Examples of valid qualifiers are: `foo`, `bar.Baz`, `\_.\$.f`

`@see JsModule @Retention(AnnotationRetention.BINARY) @Target(AnnotationTarget.FILE) public annotation class JsQualifier(val value: String) Exports top-level declaration on JS platform. Compiled module exposes declarations that are marked with this annotation without name mangling. This annotation can be applied to either files or top-level declarations. It is currently prohibited to export the following kinds of declarations: `expect` declarations, inline functions with reified type parameters, suspend functions, secondary constructors without `@JsName`, extension properties, enum classes, annotation classes. Signatures of exported declarations must only contain "exportable" types: `dynamic`, `Any`, `String`, `Boolean`, `Byte`, `Short`, `Int`, `Float`, `Double`, `BooleanArray`, `ByteArray`, `ShortArray`, `IntArray`, `FloatArray`, `DoubleArray`, `Array<exportable-type>`, Function types with exportable parameters and return types, `external` or `@JsExport` classes and interfaces, Nullable counterparts of types above, Unit return type. Must not be nullable. This annotation is experimental, meaning that restrictions mentioned above are subject to change.`

`@ExperimentalJsExport @Retention(AnnotationRetention.BINARY) @Target(CLASS, PROPERTY, FUNCTION, FILE) @SinceKotlin("1.3") public actual annotation class JsExport` Forces a top-level property to be initialized eagerly, opposed to lazily on the first access to file and/or property.  
`@ExperimentalStdlibApi @Retention(AnnotationRetention.BINARY) @Target(AnnotationTarget.PROPERTY) @SinceKotlin("1.6") @Deprecated("This annotation is a temporal migration assistance and may be removed in the future releases, please consider filing an issue about the case where it is needed") public annotation class EagerInitialization` Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors. Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.  
`package kotlin.jvm` these are used in common generated code in stdlib  
TODO: find how to deprecate these

`@Target(AnnotationTarget.FIELD) @Retention(AnnotationRetention.SOURCE) public actual annotation class Volatile`  
`@Target(AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY_GETTER, AnnotationTarget.PROPERTY_SETTER) @Retention(AnnotationRetention.SOURCE) public actual annotation class Synchronized` Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors. Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.  
`package kotlin.collections`  
Provides a skeletal implementation of the [MutableCollection] interface.  
`@param E` the type of elements contained in the collection. The collection is invariant in its element type.  
`public actual abstract class AbstractMutableCollection<E>` protected actual constructor() : AbstractCollection<E>, MutableCollection<E> {  
 actual abstract override fun add(element: E): Boolean  
 actual override fun remove(element: E): Boolean {  
 checkIsMutable()  
 val iterator = iterator()  
 while (iterator.hasNext()) {  
 if (iterator.next() == element) {  
 iterator.remove()  
 return true  
 }  
 }  
 return false  
 }  
 actual override fun addAll(elements: Collection<E>): Boolean {  
 checkIsMutable()  
 var modified = false  
 for (element in elements) {  
 if (add(element)) modified = true  
 }  
 return modified  
 }  
 actual override fun removeAll(elements: Collection<E>): Boolean {  
 checkIsMutable()  
 return (this as MutableIterable<E>).removeAll { it in elements }  
 }  
 actual

```

override fun retainAll(elements: Collection<E>): Boolean {
    checkIsMutable()
    return (this as
MutableIterable<E>).removeAll { it !in elements }
}
actual override fun clear(): Unit {
    checkIsMutable()
    val iterator = this.iterator()
    while (iterator.hasNext()) {
        iterator.next()
        iterator.remove()
    }
}
@Deprecated("Provided so that subclasses inherit this function", level =
DeprecationLevel.HIDDEN)
@jsName("toJSON")
protected fun toJSON(): Any = this.toArray()
/**
 * This method is called every time when a mutating method is called on this mutable collection.
 * Mutable collections that are built (frozen) must throw `UnsupportedOperationException`.
 */
internal open fun checkIsMutable(): Unit {
    println("Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming
Language contributors. Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file. Based on GWT AbstractList Copyright 2007 Google
Inc. package kotlin.collections Provides a skeletal implementation of the [MutableList]
interface. @param E the type of elements contained in the list. The list is invariant in its element type.
public
actual abstract class AbstractMutableList<E> protected actual constructor() : AbstractMutableCollection<E>(),
MutableList<E> {
    protected var modCount: Int = 0
    abstract override fun add(index: Int, element: E):
Unit
    abstract override fun removeAt(index: Int): E
    abstract override fun set(index: Int, element: E): E
    /**
     * Adds the specified element to the end of this list.
     * @return `true` because the list is always
modified as the result of this operation.
     */
    actual override fun add(element: E): Boolean {
        checkIsMutable()
        add(size, element)
        return true
    }
    actual override fun addAll(index: Int,
elements: Collection<E>): Boolean {
        AbstractList.checkPositionIndex(index, size)
        checkIsMutable()
        var _index = index
        var changed = false
        for (e in elements) {
            add(_index++, e)
            changed = true
        }
        return changed
    }
    actual override fun clear() {
        checkIsMutable()
        removeRange(0, size)
    }
    actual
override fun removeAll(elements: Collection<E>): Boolean {
        checkIsMutable()
        return removeAll { it in
elements }
    }
    actual override fun retainAll(elements: Collection<E>): Boolean {
        checkIsMutable()
        return removeAll { it !in elements }
    }
    actual override fun iterator(): MutableIterator<E> =
IteratorImpl()
    actual override fun contains(element: E): Boolean = indexOf(element) >= 0
    actual
override fun indexOf(element: E): Int {
        for (index in 0..lastIndex) {
            if (get(index) == element) {
                return index
            }
        }
        return -1
    }
    actual override fun lastIndexOf(element: E): Int {
        for (index in lastIndex downTo 0) {
            if (get(index) == element) {
                return index
            }
        }
        return
-1
    }
    actual override fun listIterator(): MutableListIterator<E> = listIterator(0)
    actual override fun
listIterator(index: Int): MutableListIterator<E> = ListIteratorImpl(index)
    actual override fun
subList(fromIndex: Int, toIndex: Int): MutableList<E> = SubList(this, fromIndex, toIndex)
    /**
     * Removes the range of elements from this list starting from [fromIndex] and ending with but not including [toIndex].
     */
    protected open fun removeRange(fromIndex: Int, toIndex: Int) {
        val iterator = listIterator(fromIndex)
        repeat(toIndex - fromIndex) {
            iterator.next()
            iterator.remove()
        }
    }
    /**
     * Compares this list with another list instance with the ordered structural equality.
     * @return true, if [other] instance is a [List] of the same size, which contains the same elements in the same order.
     */
    override fun
equals(other: Any?): Boolean {
        if (other
=== this) return true
        if (other !is List<*>) return false
        return AbstractList.orderedEquals(this,
other)
    }
    /**
     * Returns the hash code value for this list.
     */
    override fun hashCode(): Int =
AbstractList.orderedHashCode(this)
    private open inner class IteratorImpl : MutableIterator<E> {
        /**
         * the index of the item that will be returned on the next call to [next]`()`
         */
        protected var index = 0
        /**
         * the index of the item that was returned on the previous call to [next]`()`
         * or [ListIterator.previous]`()` (for
`ListIterator`),
         * -1 if no such item exists
         */
        protected var last = -1
        override fun
hasNext(): Boolean = index < size
        override fun next(): E {
            if (!hasNext()) throw

```

```

NoSuchElementException()\n        last = index++\n        return get(last)\n    }\n\n    override fun remove()\n    {\n        check(last != -1) { \"Call\n        next() or previous() before removing element from the iterator.\" }\n        removeAt(last)\n        index = last\n        last = -1\n    }\n\n    /**\n     * Implementation of `MutableListIterator` for abstract lists.\n     */\n    private inner class ListIteratorImpl(index: Int) : IteratorImpl(), MutableListIterator<E> {\n        init {\n            AbstractList.checkPositionIndex(index, this@AbstractMutableList.size)\n            this.index = index\n        }\n\n        override fun hasPrevious(): Boolean = index > 0\n        override fun nextIndex(): Int = index\n        override fun\n        previous(): E {\n            if (!hasPrevious()) throw NoSuchElementException()\n            last = --index\n            return get(last)\n        }\n        override fun previousIndex(): Int = index - 1\n        override fun add(element: E)\n        {\n            add(index, element)\n            index++\n            last = -1\n        }\n        override fun set(element:\n        E) {\n            check(last != -1) { \"Call next() or previous() before updating element value with the iterator.\" }\n            set(last, element)\n        }\n\n        private class SubList<E>(private val list: AbstractMutableList<E>, private\n        val fromIndex: Int, toIndex: Int) : AbstractMutableList<E>(), RandomAccess {\n            private var _size: Int = 0\n            init {\n                AbstractList.checkRangeIndexes(fromIndex, toIndex, list.size)\n                this._size = toIndex -\n                fromIndex\n            }\n            override fun add(index: Int, element: E) {\n                AbstractList.checkPositionIndex(index, _size)\n                list.add(fromIndex + index, element)\n                _size++\n            }\n            override fun get(index: Int): E {\n                AbstractList.checkElementIndex(index, _size)\n                return\n                list[fromIndex + index]\n            }\n            override fun removeAt(index: Int): E {\n                AbstractList.checkElementIndex(index, _size)\n                val result = list.removeAt(fromIndex + index)\n                _size--\n                return result\n            }\n            override fun\n            set(index: Int, element: E): E {\n                AbstractList.checkElementIndex(index, _size)\n                return\n                list.set(fromIndex + index, element)\n            }\n            override val size: Int get() = _size\n            internal override fun\n            checkIsMutable(): Unit = list.checkIsMutable()\n        }\n\n        /**\n         * Copyright 2010-2020 JetBrains s.r.o. and\n         * Kotlin Programming Language contributors.\n         * Use of this source code is governed by the Apache 2.0 license that\n         * can be found in the license/LICENSE.txt file.\n         */\n        * Based on GWT AbstractMap\n        * Copyright 2007\n        * Google Inc.\n        * \n        * Provides a skeletal implementation of the [MutableMap]\n        * interface.\n        * \n        * The implementor is required to implement [entries] property, which should return mutable set of\n        * map entries, and [put] function.\n        * \n        * @param K the type of map keys.\n        * \n        * The map is invariant in its key type.\n        * \n        * @param V the type of map values. The map is invariant in its value type.\n        */\n        * \n        * public actual abstract class AbstractMutableMap<K, V> protected actual constructor() : AbstractMap<K, V>(),\n        * \n        * MutableMap<K, V> {\n        * \n        *     /**\n        *      * A mutable [Map.Entry] shared by several [Map] implementations.\n        *      */\n        *     internal open class SimpleEntry<K, V>(override val key: K, value: V) : MutableMap.MutableEntry<K, V> {\n        *         constructor(entry: Map.Entry<K, V>) : this(entry.key, entry.value)\n        *         private var _value = value\n        *         override val value: V get() = _value\n        *         override fun setValue(newValue: V): V {\n        *             // Should check if\n        *             the map containing this entry is mutable.\n        *             // However, to not increase entry memory footprint it might be\n        *             worthwhile not to check it here and\n        *             // force subclasses that implement `build()` (freezing) operation to\n        *             implement their own `MutableEntry`.\n        *             this@AbstractMutableMap.checkIsMutable()\n        *             val oldValue = this._value\n        *             this._value = newValue\n        *             return oldValue\n        *         }\n        *         override fun hashCode(): Int = entryHashCode(this)\n        *         override fun toString(): String = entryToString(this)\n        *         override fun equals(other: Any?): Boolean = entryEquals(this, other)\n        *     }\n        *     // intermediate abstract class to\n        *     workaround KT-43321\n        *     internal abstract class AbstractEntrySet<E : Map.Entry<K, V>, K, V> :\n        *     AbstractMutableSet<E>() {\n        *         final override fun contains(element: E): Boolean = containsEntry(element)\n        *         abstract fun containsEntry(element: Map.Entry<K, V>): Boolean\n        *         final override fun remove(element: E):\n        *         Boolean = removeEntry(element)\n        *         abstract fun removeEntry(element: Map.Entry<K, V>): Boolean\n        *     }\n        *     actual override fun clear() {\n        *         entries.clear()\n        *     }\n        *     private var _keys: MutableSet<K>? = null\n        *     actual\n        *     override val keys: MutableSet<K>\n        *     get() {\n        *         if (_keys == null) {\n        *             _keys = object : AbstractMutableSet<K>() {\n        *                 override fun\n        *                 add(element: K): Boolean = throw UnsupportedOperationException(\"Add is not supported on keys\")\n        *             }\n        *         }\n        *         return _keys\n        *     }\n    }

```





```

<T> sortArrayWith(array: Array<out T>, fromIndex: Int, toIndex: Int, comparator: Comparator<in T>) {\n  if
(fromIndex < toIndex - 1) {\n    mergeSort(array.unsafeCast<Array<T>>(), fromIndex, toIndex - 1, comparator)\n
  }\n}\n\ninternal fun <T : Comparable<T>> sortArray(array: Array<out T>) {\n  if
(getStableSortingIsSupported()) {\n    val comparison = { a: T, b: T -> a.compareTo(b) }\n
array.asDynamic().sort(comparison)\n  } else {\n    mergeSort(array.unsafeCast<Array<T>>(), 0,
array.lastIndex, naturalOrder())\n  }\n}\n\nprivate var _stableSortingIsSupported: Boolean? = null\nprivate fun
getStableSortingIsSupported(): Boolean {\n  _stableSortingIsSupported?.let { return it }\n
_stableSortingIsSupported = false\n  val array = js("[]").unsafeCast<Array<Int>>()\n  // known
implementations may use stable sort for arrays of up to 512 elements\n  // so we create slightly more elements to
test stability\n  for (index in 0 until 600) array.asDynamic().push(index)\n
  val comparison = { a: Int, b: Int -> (a and 3) - (b and 3) }\n  array.asDynamic().sort(comparison)\n  for (index
in 1 until array.size) {\n    val a = array[index - 1]\n    val b = array[index]\n    if ((a and 3) == (b and 3) &&
a >= b) return false\n  }\n  _stableSortingIsSupported = true\n  return true\n}\n\nprivate fun <T>
mergeSort(array: Array<T>, start: Int, endInclusive: Int, comparator: Comparator<in T>) {\n  val buffer =
arrayOfNulls<Any?>(array.size).unsafeCast<Array<T>>()\n  val result = mergeSort(array, buffer, start,
endInclusive, comparator)\n  if (result !== array) {\n    for (i in start..endInclusive) array[i] = result[i]\n
  }\n}\n\n// Both start and end are inclusive indices.\nprivate fun <T> mergeSort(array: Array<T>, buffer: Array<T>,
start: Int, end: Int, comparator: Comparator<in T>): Array<T> {\n  if (start == end) {\n    return array\n  }\n
val median = (start + end) / 2\n  val left = mergeSort(array,
buffer, start, median, comparator)\n  val right = mergeSort(array, buffer, median + 1, end, comparator)\n  val
target = if (left === buffer) array else buffer\n  // Merge.\n  var leftIndex = start\n  var rightIndex = median +
1\n  for (i in start..end) {\n    when {\n      leftIndex <= median && rightIndex <= end -> {\n        val
leftValue = left[leftIndex]\n        val rightValue = right[rightIndex]\n        if
(comparator.compare(leftValue, rightValue) <= 0) {\n          target[i] = leftValue\n          leftIndex++\n
        } else {\n          target[i] = rightValue\n          rightIndex++\n        }\n      }\n      leftIndex <= median -> {\n
target[i] = left[leftIndex]\n          leftIndex++\n        }\n      else /*
rightIndex <= end */ -> {\n          target[i] = right[rightIndex]\n          rightIndex++\n        }\n    }\n
  }\n  return target\n}\n\nUnit // TODO: Fix KT-31506\n}\n}\n}\n\nreturn target\n}"/*\n * Copyright 2010-
2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.collections\n\n@OptIn(ExperimentalUnsignedTypes::class)\n@SinceKotlin("1.3")\n@kotlin.js.JsName("\n
contentDeepHashCodeImpl")\ninternal fun <T> Array<out T>?.contentDeepHashCodeImpl(): Int {\n  if (this ==
null) return 0\n  var result = 1\n  for (element in this) {\n    val elementHash = when {\n      element == null
-> 0\n      isArrayish(element) -> (element.unsafeCast<Array<*>>()).contentDeepHashCodeImpl()\n
      element is UByteArray -> element.contentHashCode()\n      element is UShortArray ->
element.contentHashCode()\n      element is UIntArray -> element.contentHashCode()\n      element is
ULongArray -> element.contentHashCode()\n      else -> element.hashCode()\n    }\n    result = 31 *
result + elementHash\n  }\n  return result\n}"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\ninternal interface EqualityComparator
{\n  /**\n   * Subclasses must override to return a value indicating\n   * whether or not two keys or values are
equal.\n   */\n  abstract fun equals(value1: Any?, value2: Any?): Boolean\n  /**\n   * Subclasses must
override to return the hash code of a given key.\n   */\n  abstract fun getHashCode(value: Any?): Int\n\n  object
HashCode : EqualityComparator {\n    override fun equals(value1: Any?, value2: Any?): Boolean = value1 ==
value2\n    override fun getHashCode(value: Any?): Int = value?.hashCode()\n    ?: 0\n  }\n}"/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n

```



```

*Based on GWT AbstractHashMap
* Copyright 2008 Google Inc.
package
kotlin.collections
import kotlin.collections.MutableMap.MutableEntry
* Hash table based
implementation of the [MutableMap] interface.
* This implementation makes no guarantees regarding the
order of enumeration of [keys], [values] and [entries] collections.
// Classes that extend HashMap and
implement `build()` (freezing) operation
// have to make sure mutating methods check `checkIsMutable`.
public actual open class HashMap<K, V> : AbstractMutableMap<K, V>, MutableMap<K, V> {
    private inner class
    EntrySet : AbstractEntrySet<MutableEntry<K, V>, K, V>() {
        override fun add(element: MutableEntry<K,
        V>): Boolean = throw UnsupportedOperationException("Add
        is not supported on entries")
        override fun clear() {
            this@HashMap.clear()
        }
        override
        fun containsEntry(element: Map.Entry<K, V>): Boolean = this@HashMap.containsEntry(element)
        override
        operator fun iterator(): MutableIterator<MutableEntry<K, V>> = internalMap.iterator()
        override fun
        removeEntry(element: Map.Entry<K, V>): Boolean {
            if (contains(element)) {
                this@HashMap.remove(element.key)
                return true
            }
            return false
        }
        override
        val size: Int get() = this@HashMap.size
    }
    /**
     * Internal implementation of the map: either string-
     based or hashcode-based.
     */
    private val internalMap: InternalMap<K, V>
    private val equality:
    EqualityComparator
    internal constructor(internalMap: InternalMap<K, V>) : super() {
        this.internalMap
        = internalMap
        this.equality
        = internalMap.equality
    }
    /**
     * Constructs an empty [HashMap] instance.
     */
    actual
    constructor() : this(InternalHashCodeMap(EqualityComparator.HashCode))
    /**
     * Constructs an empty
    [HashMap] instance.
     * @param initialCapacity the initial capacity (ignored)
     * @param loadFactor the load factor (ignored)
     * @throws IllegalArgumentException if the initial capacity or load factor are
    negative
     */
    actual constructor(initialCapacity: Int, loadFactor: Float) : this() {
        // This implementation
    of HashMap has no need of load factors or capacities.
        require(initialCapacity >= 0) { "Negative initial
        capacity: $initialCapacity" }
        require(loadFactor >= 0) { "Non-positive load factor: $loadFactor" }
    }
    actual constructor(initialCapacity: Int) : this(initialCapacity, 0.0f)
    /**
     * Constructs an instance of
    [HashMap] filled with the contents of the specified [original]
    map.
     */
    actual constructor(original: Map<out K, V>) : this() {
        this.putAll(original)
    }
    actual
    override fun clear() {
        internalMap.clear()
        structureChanged(this)
    }
    actual override fun
    containsKey(key: K): Boolean = internalMap.contains(key)
    actual override fun containsValue(value: V):
    Boolean = internalMap.any { equality.equals(it.value, value) }
    private var _entries:
    MutableSet<MutableMap.MutableEntry<K, V>>? = null
    actual override val entries:
    MutableSet<MutableMap.MutableEntry<K, V>>
    get() {
        if (_entries == null) {
            _entries =
            createEntrySet()
        }
        return _entries!!
    }
    internal open fun createEntrySet():
    MutableSet<MutableMap.MutableEntry<K, V>> = EntrySet()
    actual override operator fun get(key: K): V? =
    internalMap.get(key)
    actual override fun put(key: K, value: V): V? = internalMap.put(key, value)
    actual
    override fun remove(key: K): V? = internalMap.remove(key)
    actual override val size: Int get() =
    internalMap.size
}
/**
 * Constructs the specialized implementation of [HashMap] with [String] keys, which
stores the keys as properties of
 * JS object without hashing them.
 */
public fun <V> stringMapOf(vararg pairs:
Pair<String, V>): HashMap<String, V> {
    return HashMap<String,
    V>(InternalStringMap(EqualityComparator.HashCode)).apply {
        putAll(pairs)
    }
}
* Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.
* Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.
* Based on GWT HashSet
* Copyright 2008 Google Inc.
package kotlin.collections
* The implementation of the [MutableSet]
interface, backed by a [HashMap] instance.
// Classes that extend HashSet and implement `build()` (freezing)
operation
// have to make sure mutating
methods check `checkIsMutable`.
public actual open class HashSet<E> : AbstractMutableSet<E>, MutableSet<E> {
    internal val map: HashMap<E, Any>
    /**
     * Constructs a new empty [HashSet].
     */
    actual
    constructor() {
        map = HashMap<E, Any>()
    }
    /**
     * Constructs a new [HashSet] filled with the

```

```

elements of the specified collection.\n    *\n    actual constructor(elements: Collection<E>) {\n        map =
HashMap<E, Any>(elements.size)\n        addAll(elements)\n    }\n\n    /**\n     * Constructs a new empty
[HashSet].\n     *\n     * @param initialCapacity the initial capacity (ignored)\n     * @param loadFactor the load
factor (ignored)\n     *\n     * @throws IllegalArgumentException if the initial capacity or load factor are negative\n
*\n    actual constructor(initialCapacity: Int, loadFactor: Float) {\n        map = HashMap<E, Any>(initialCapacity,
loadFactor)\n    }\n\n    actual constructor(initialCapacity: Int) : this(initialCapacity,
0.0f)\n\n    /**\n     * Protected constructor to specify the underlying map. This is used by\n     * LinkedHashSet.\n     *
@param map underlying map to use.\n     *\n    internal constructor(map: HashMap<E, Any>) {\n        this.map
= map\n    }\n\n    actual override fun add(element: E): Boolean {\n        val old = map.put(element, this)\n
return old == null\n    }\n\n    actual override fun clear() {\n        map.clear()\n    }\n\n    // public override fun
clone(): Any {\n    //        return HashSet<E>(this)\n    //    }\n\n    actual override operator fun contains(element: E):
Boolean = map.containsKey(element)\n\n    actual override fun isEmpty(): Boolean = map.isEmpty()\n\n    actual
override fun iterator(): MutableIterator<E> = map.keys.iterator()\n\n    actual override fun remove(element: E):
Boolean = map.remove(element) != null\n\n    actual override val size: Int get() = map.size\n}\n\n/**\n * Creates a
new instance of the specialized implementation
of [HashSet] with the specified [String] elements,\n * which elements the keys as properties of JS object without
hashing them.\n */\npublic fun stringSetOf(vararg elements: String): HashSet<String> {\n    return
HashSet(stringMapOf<Any>()).apply { addAll(elements) }\n}\n\n"/**\n * Copyright 2010-2018 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\n/**\n * Based on GWT InternalHashMap\n * Copyright
2008 Google Inc.\n */\n\npackage kotlin.collections\n\nimport
kotlin.collections.MutableMap.MutableEntry\nimport kotlin.collections.AbstractMutableMap.SimpleEntry\n\n/**\n * A
simple wrapper around JavaScriptObject to provide [java.util.Map]-like semantics for any\n * key type.\n */\n\n *
Implementation notes:\n */\n\n * A key's hashCode is the index in backingMap which should contain that
key. Since several keys may\n * have the same hash, each value
in hashCodeMap is actually an array containing all entries whose\n * keys share the same hash.\n */\n\ninternal class
InternalHashMap<K, V>(override val equality: EqualityComparator) : InternalMap<K, V> {\n\n    private var
backingMap: dynamic = createJsMap()\n    override var size: Int = 0\n    private set\n\n    override fun put(key: K,
value: V): V? {\n        val hashCode = equality.getHashCode(key)\n        val chainOrEntry =
getChainOrEntryOrNull(hashCode)\n        if (chainOrEntry == null) {\n            // This is a new chain, put it to the
map.\n            backingMap[hashCode] = SimpleEntry(key, value)\n        } else {\n            if (chainOrEntry !is
Array<*>) {\n                // It is an entry\n                val entry: SimpleEntry<K, V> = chainOrEntry\n                if
(equality.equals(entry.key, key)) {\n                    return entry.setValue(value)\n                } else {\n
backingMap[hashCode] = arrayOf(entry, SimpleEntry(key, value))\n
                    size++\n                    return null\n                }\n            } else {\n                // Chain already exists,
perhaps key also exists.\n                val chain: Array<MutableEntry<K, V>> = chainOrEntry\n                val entry =
chain.findEntryInChain(key)\n                if (entry != null) {\n                    return entry.setValue(value)\n                }\n
                chain.asDynamic().push(SimpleEntry(key, value))\n                size++\n            }\n\n            // Chain
already exists, perhaps key also exists.\n            val chain: Array<MutableEntry<K, V>> = chainOrEntry\n            val entry =
chain.findEntryInChain(key)\n            if (entry != null) {\n                return entry.setValue(value)\n            }\n
            chain.asDynamic().push(SimpleEntry(key, value))\n            size++\n        }\n\n        structureChanged(host)\n        return null\n    }\n\n    override fun remove(key: K): V? {\n        val hashCode =
equality.getHashCode(key)\n        val chainOrEntry = getChainOrEntryOrNull(hashCode) ?: return null\n        if
(chainOrEntry !is Array<*>) {\n            val entry: MutableEntry<K, V> = chainOrEntry\n            if
(equality.equals(entry.key, key)) {\n                jsDeleteProperty(backingMap, hashCode)\n                size--\n
                return entry.value\n            } else {\n                return null\n            }\n        } else {\n            val
chain: Array<MutableEntry<K, V>> = chainOrEntry\n            for (index in chain.indices) {\n                val entry =
chain[index]\n                if
(equality.equals(key, entry.key)) {\n                    if (chain.size == 1) {\n                        chain.asDynamic().length =
0\n                        // remove the whole array\n                        jsDeleteProperty(backingMap, hashCode)\n                    }
else {\n                        // splice out the entry we're removing\n                        chain.asDynamic().splice(index, 1)\n                    }\n                }\n            }\n        }\n    }\n\n    override fun containsKey(key: K): Boolean =
backingMap[key] != null\n\n    override fun containsValue(value: V): Boolean =
backingMap.values.any { it == value }\n\n    override fun isEmpty(): Boolean = size == 0\n\n    override fun
iterator(): Iterator<Entry<K, V>> = iterator()\n\n    override fun keySet(): Set<K> = backingMap.keys\n\n    override
fun values(): Set<V> = backingMap.values\n\n    override fun entries(): Set<Entry<K, V>> = backingMap.entries\n\n    override
fun entries(): Set<Entry<K, V>> = backingMap.entries\n\n    override fun entries(): Set<Entry<K, V>> = backingMap.entries\n\n
}

```

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        }\n        size--\n//        structureChanged(host)\n        return entry.value\n        }\n    }\n    return null\n    }\n    override fun clear() {\n        backingMap = createJsMap()\n        size = 0\n    }\n    override fun contains(key: K): Boolean = getEntry(key) != null\n    override fun get(key: K): V? = getEntry(key)?.value\n\n    private fun getEntry(key: K): MutableEntry<K, V>? {\n        val chainOrEntry = getChainOrEntryOrNull(equality.getHashCode(key)) ?: return null\n        if (chainOrEntry !is Array<*>) {\n            val entry: MutableEntry<K, V> = chainOrEntry\n            if (equality.equals(entry.key, key)) {\n                return entry\n            } else {\n                return null\n            }\n        } else {\n            val chain: Array<MutableEntry<K, V>> = chainOrEntry\n            return chain.findEntryInChain(key)\n        }\n    }\n\n    private fun Array<MutableEntry<K, V>>.findEntryInChain(key: K): MutableEntry<K, V>? =\n        firstOrNull { entry -> equality.equals(entry.key, key) }\n\n    override fun iterator(): MutableIterator<MutableEntry<K, V>> {\n        return object : MutableIterator<MutableEntry<K, V>> {\n            var state = -1 // -1 not ready, 0 - ready, 1 - done\n\n            val keys: Array<String> = js("Object").keys(backingMap)\n            var keyIndex = -1\n            var chainOrEntry: dynamic = null\n            var isChain = false\n            var itemIndex = -1\n            var lastEntry: MutableEntry<K, V>? = null\n\n            private fun computeNext(): Int {\n                if (chainOrEntry != null && isChain) {\n                    val chainSize: Int = chainOrEntry.unsafeCast<Array<MutableEntry<K, V>>>().size\n                    if (++itemIndex < chainSize)\n                        return 0\n                }\n                if (++keyIndex < keys.size)\n                    {\n                        chainOrEntry = backingMap[keys[keyIndex]]\n                        isChain = chainOrEntry is Array<*>\n                        itemIndex = 0\n                        return 0\n                    } else {\n                        chainOrEntry = null\n                        return 1\n                    }\n            }\n\n            override fun hasNext(): Boolean {\n                if (state == -1)\n                    state = computeNext()\n                return state == 0\n            }\n\n            override fun next(): MutableEntry<K, V> {\n                if (!hasNext()) throw NoSuchElementException()\n                val lastEntry = if (isChain) {\n                    chainOrEntry.unsafeCast<Array<MutableEntry<K, V>>>()[itemIndex]\n                } else {\n                    chainOrEntry.unsafeCast<MutableEntry<K, V>>()\n                }\n                this.lastEntry = lastEntry\n                state = -1\n                return lastEntry\n            }\n\n            override fun remove() {\n                checkNotNull(lastEntry)\n                this@InternalHashCodeMap.remove(lastEntry!!.key)\n                lastEntry = null\n                // the chain being iterated just got modified by InternalHashCodeMap.remove\n                itemIndex--\n            }\n\n            private fun getChainOrEntryOrNull(hashCode: Int): dynamic {\n                val chainOrEntry = backingMap[hashCode]\n                return if (chainOrEntry === undefined) null else chainOrEntry\n            }\n        }\n    }\n}\n"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * The common interface of [InternalStringMap] and [InternalHashCodeMap].\n */\ninternal interface InternalMap<K, V> : MutableIterable<MutableMap.MutableEntry<K, V>> {\n    val equality: EqualityComparator\n    val size: Int\n    operator fun contains(key: K): Boolean\n    operator fun get(key: K): V?\n    fun put(key: K, value: V): V?\n    fun remove(key: K): V?\n    fun clear(): Unit\n\n    fun createJsMap(): dynamic {\n        val result = js("Object.create(null)")\n        // force to switch object representation to dictionary mode\n        result["foo"] = 1\n        jsDeleteProperty(result, "foo")\n        return result\n    }\n}\n"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n * Based on GWT InternalStringMap\n * Copyright 2008 Google Inc.\n */\n\npackage kotlin.collections\n\nimport kotlin.collections.MutableMap.MutableEntry\n\n/**\n * A simple wrapper around JavaScript Map for key type is string.\n * Though this map is instantiated only with K=String, the K type is not fixed to String statically,\n * because we want to have it erased to Any? in order not to generate type-safe override bridges for [get], [contains], [remove] etc, if they ever are generated.\n */\ninternal class InternalStringMap<K, V>(override val equality: EqualityComparator) : InternalMap<K, V> {\n    private var backingMap: dynamic = createJsMap()\n    override var size: Int = 0\n    private set\n\n    /**\n
```

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    * A mod count to track 'value' replacements in map to ensure that the 'value' that we have in the\n//  * iterator
entry is guaranteed to be still correct.\n//  * This is to optimize for the common scenario where the values are not
modified during\n//  * iterations where the entries are never stale.\n//  */\n//  private var valueMod: Int = 0\n\noverride operator fun contains(key: K): Boolean {\n    if (key !is String) return false\n    return
backingMap[key] != undefined\n}\n\noverride operator fun get(key: K): V? {\n    if (key !is String) return
null\n    val value = backingMap[key]\n    return if (value != undefined) value.unsafeCast<V>() else null\n
}\n\noverride fun put(key: K, value: V): V? {\n    require(key is String)\n    val oldValue =
backingMap[key]\n    backingMap[key] = value\n\n    if (oldValue === undefined) {\n        size++\n//
structureChanged(host)\n        return null\n
    } else {\n//        valueMod++\n        return oldValue.unsafeCast<V>()\n    }\n}\n\noverride fun
remove(key: K): V? {\n    if (key !is String) return null\n    val value = backingMap[key]\n    if (value !=
undefined) {\n        jsDeleteProperty(backingMap, key)\n        size--\n//        structureChanged(host)\n
return value.unsafeCast<V>()\n    } else {\n//        valueMod++\n        return null\n    }\n}\n\noverride fun
clear() {\n    backingMap = createJsMap()\n    size = 0\n}\n\noverride fun iterator():
MutableIterator<MutableEntry<K, V>> {\n    return object : MutableIterator<MutableEntry<K, V>> {\n
private val keys: Array<String> = js("Object").keys(backingMap)\n        private val iterator = keys.iterator()\n
private var lastKey: String? = null\n\n        override fun hasNext(): Boolean = iterator.hasNext()\n\n
override fun next():
MutableEntry<K, V> {\n            val key = iterator.next()\n            lastKey = key\n
@Suppress("UNCHECKED_CAST")\n            return newMapEntry(key as K)\n        }\n\n        override
fun remove() {\n            @Suppress("UNCHECKED_CAST")\n            this@InternalStringMap.remove(checkNotNull(lastKey) as K)\n        }\n    }\n}\n\nprivate fun
newMapEntry(key: K): MutableEntry<K, V> = object : MutableEntry<K, V> {\n    override val key: K get() =
key\n    override val value: V get() = this@InternalStringMap[key].unsafeCast<V>()\n\n    override fun
setValue(newValue: V): V = this@InternalStringMap.put(key, newValue).unsafeCast<V>()\n\n    override fun
hashCode(): Int = AbstractMap.entryHashCode(this)\n    override fun toString(): String =
AbstractMap.entryToString(this)\n    override fun equals(other: Any?): Boolean = AbstractMap.entryEquals(this,
other)\n}\n}\n", "/*\n * Copyright 2010-2020
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n * Based on GWT
LinkedHashMap\n * Copyright 2008 Google Inc.\n */\npackage kotlin.collections\n\nimport
kotlin.collections.MutableMap.MutableEntry\n\n/**\n * Hash table based implementation of the [MutableMap]
interface, which additionally preserves the insertion order\n * of entries during the iteration.\n * The insertion
order is preserved by maintaining a doubly-linked list of all of its entries.\n */\npublic actual open class
LinkedHashMap<K, V> : HashMap<K, V>, MutableMap<K, V> {\n\n    /**\n     * The entry we use includes
next/prev pointers for a doubly-linked circular\n     * list with a head node. This reduces the special cases we have to
deal with\n     * in the list operations.\n     * Note that we duplicate the key from the underlying hash map so we
can find\n     * the eldest
entry. The alternative would have been to modify HashMap so more\n     * of the code was directly usable here, but
this would have added some\n     * overhead to HashMap, or to reimplement most of the HashMap code here with\n
     * small modifications. Paying a small storage cost only if you use\n     * LinkedHashMap and minimizing code size
seemed like a better tradeoff\n     */\n    private inner class ChainEntry<K, V>(key: K, value: V) :
AbstractMutableMap.SimpleEntry<K, V>(key, value) {\n        internal var next: ChainEntry<K, V>? = null\n
internal var prev: ChainEntry<K, V>? = null\n\n        override fun setValue(newValue: V): V {\n
this@LinkedHashMap.checkIsMutable()\n            return super.setValue(newValue)\n        }\n    }\n\n    private inner
class EntrySet : AbstractEntrySet<MutableEntry<K, V>, K, V>() {\n        private inner class EntryIterator :
MutableIterator<MutableEntry<K, V>> {\n            // The last entry that was returned from this iterator.\n

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    private var last: ChainEntry<K, V>? = null\n\n        // The next entry to return from this iterator.\n
private var next: ChainEntry<K, V>? = null\n\n        init {\n            next = head\n
recordLastKnownStructure(map, this)\n        }\n\n        override fun hasNext(): Boolean {\n            return
next != null\n        }\n\n        override fun next(): MutableEntry<K, V> {\n
checkStructuralChange(map, this)\n            if (!hasNext()) throw NoSuchElementException()\n\n            val
current = next!!\n            last = current\n            next = current.next.takeIf { it != head }\n            return
current\n        }\n\n        override fun remove() {\n            check(last != null)\n
this@EntrySet.checkIsMutable()\n\n            checkStructuralChange(map, this)\n\n            last!!.remove()\n
            map.remove(last!!.key)\n
            recordLastKnownStructure(map, this)\n            last = null\n        }\n\n        override fun
add(element: MutableEntry<K, V>): Boolean = throw UnsupportedOperationException("Add is not supported on
entries")\n        override fun clear() {\n            this@LinkedHashMap.clear()\n        }\n\n        override fun
containsEntry(element: Map.Entry<K, V>): Boolean = this@LinkedHashMap.containsEntry(element)\n\n        override operator fun iterator(): MutableIterator<MutableEntry<K, V>> = EntryIterator()\n        override fun
removeEntry(element: Map.Entry<K, V>): Boolean {\n            checkIsMutable()\n            if (contains(element)) {\n
                this@LinkedHashMap.remove(element.key)\n                return true\n            }\n            return false\n
        }\n\n        override val size: Int get() = this@LinkedHashMap.size\n\n        override fun checkIsMutable(): Unit =
this@LinkedHashMap.checkIsMutable()\n    }\n\n    /*\n     * The head of the insert order chain, which is a doubly-linked circular\n     * list.\n     * The most recently
inserted node is at the end of the chain, ie.\n     * chain.prev.\n     */\n    private var head: ChainEntry<K, V>? =
null\n\n    /**\n     * Add this node to the end of the chain.\n     */\n    private fun ChainEntry<K, V>.addToEnd() {\n
        // This entry is not in the list.\n        check(next == null && prev == null)\n\n        val _head = head\n        if
(_head == null) {\n            head = this\n            next = this\n            prev = this\n        } else {\n            // Chain is
valid.\n            val _tail = checkNotNull(_head.prev)\n            // Update me.\n            prev = _tail\n            next =
_head\n            // Update my new siblings: current head and old tail\n            _head.prev = this\n            _tail.next =
this\n        }\n    }\n\n    /**\n     * Remove this node from the chain it is a part of.\n     */\n    private fun
ChainEntry<K,
V>.remove() {\n        if (this.next === this) {\n            // if this is single element, remove head\n            head =
null\n        } else {\n            if (head === this) {\n                // if this is first element, move head to next\n
                head = next\n            }\n            next!!.prev = prev\n            prev!!.next = next\n        }\n        next = null\n        prev =
null\n    }\n\n    /**\n     * The hashmap that keeps track of our entries and the chain. Note that we\n     * duplicate the
key here to eliminate changes to HashMap and minimize the\n     * code here, at the expense of additional space.\n     */\n    private val map: HashMap<K, ChainEntry<K, V>>\n\n    private var isReadOnly: Boolean = false\n\n    /**\n     * Constructs an empty [LinkedHashMap] instance.\n     */\n    actual constructor(): super() {\n        map =
HashMap<K, ChainEntry<K, V>>()\n    }\n\n    internal constructor(backingMap: HashMap<K, Any>): super() {\n
        @Suppress("UNCHECKED_CAST")\n        // expected to work due to erasure\n        map = backingMap as HashMap<K, ChainEntry<K, V>>\n    }\n\n    /**\n     * Constructs an empty [LinkedHashMap] instance.\n     * @param initialCapacity the initial capacity
(ignored)\n     * @param loadFactor the load factor (ignored)\n     * @throws IllegalArgumentException if
the initial capacity or load factor are negative\n     */\n    actual constructor(initialCapacity: Int, loadFactor: Float):
super(initialCapacity, loadFactor) {\n        map = HashMap<K, ChainEntry<K, V>>()\n    }\n\n    actual
constructor(initialCapacity: Int): this(initialCapacity, 0.0f)\n\n    /**\n     * Constructs an instance of
[LinkedHashMap] filled with the contents of the specified [original] map.\n     */\n    actual constructor(original:
Map<out K, V>) {\n        map = HashMap<K, ChainEntry<K, V>>()\n        this.putAll(original)\n    }\n\n    @PublishedApi\n    internal fun build(): Map<K, V> {\n        checkIsMutable()\n
        isReadOnly = true\n        return this\n    }\n\n    actual override fun clear() {\n        checkIsMutable()\n
map.clear()\n        head = null\n    }\n\n    override fun clone(): Any {\n        return LinkedHashMap(this)\n
    }\n\n    actual override fun containsKey(key: K): Boolean = map.containsKey(key)\n\n    actual override fun

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BaseOutput() {\n  override fun print(message: Any?) {\n    // TODO: Using local variable because of bug in
block decomposition lowering in IR backend\n    val messageString = String(message)\n
outputStream.write(messageString)\n  }\n}\n\n/** JsName used to make the declaration available outside of
module to test it */\n@JsName("OutputToConsoleLog")\ninternal class OutputToConsoleLog : BaseOutput() {\n
override fun print(message: Any?) {\n  console.log(message)\n }\n\n  override fun println(message:
Any?) {\n  console.log(message)\n }\n\n  override fun println() {\n  console.log("")\n }\n}\n\n/**
JsName used to make the declaration available outside of module to test it and use at try.kotl.in
*/\n@JsName("BufferedOutput")\ninternal open class BufferedOutput : BaseOutput() {\n  var buffer = ""\n
override fun print(message: Any?) {\n  buffer += String(message)\n }\n\n  override fun flush() {\n  buffer
= ""\n }\n}\n\n/** JsName used to make the declaration available outside of module to test it
*/\n@JsName("BufferedOutputToConsoleLog")\ninternal class BufferedOutputToConsoleLog : BufferedOutput()\n
{\n  override fun print(message: Any?) {\n    var s = String(message)\n    val i = s.nativeLastIndexOf("\n",
0)\n    if (i >= 0) {\n      buffer += s.substring(0, i)\n      flush()\n      s = s.substring(i + 1)\n    }\n
buffer += s\n }\n\n  override fun flush() {\n
  console.log(buffer)\n  buffer = ""\n }\n}\n\n/** JsName used to make the declaration available outside of
module to test it and use at try.kotl.in */\n@JsName("output")\ninternal var output = run {\n  val isNode: Boolean
= js("typeof process !== 'undefined' && process.versions && !process.versions.node")\n  if (isNode)
NodeJsOutput(js("process.stdout")) else
BufferedOutputToConsoleLog()\n}\n\n@kotlin.internal.InlineOnly\nprivate inline fun String(value: Any?): String =
js("String")(value)\n\n/** Prints the line separator to the standard output stream. */\npublic actual fun println() {\n
output.println()\n}\n\n/** Prints the given [message] and the line separator to the standard output stream. */\npublic
actual fun println(message: Any?) {\n  output.println(message)\n}\n\n/** Prints the given [message] to the standard
output stream. */\npublic actual fun print(message: Any?) {\n
output.print(message)\n}\n\n@SinceKotlin("1.6")\npublic actual fun readln():
String = throw UnsupportedOperationException("readln is not supported in
Kotlin/JS")\n\n@SinceKotlin("1.6")\npublic actual fun readlnOrNull(): String? = throw
UnsupportedOperationException("readlnOrNull is not supported in Kotlin/JS")\n\n/*\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines\n\nimport
kotlin.coroutines.intrinsics.CoroutineSingletons.*\nimport
kotlin.coroutines.intrinsics.COROUTINE_SUSPENDED\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal
actual class SafeContinuation<in T>\ninternal actual constructor(\n  private val delegate: Continuation<T>,\n
initialResult: Any?\n) : Continuation<T> {\n  @PublishedApi\n  internal actual constructor(delegate:
Continuation<T>) : this(delegate, UNDECIDED)\n\n  public actual override val context: CoroutineContext\n
get() = delegate.context\n\n  private var result: Any? = initialResult\n\n  public actual override fun resumeWith(result: Result<T>) {\n
val cur = this.result\n  when {\n    cur === UNDECIDED -> {\n      this.result = result.value\n
}\n    cur === COROUTINE_SUSPENDED -> {\n      this.result = RESUMED\n
}\n    else -> throw IllegalStateException("Already resumed")\n  }\n}\n\n  @PublishedApi\n  internal actual fun getOrThrow(): Any? {\n  if (result === UNDECIDED) {\n
result = COROUTINE_SUSPENDED\n  return COROUTINE_SUSPENDED\n }\n  val result =
this.result\n  return when {\n    result === RESUMED -> COROUTINE_SUSPENDED // already called
continuation, indicate COROUTINE_SUSPENDED upstream\n    result is Result.Failure -> throw
result.exception\n    else -> result // either COROUTINE_SUSPENDED
or data\n  }\n }\n}\n\n", /*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines.cancellation\n\n@SinceKotlin("1.4")\npublic actual
open class CancellationException : IllegalStateException {\n  actual constructor() : super()\n  actual

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constructor(message: String?) : super(message)\n  constructor(message: String?, cause: Throwable?) :
super(message, cause)\n  constructor(cause: Throwable?) : super(cause)\n}", "/*\n * Copyright 2010-2018 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.coroutines.js.internal\n\nimport
kotlin.coroutines.Continuation\nimport
kotlin.coroutines.EmptyCoroutineContext\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal
val EmptyContinuation = Continuation<Any?>(EmptyCoroutineContext) { result ->\n
result.getOrThrow()\n}", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Exposes the [Date
API](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date) to Kotlin.\n
*/\n\n@Suppress("NOT_DOCUMENTED")\npublic external class Date() {\n  public constructor(milliseconds:
Number)\n\n  public constructor(dateString: String)\n\n  public constructor(year: Int, month: Int)\n\n  public
constructor(year: Int, month: Int, day: Int)\n\n  public constructor(year: Int, month: Int, day: Int, hour: Int)\n\n
public constructor(year: Int, month: Int, day: Int, hour: Int, minute: Int)\n\n  public constructor(year: Int, month:
Int, day: Int, hour: Int, minute: Int, second: Int)\n\n
  public constructor(year: Int, month: Int, day: Int, hour: Int, minute: Int, second: Int, millisecond: Number)\n\n
  public fun getDate(): Int\n\n  public fun getDay(): Int\n\n  public fun getFullYear(): Int\n\n  public fun
getHours(): Int\n\n  public fun getMilliseconds(): Int\n\n  public fun getMinutes(): Int\n\n  public fun
getMonth(): Int\n\n  public fun getSeconds(): Int\n\n  public fun getTime(): Double\n\n  public fun
getTimezoneOffset(): Int\n\n  public fun getUTCDate(): Int\n\n  public fun getUTCDay(): Int\n\n  public fun
getUTCFullYear(): Int\n\n  public fun getUTCHours(): Int\n\n  public fun getUTCMilliseconds(): Int\n\n  public
fun getUTCMinutes(): Int\n\n  public fun getUTCMonth(): Int\n\n  public fun getUTCSeconds(): Int\n\n  public
fun toDateString(): String\n\n  public fun toISOString(): String\n\n  public fun toJSON(): Json\n\n  public fun
toLocaleDateString(locales: Array<String> = definedExternally, options: LocaleOptions
= definedExternally): String\n\n  public fun toLocaleDateString(locales: String, options: LocaleOptions =
definedExternally): String\n\n  public fun toLocaleString(locales: Array<String> = definedExternally, options:
LocaleOptions = definedExternally): String\n\n  public fun toLocaleString(locales: String, options: LocaleOptions
= definedExternally): String\n\n  public fun toLocaleTimeString(locales: Array<String> = definedExternally,
options: LocaleOptions = definedExternally): String\n\n  public fun toLocaleTimeString(locales: String, options:
LocaleOptions = definedExternally): String\n\n  public fun toTimeString(): String\n\n  public fun toUTCString():
String\n\n  public companion object {\n    public fun now(): Double\n\n    public fun parse(dateString: String):
Double\n\n    public fun UTC(year: Int, month: Int): Double\n\n    public fun UTC(year: Int, month: Int, day:
Int): Double\n\n    public fun UTC(year: Int, month: Int, day: Int, hour:
Int): Double\n\n    public fun UTC(year: Int, month: Int, day: Int, hour: Int, minute: Int): Double\n\n    public
fun UTC(year: Int, month: Int, day: Int, hour: Int, minute: Int, second: Int): Double\n\n    public fun UTC(year:
Int, month: Int, day: Int, hour: Int, minute: Int, second: Int, millisecond: Number): Double\n  }\n\n  public
interface LocaleOptions {\n    public var localeMatcher: String?\n\n    public var timeZone: String?\n\n
    public var hour12: Boolean?\n\n    public var formatMatcher: String?\n\n    public var weekday: String?\n\n
    public var era: String?\n\n    public var year: String?\n\n    public var month: String?\n\n    public var day:
String?\n\n    public var hour: String?\n\n    public var minute: String?\n\n    public var second: String?\n\n
    public var timeZoneName: String?\n  }\n\n  public inline fun dateLocaleOptions(init: Date.LocaleOptions.() ->
Unit): Date.LocaleOptions {\n    val result = js("new Object()").unsafeCast<Date.LocaleOptions>()\n    init(result)\n    return result\n}", "/*\n *
Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.dom\n\nimport org.w3c.dom.Document\nimport org.w3c.dom.Element\nimport
kotlin.internal.LowPriorityInOverloadResolution\nimport kotlinx.dom.appendElement as

```



```

newAppendElement\nimport kotlin.dom.createElement as newCreateElement\n\n/**\n * Creates a new element
with the specified [name].\n *\n * The element is initialized with the specified [init] function.\n
*/\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved to another package,
use 'kotlin.dom.createElement' instead.\",\n    replaceWith = ReplaceWith(\"this.createElement(name, init)\",
\"kotlin.dom.createElement()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince
= \"1.6\")\npublic inline fun Document.createElement(name: String, noinline init: Element.() -> Unit): Element =
this.newCreateElement(name, init)\n\n/**\n * Appends a newly created element with the specified [name] to this
element.\n *\n * The element is initialized with the specified [init] function.\n
*/\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved to another package,
use 'kotlin.dom.appendElement' instead.\",\n    replaceWith = ReplaceWith(\"this.appendElement(name, init)\",
\"kotlin.dom.appendElement()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic
inline fun Element.appendElement(name: String, noinline init: Element.() -> Unit): Element =
this.newAppendElement(name, init)\n\n\", /*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\npackage
kotlin.dom\n\nimport org.w3c.dom.Element\nimport kotlin.internal.LowPriorityInOverloadResolution\nimport
kotlin.dom.addClass as newAddClass\nimport kotlin.dom.hasClass as newHasClass\nimport
kotlin.dom.removeClass as newRemoveClass\n\n/**\n * Returns true if the element has the given CSS class style in its
'class' attribute\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved to
another package, use 'kotlin.dom.hasClass' instead.\",\n    replaceWith = ReplaceWith(\"this.hasClass(cssClass)\",
\"kotlin.dom.hasClass()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline fun
Element.hasClass(cssClass: String): Boolean = this.newHasClass(cssClass)\n\n/**\n * Adds CSS class to element.
Has no effect if all specified classes are already in class attribute of the element\n *\n * @return true if at least one
class has been added\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved
to another package,
use 'kotlin.dom.addClass' instead.\",\n    replaceWith = ReplaceWith(\"this.addClass(cssClasses)\",
\"kotlin.dom.addClass()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline fun
Element.addClass(vararg cssClasses: String): Boolean = this.newAddClass(*cssClasses)\n\n/**\n * Removes all
[cssClasses] from element. Has no effect if all specified classes are missing in class attribute of the element\n *\n *
@return true if at least one class has been removed\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved to another package, use 'kotlin.dom.removeClass' instead.\",\n    replaceWith =
ReplaceWith(\"this.removeClass(cssClasses)\",
\"kotlin.dom.removeClass()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\ninline
fun Element.removeClass(vararg cssClasses: String): Boolean = this.newRemoveClass(*cssClasses)\", /*\n *
Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.dom\n\nimport org.w3c.dom.Element\nimport org.w3c.dom.Node\nimport
kotlin.internal.LowPriorityInOverloadResolution\nimport kotlin.dom.isElement as newIsElement\nimport
kotlin.dom.isText as newIsText\n\n/**\n * Gets a value indicating whether this node is a TEXT_NODE or a
CDATA_SECTION_NODE.\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved to
another package, use 'kotlin.dom.isText' instead.\",\n    replaceWith = ReplaceWith(\"this.isText\",
\"kotlin.dom.isText()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic val
Node.isText: Boolean\n    inline get() = this.newIsText\n\n/**\n * Gets a value indicating whether this node is an
[Element].\n */\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = \"This API is moved to
another package, use 'kotlin.dom.isElement'
instead.\",\n    replaceWith = ReplaceWith(\"this.isElement\",
\"kotlin.dom.isElement()\")\n)\n@DeprecatedSinceKotlin(warningSince = \"1.4\", errorSince = \"1.6\")\npublic val
Node.isElement: Boolean\n    inline get() = this.newIsElement\n\n\", /*\n * Copyright 2010-2018 JetBrains s.r.o. and

```

```

Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage org.w3c.dom.events\n\npublic fun
EventListener(handler: (Event) -> Unit): EventListener = EventListenerHandler(handler)\n\nprivate class
EventListenerHandler(private val handler: (Event) -> Unit) : EventListener {\n    public override fun
handleEvent(event: Event) {\n        handler(event)\n    }\n\n    public override fun toString(): String =
`EventListenerHandler($handler)`\n}\n\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache
2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage org.w3c.dom\n\npublic external
interface ItemArrayLike<out T> {\n    val length: Int\n    fun item(index: Int): T?\n}\n\n/**\n * Returns the view of
this `ItemArrayLike<T>` collection as `List<T>`\n */\n\npublic fun <T> ItemArrayLike<T>.asList(): List<T> =
object : AbstractList<T>() {\n    override val size: Int get() = this@asList.length\n\n    override fun get(index: Int): T
= when (index) {\n        in 0..lastIndex -> this@asList.item(index).unsafeCast<T>()\n        else -> throw
IndexOutOfBoundsException("index $index is not in range [0..$lastIndex]")\n    }\n}\n\n"/*\n * Copyright 2010-
2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.dom\n\nimport
org.w3c.dom.Element\nimport org.w3c.dom.Node\nimport
kotlin.internal.LowPriorityInOverloadResolution\nimport
kotlinx.dom.appendText as newAppendText\nimport kotlinx.dom.clear as newClear\n\n/** Removes all the
children from this node. */\n\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = `This API is
moved to another package, use 'kotlinx.dom.clear' instead.`,\n    replaceWith = ReplaceWith(`this.clear()`),
`kotlinx.dom.clear`)\n)\n\n@DeprecatedSinceKotlin(warningSince = `1.4`, errorSince = `1.6`)\n\npublic inline fun
Node.clear() = this.newClear()\n\n/**\n * Creates text node and append it to the element.\n */\n\n * @return this
element\n */\n\n@LowPriorityInOverloadResolution\n@Deprecated(\n    message = `This API is moved to another
package, use 'kotlinx.dom.appendText' instead.`,\n    replaceWith = ReplaceWith(`this.appendText(text)`),
`kotlinx.dom.appendText`)\n)\n\n@DeprecatedSinceKotlin(warningSince = `1.4`, errorSince = `1.6`)\n\ninline fun
Element.appendText(text: String): Element = this.newAppendText(text)\n\n"/*\n * Copyright 2010-2018 JetBrains
s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\n/**\n * Reinterprets this value as a value
of the [dynamic type](/docs/reference/dynamic-type.html).\n */\n\n@kotlin.internal.InlineOnly\n\npublic inline fun
Any?.asDynamic(): dynamic = this\n\n/**\n * Reinterprets this value as a value of the specified type [T] without any
actual type checking.\n */\n\n@kotlin.internal.InlineOnly\n\npublic inline fun <T> Any?.unsafeCast():
@kotlin.internal.NoInfer T = this.asDynamic()\n\n/**\n * Reinterprets this `dynamic` value as a value of the
specified type [T] without any actual type checking.\n */\n\n * @kotlin.internal.DynamicExtension\n */\n\n@JsName(`unsafeCastDynamic`)\n\n@kotlin.internal.InlineOnly\n\npublic
inline fun <T> dynamic.unsafeCast(): @kotlin.internal.NoInfer T = this\n\n/**\n * Allows to iterate this `dynamic`
object in the following cases:\n * - when it has an `iterator`
function,\n * - when it is an array\n * - when it is an instance of [kotlin.collections.Iterable]\n */\n\n * @kotlin.internal.DynamicExtension\n */\n\npublic operator fun dynamic.iterator(): Iterator<dynamic> {\n    val r:
Any? = this\n\n    return when {\n        this[\"iterator\"] != null ->\n            this[\"iterator\"]()\n        isArrayish(r) ->\n            r.unsafeCast<Array<*>>().iterator()\n        else ->\n            (r as Iterable<*>).iterator()\n    }\n}\n\n"/*\n *
Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage // a package is
omitted to get declarations directly under the module\n\n@JsName(`throwNPE`)\n\ninternal fun
throwNPE(message: String) {\n    throw NullPointerException(message)\n}\n\n@JsName(`throwCCE`)\n\ninternal
fun throwCCE() {\n    throw ClassCastException("Illegal cast")\n}\n\n@JsName(`throwISE`)\n\ninternal
fun throwISE(message: String) {\n    throw
IllegalStateException(message)\n}\n\n@JsName(`throwUPAE`)\n\ninternal fun throwUPAE(propertyName: String)

```

```

{\n  throw UninitializedPropertyAccessException("\lateinit property ${propertyName} has not been
initialized")\n}\n"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n
* Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\npackage kotlin.collections\n\n/**\n * Groups elements from the [Grouping] source by key and counts elements
in each group.\n * \n * @return a [Map] associating the key of each group with the count of elements in the group.\n
*\n * @sample samples.collections.Grouping.groupingByEachCount\n */\n@SinceKotlin("1.1")\npublic actual fun
<T, K> Grouping<T, K>.eachCount(): Map<K, Int> =\n    fold(0) { acc, _ -> acc + 1 }\n\n"/\n/**\n * Groups
elements from the [Grouping] source by key and sums values provided by
the [valueSelector] function for elements in each group.\n * \n * @return a [Map] associating the key of each group
with the count of element in the group.\n */\n@SinceKotlin("1.1")\npublic inline fun <T, K> Grouping<T,
K>.eachSumOf(valueSelector: (T) -> Int): Map<K, Int> =\n    fold(0) { acc, e -> acc + valueSelector(e)
}\n"/\n"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this
source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmName("GroupingKt")\n@file:kotlin.jvm.JvmMultifileClass\n\npackage
kotlin.collections\n\n/**\n * Represents a source of elements with a [keyOf] function, which can be applied to each
element to get its key.\n * \n * A [Grouping] structure serves as an intermediate step in group-and-fold operations:\n
* they group elements by their keys and then fold each group with some aggregating operation.\n * \n * It is created
by attaching
`keySelector: (T) -> K` function to a source of elements.\n * To get an instance of [Grouping] use one of
`groupingBy` extension functions:\n * - [Iterable.groupingBy]\n * - [Sequence.groupingBy]\n * -
[Array.groupingBy]\n * - [CharSequence.groupingBy]\n * \n * For the list of group-and-fold operations available,
see the [extension functions](#extension-functions) for `Grouping`.\n */\n@SinceKotlin("1.1")\npublic interface
Grouping<T, out K> {\n    /** Returns an [Iterator] over the elements of the source of this grouping. */\n    fun
sourceIterator(): Iterator<T>\n    /** Extracts the key of an [element]. */\n    fun keyOf(element: T): K\n}\n\n/**\n * Groups elements from the [Grouping] source by key and applies [operation] to the elements of each group
sequentially,\n * passing the previously accumulated value and the current element as arguments, and stores the
results in a new map.\n * \n * The key for each element is provided by the [Grouping.keyOf] function.\n * \n *
@param operation
function is invoked on each element with the following parameters:\n * - `key`: the key of the group this element
belongs to;\n * - `accumulator`: the current value of the accumulator of the group, can be `null` if it's the first
`element` encountered in the group;\n * - `element`: the element from the source being aggregated;\n * - `first`:
indicates whether it's the first `element` encountered in the group.\n * \n * @return a [Map] associating the key of
each group with the result of aggregation of the group elements.\n * \n * @sample
samples.collections.Grouping.aggregateByRadix\n */\n@SinceKotlin("1.1")\npublic inline fun <T, K, R>
Grouping<T, K>.aggregate(\n    operation: (key: K, accumulator: R?, element: T, first: Boolean) -> R\n): Map<K,
R> {\n    return aggregateTo(mutableMapOf<K, R>(), operation)\n}\n\n/**\n * Groups elements from the
[Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the
previously accumulated value
and the current element as arguments,\n * and stores the results in the given [destination] map.\n * \n * The key for
each element is provided by the [Grouping.keyOf] function.\n * \n * @param operation a function that is invoked on
each element with the following parameters:\n * - `key`: the key of the group this element belongs to;\n * -
`accumulator`: the current value of the accumulator of the group, can be `null` if it's the first `element` encountered
in the group;\n * - `element`: the element from the source being aggregated;\n * - `first`: indicates whether it's the
first `element` encountered in the group.\n * \n * If the [destination] map already has a value corresponding to some
key,\n * then the elements being aggregated for that key are never considered as `first`.\n * \n * @return the
[destination] map associating the key of each group with the result of aggregation of the group elements.\n * \n *
@sample samples.collections.Grouping.aggregateByRadixTo\n */\n@SinceKotlin("1.1")\npublic

```

```

inline fun <T, K, R, M : MutableMap<in K, R>> Grouping<T, K>.aggregateTo(\n destination: M,\n operation:
(key: K, accumulator: R?, element: T, first: Boolean) -> R\n): M {\n for (e in this.sourceIterator()) {\n val key
= keyOf(e)\n val accumulator = destination[key]\n destination[key] = operation(key, accumulator, e,
accumulator == null && !destination.containsKey(key))\n }\n return destination\n}\n\n/**\n * Groups elements
from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing
the previously accumulated value and the current element as arguments, and stores the results in a new map.\n * An
initial value of accumulator is provided by [initialValueSelector] function.\n * @param initialValueSelector a
function that provides an initial value of accumulator for each group.\n * It's invoked with parameters:\n * - `key`:
the key of the group;\n * - `element`: the first element
being encountered in that group.\n * @param operation a function that is invoked on each element with the
following parameters:\n * - `key`: the key of the group this element belongs to;\n * - `accumulator`: the current
value of the accumulator of the group;\n * - `element`: the element from the source being accumulated.\n * @return a [Map] associating the key of each group with the result of accumulating the group elements.\n * @sample
samples.collections.Grouping.foldByEvenLengthWithComputedInitialValue\n */\n\n@SinceKotlin("1.1")\npublic
inline fun <T, K, R> Grouping<T, K>.fold(\n initialValueSelector: (key: K, element: T) -> R,\n operation: (key:
K, accumulator: R, element: T) -> R\n): Map<K, R> =\n @Suppress("UNCHECKED_CAST")\n aggregate {
key, acc, e, first -> operation(key, if (first) initialValueSelector(key, e) else acc as R, e) }\n\n/**\n * Groups
elements from the [Grouping] source by key and applies [operation] to the elements of each group sequentially,\n *
passing the previously accumulated value and the current element as arguments,\n * and stores the results in the
given [destination] map.\n * An initial value of accumulator is provided by [initialValueSelector] function.\n *
@param initialValueSelector a function that provides an initial value of accumulator for each group.\n * It's
invoked with parameters:\n * - `key`: the key of the group;\n * - `element`: the first element being encountered in
that group.\n * @param operation a function that is invoked on each element with the following parameters:\n * -
`key`: the key of the group this element belongs to;\n * - `accumulator`: the current value of the accumulator of the
group;\n * - `element`: the element from the source being accumulated.\n * @return the [destination] map associating the key of each group with the result of accumulating the group
elements.\n * @sample samples.collections.Grouping.foldByEvenLengthWithComputedInitialValueTo\n */\n\n@SinceKotlin("1.1")\npublic inline fun <T, K, R, M : MutableMap<in K, R>> Grouping<T, K>.foldTo(\n
destination: M,\n initialValueSelector: (key: K, element: T) -> R,\n operation: (key: K, accumulator: R, element:
T) -> R\n): M =\n @Suppress("UNCHECKED_CAST")\n aggregateTo(destination) { key, acc, e, first ->
operation(key, if (first) initialValueSelector(key, e) else acc as R, e) }\n\n/**\n * Groups elements from the
[Grouping] source by key and applies [operation] to the elements of each group sequentially,\n * passing the
previously accumulated value and the current element as arguments, and stores the results in a new map.\n * An
initial value of accumulator is the same [initialValue] for each group.\n * @param operation a function that is
invoked
on each element with the following parameters:\n * - `accumulator`: the current value of the accumulator of the
group;\n * - `element`: the element from the source being accumulated.\n * @return a [Map] associating the key
of each group with the result of accumulating the group elements.\n * @sample
samples.collections.Grouping.foldByEvenLengthWithConstantInitialValue\n */\n\n@SinceKotlin("1.1")\npublic
inline fun <T, K, R> Grouping<T, K>.fold(\n initialValue: R,\n operation: (accumulator: R, element: T) -> R\n):
Map<K, R> =\n @Suppress("UNCHECKED_CAST")\n aggregate { _, acc, e, first -> operation(if (first)
initialValue else acc as R, e) }\n\n/**\n * Groups elements from the [Grouping] source by key and applies
[operation] to the elements of each group sequentially,\n * passing the previously accumulated value and the current
element as arguments,\n * and stores the results in the given [destination] map.\n * An initial value of accumulator
is the same [initialValue]

```

for each group.

If the [destination] map already has a value corresponding to the key of some group, that value is used as an initial value of the accumulator for that group.

@param operation a function that is invoked on each element with the following parameters:

- `accumulator`: the current value of the accumulator of the group;
- `element`: the element from the source being accumulated.

@return the [destination] map associating the key of each group with the result of accumulating the group elements.

@sample

```

samples.collections.Grouping.foldByEvenLengthWithConstantInitialValueTo
*/
@SinceKotlin("1.1")
public inline fun <T, K, R, M : MutableMap<in K, R>> Grouping<T, K>.foldTo(
    destination: M,
    initialValue: R,
    operation: (accumulator: R, element: T) -> R): M =
    @Suppress("UNCHECKED_CAST")
    aggregateTo(destination) { _, acc, e, first -> operation(if (first) initialValue else acc as R, e) }
*/

```

Groups elements from the [Grouping] source by key and applies the reducing [operation] to the elements of each group sequentially starting from the second element of the group, passing the previously accumulated value and the current element as arguments, and stores the results in a new map. An initial value of accumulator is the first element of the group.

@param operation a function that is invoked on each subsequent element of the group with the following parameters:

- `key`: the key of the group this element belongs to;
- `accumulator`: the current value of the accumulator of the group;
- `element`: the element from the source being accumulated.

@return a [Map] associating the key of each group with the result of accumulating the group elements.

@sample

```

samples.collections.Grouping.reduceByMaxVowels
*/
@SinceKotlin("1.1")
public inline fun <S, T : S, K> Grouping<T, K>.reduce(
    operation: (key: K, accumulator: S, element: T) -> S): Map<K, S> =
    aggregate { key, acc, e, first ->
        @Suppress("UNCHECKED_CAST")
        if (first) e else operation(key, acc as S, e)
    }
*/

```

Groups elements from the [Grouping] source by key and applies the reducing [operation] to the elements of each group sequentially starting from the second element of the group, passing the previously accumulated value and the current element as arguments, and stores the results in the given [destination] map. An initial value of accumulator is the first element of the group.

If the [destination] map already has a value corresponding to the key of some group, that value is used as an initial value of the accumulator for that group and the first element of that group is also subjected to the [operation].

@param operation a function that is invoked on each subsequent element of the group with the following parameters:

- `accumulator`: the current value of the accumulator of the group;
- `element`: the element from the source being folded;

@return the [destination] map associating the key of each group with the result of accumulating the group elements.

@sample

```

samples.collections.Grouping.reduceByMaxVowelsTo
*/
@SinceKotlin("1.1")
public inline fun <S, T : S, K, M : MutableMap<in K, S>> Grouping<T, K>.reduceTo(
    destination: M,
    operation: (key: K, accumulator: S, element: T) -> S): M =
    aggregateTo(destination) { key, acc, e, first ->
        @Suppress("UNCHECKED_CAST")
        if (first) e else operation(key, acc as S, e)
    }
*/

```

Groups elements from the [Grouping] source by key and counts elements in each group to the given [destination] map.

If the [destination] map already has a value corresponding to the key of some group, that value is used as an initial value of the counter for that group.

@return the [destination] map associating the key of each group with the count of elements in the group.

@sample

```

samples.collections.Grouping.groupingByEachCount
*/
@SinceKotlin("1.1")
public fun <T, K, M : MutableMap<in K, Int>> Grouping<T, K>.eachCountTo(
    destination: M): M =
    foldTo(destination, 0) { acc, _ -> acc + 1 }
*/

```

Groups elements from the [Grouping] source by key and sums values provided by the [valueSelector] function for elements in each group to the given [destination] map.

If the [destination] map already has a value corresponding to the key of some group, that value is used as an initial value of the sum for that group.

@return the [destination] map associating the key of each group with the sum of elements in the group.

@sample

```

@SinceKotlin("1.1")
public inline fun <T, K, M : MutableMap<in K, Int>> Grouping<T, K>.eachSumOfTo(
    destination: M, valueSelector: (T) -> Int): M =
    foldTo(destination, 0) { acc, e -> acc + valueSelector(e) }
*/
// TODO: sum by long and by double overloads
public

```

```

inline fun <T, K, M : MutableMap<in K, Long>> Grouping<T, K>.sumEachByLongTo(destination: M,
valueSelector: (T) -> Long): M =\n    foldTo(destination, 0L) { acc, e -> acc + valueSelector(e)}\n\npublic inline
fun <T, K> Grouping<T, K>.sumEachByLong(valueSelector: (T) -> Long): Map<K, Long> =\n    fold(0L) { acc,
e -> acc + valueSelector(e)}\n\npublic inline fun <T, K, M : MutableMap<in K, Double>> Grouping<T,
K>.sumEachByDoubleTo(destination: M, valueSelector: (T) -> Double): M =\n    foldTo(destination, 0.0) { acc, e
-> acc + valueSelector(e)}\n\npublic inline fun <T, K> Grouping<T, K>.sumEachByDouble(valueSelector: (T) ->
Double): Map<K, Double> =\n    fold(0.0) { acc, e -> acc + valueSelector(e)}\n\n * Copyright 2010-2021
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.js\n\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.FUNCTION,
AnnotationTarget.PROPERTY)\n\ninternal annotation class JsPolyfill(val implementation: String)\n\n *
Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.js\n\n/**\n * An interface for indexing access to a collection of key-value pairs, where type of key is [String]
and type of value is [Any?][Any].\n */\n\npublic external interface Json {\n    /**\n     * Calls to the function will be
translated to indexing operation (square brackets) on the receiver with [propertyName] as the argument.\n     *\n     *
E.g. for next code:\n     * ```kotlin\n     * fun test(j: Json, p: String) = j["prop"] + j.get(p)\n     * ```\n     *\n     * will
be generated:\n     * ```js\n     * function test(j, p) {\n     *     return j["prop"] + j[p];\n     * }\n     * ```\n     *\n     *
operator fun get(propertyName: String): Any?\n     */\n     * Calls of the function will be translated to an
assignment of [value] to the receiver indexed (with square brackets/index operation) with [propertyName].\n     *\n     *
E.g. for the following code:\n     * ```kotlin\n     * fun test(j: Json, p: String, newValue: Any) {\n     *     j["prop"]
= 1\n     *     j.set(p, newValue)\n     * }\n     * ```\n     *\n     * will be generated:\n     * ```js\n     * function test(j, p,
newValue) {\n     *     j["prop"] = 1;\n     *     j[p] = newValue;\n     * }\n     * }\n     * ```\n     *\n     *
operator fun
set(propertyName: String, value: Any?): Unit\n     */\n     * Returns a simple JavaScript object (as [Json]) using
provided key-value pairs as names and values of its properties.\n     */\n     * public fun json(vararg pairs: Pair<String,
Any?>): Json {\n     *     val res: dynamic = js("{}")\n     *     for ((name, value) in pairs) {\n     *         res[name] = value\n     *     }\n     *     return res\n     * }\n     */\n     * Adds
key-value pairs from [other] to [this].\n     * Returns the original receiver.\n     */\n     * public fun Json.add(other: Json): Json
{\n     *     val keys: Array<String> = js("Object").keys(other)\n     *     for (key in keys) {\n     *         if
(other.asDynamic().hasOwnProperty(key)) {\n     *             this[key] = other[key];\n     *         }\n     *     }\n     *     return
this\n     * }\n     */\n     * Exposes the JavaScript [JSON object](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/JSON) to Kotlin.\n     */\n     * @Suppress("NOT_DOCUMENTED")\n     * public external object JSON {\n     *     public fun stringify(o: Any?):
String\n     *     public fun stringify(o: Any?, replacer: ((key: String, value: Any?) -> Any?): String)\n     *     public fun
stringify(o: Any?, replacer: ((key: String, value: Any?) -> Any?)? = definedExternally, space: Int): String\n     *     public
fun stringify(o: Any?, replacer: ((key: String, value: Any?) -> Any?)? = definedExternally, space: String): String\n     *     public
fun stringify(o: Any?, replacer: Array<String>): String\n     *     public fun stringify(o: Any?, replacer: Array<String>, space: Int): String\n     *     public fun stringify(o: Any?,
replacer: Array<String>, space: String): String\n     *     public fun <T> parse(text: String): T\n     *     public fun <T>
parse(text: String, reviver: ((key: String, value: Any?) -> Any?): T)\n     */\n     */\n     * Copyright 2010-2021 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n     * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n     */\n     * package kotlin.math\n     * \nimport
kotlin.internal.InlineOnly\nimport kotlin.js.JsMath as nativeMath\n\n// region ===== Double Math
===== \n\n/**\n * Computes the sine of the angle [x] given in
radians.\n * \n * Special cases:\n * - `sin(NaN|+Inf|-Inf)` is `NaN`\n     */\n     * @SinceKotlin("1.2")\n     * @InlineOnly\n     * public actual inline fun sin(x: Double): Double =
nativeMath.sin(x)\n     */\n     * Computes the cosine of the angle [x] given in radians.\n     */

```

`*\n * Special cases:\n * - `cos(NaN|+Inf|-Inf)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun cos(x: Double): Double = nativeMath.cos(x)\n *\n ** Computes the tangent of the angle [x] given in radians.\n *\n * Special cases:\n * - `tan(NaN|+Inf|-Inf)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun tan(x: Double): Double = nativeMath.tan(x)\n *\n **\n * Computes the arc sine of the value [x];\n *\n * the returned value is an angle in the range from  $-\pi/2$  to  $\pi/2$  radians.\n *\n * Special cases:\n * - `asin(x)` is `NaN`, when  $abs(x) > 1$  or x is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun asin(x: Double): Double = nativeMath.asin(x)\n *\n **\n * Computes the arc cosine of the value [x];\n *\n * the returned value is an angle in the range from  $0.0$  to  $\pi$  radians.\n *\n * Special cases:\n * - `acos(x)` is `NaN`, when  $abs(x) > 1$  or x is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun acos(x: Double): Double = nativeMath.acos(x)\n *\n **\n * Computes the arc tangent of the value [x];\n *\n * the returned value is an angle in the range from  $-\pi/2$  to  $\pi/2$  radians.\n *\n * Special cases:\n * - `atan(NaN)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun atan(x: Double): Double = nativeMath.atan(x)\n *\n **\n * Returns the angle `theta` of the polar coordinates `(r, theta)` that correspond\n *\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value  $y / x$ ;\n *\n * the returned value is an angle in the range from  $-\pi$  to  $\pi$  radians.\n *\n * Special cases:\n * - `atan2(0.0, 0.0)` is  $0.0$ \n * - `atan2(0.0, x)` is  $0.0$  for  $x > 0$  and  $\pi$  for  $x < 0$ \n * - `atan2(-0.0, x)` is  $-0.0$  for  $x > 0$  and  $-\pi$  for  $x < 0$ \n * - `atan2(y, +Inf)` is  $0.0$  for  $0 < y < +Inf$  and  $-0.0$  for  $-Inf < y < 0$ \n * - `atan2(y, -Inf)` is  $\pi$  for  $0 < y < +Inf$  and  $-\pi$  for  $-Inf < y < 0$ \n * - `atan2(y, 0.0)` is  $\pi/2$  for  $y > 0$  and  $-\pi/2$  for  $y < 0$ \n * - `atan2(+Inf, x)` is  $\pi/2$  for finite  $x$ \n * - `atan2(-Inf, x)` is  $-\pi/2$  for finite  $x$ \n * - `atan2(NaN, x)` and `atan2(y, NaN)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun atan2(y: Double, x: Double): Double = nativeMath.atan2(y, x)\n *\n **\n * Computes the hyperbolic sine of the value [x].\n *\n * Special cases:\n * - `sinh(NaN)` is `NaN`\n * - `sinh(+Inf)` is  $+Inf$ \n * - `sinh(-Inf)` is  $-Inf$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun sinh(x: Double): Double = nativeSinh(x)\n *\n **\n * Computes the hyperbolic cosine of the value [x].\n *\n * Special cases:\n * - `cosh(NaN)` is `NaN`\n * - `cosh(+Inf|-Inf)` is  $+Inf$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun cosh(x: Double): Double = nativeCosh(x)\n *\n **\n * Computes the hyperbolic tangent of the value [x].\n *\n * Special cases:\n * - `tanh(NaN)` is `NaN`\n * - `tanh(+Inf)` is  $1.0$ \n * - `tanh(-Inf)` is  $-1.0$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun tanh(x: Double): Double = nativeTanh(x)\n *\n **\n * Computes the inverse hyperbolic sine of the value [x].\n *\n * The returned value is `y` such that  $\sinh(y) == x$ .\n *\n * Special cases:\n * - `asinh(NaN)` is `NaN`\n * - `asinh(+Inf)` is  $+Inf$ \n * - `asinh(-Inf)` is  $-Inf$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun asinh(x: Double): Double = nativeAsinh(x)\n *\n **\n * Computes the inverse hyperbolic cosine of the value [x].\n *\n * The returned value is positive `y` such that  $\cosh(y) == x$ .\n *\n * Special cases:\n * - `acosh(NaN)` is `NaN`\n * - `acosh(x)` is `NaN` when  $x < 1$ \n * - `acosh(+Inf)` is  $+Inf$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun acosh(x: Double): Double = nativeAcosh(x)\n *\n **\n * Computes the inverse hyperbolic tangent of the value [x].\n *\n * The returned value is `y` such that  $\tanh(y) == x$ .\n *\n * Special cases:\n * - `tanh(NaN)` is `NaN`\n * - `tanh(x)` is `NaN` when  $x > 1$  or  $x < -1$ \n * - `tanh(1.0)` is  $+Inf$ \n * - `tanh(-1.0)` is  $-Inf$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun atanh(x: Double): Double = nativeAtanh(x)\n *\n **\n * Computes  $\sqrt{x^2 + y^2}$  without intermediate overflow or underflow.\n *\n * Special cases:\n * - returns  $+Inf$  if any of arguments is infinite\n * - returns `NaN` if any of arguments is `NaN` and the other is not infinite\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun hypot(x: Double, y: Double): Double = nativeHypot(x, y)\n *\n **\n * Computes the positive square root of the value [x].\n *\n * Special cases:\n * -  $\sqrt{x}$  is `NaN` when  $x < 0$  or  $x$  is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun sqrt(x: Double): Double = nativeMath.sqrt(x)\n *\n **\n * Computes Euler's number `e` raised to the power of the value [x].\n *\n * Special`

cases: `NaN * - exp(NaN)`  
is `NaN * - exp(+Inf)` is `+Inf` `NaN * - exp(-Inf)` is `0.0` `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public`  
actual inline fun `exp(x: Double): Double = nativeMath.exp(x)` `NaN/**` `NaN * Computes exp(x) - 1.` `NaN * This`  
function can be implemented to produce more precise result for [x] near zero. `NaN * NaN * Special cases:` `NaN * -`  
`expm1(NaN)` is `NaN` `NaN * - expm1(+Inf)` is `+Inf` `NaN * - expm1(-Inf)` is `-1.0` `NaN * @see [exp] function.` `NaN`  
`NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `expm1(x: Double): Double =`  
`nativeExpm1(x)` `NaN/**` `NaN * Computes the logarithm of the value [x] to the given [base].` `NaN * NaN * Special cases:` `NaN * -`  
`log(x, b)` is `NaN` if either `x` or `b` are `NaN` `NaN * - log(x, b)` is `NaN` when `x < 0` or `b <= 0` or `b == 1.0` `NaN`  
`NaN * - log(+Inf, +Inf)` is `NaN` `NaN * - log(+Inf, b)` is `+Inf` for `b > 1` and `-Inf` for `b < 1` `NaN * - log(0.0, b)` is `-`  
`Inf` for `b > 1` and `+Inf` for `b > 1` `NaN * NaN * See also logarithm functions for`  
common fixed bases: `[ln]`, `[log10]` and `[log2]`. `NaN * ^` `@SinceKotlin("1.2")` `public` actual inline fun `log(x: Double, base:`  
`Double): Double {` `NaN` `if (base <= 0.0 || base == 1.0) return Double.NaN` `NaN` `return nativeMath.log(x) /`  
`nativeMath.log(base)` `NaN}` `NaN/**` `NaN * Computes the natural logarithm (base 'E')` `NaN * NaN * Special`  
cases: `NaN * - ln(NaN)` is `NaN` `NaN * - ln(x)` is `NaN` when `x < 0.0` `NaN * - ln(+Inf)` is `+Inf` `NaN * - ln(0.0)` is `-`  
`Inf` `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `ln(x: Double): Double =`  
`nativeMath.log(x)` `NaN/**` `NaN * Computes the common logarithm (base 10) of the value [x].` `NaN * NaN * @see [ln] function`  
for special cases. `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `log10(x: Double): Double =`  
`nativeLog10(x)` `NaN/**` `NaN * Computes the binary logarithm (base 2) of the value [x].` `NaN * NaN * @see [ln] function for`  
special cases. `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `log2(x: Double): Double`  
`= nativeLog2(x)` `NaN/**` `NaN * Computes ln(x + 1).` `NaN * NaN * This function can be implemented to produce more`  
precise result for [x] near zero. `NaN * NaN * Special cases:` `NaN * - ln1p(NaN)` is `NaN` `NaN * - ln1p(x)` is `NaN` where `x`  
`< -1.0` `NaN * - ln1p(-1.0)` is `-Inf` `NaN * - ln1p(+Inf)` is `+Inf` `NaN * NaN * @see [ln] function` `NaN * @see [expm1]`  
function `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `ln1p(x: Double): Double =`  
`nativeLog1p(x)` `NaN/**` `NaN * Rounds the given value [x] to an integer towards positive infinity.` `NaN * NaN * @return the`  
smallest double value that is greater than or equal to the given value [x] and is a mathematical integer. `NaN * NaN *`  
Special cases: `NaN * - ceil(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer. `NaN`  
`NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `ceil(x: Double): Double =`  
`nativeMath.ceil(x)` `NaN/**` `NaN * Rounds the given value [x] to an integer towards negative infinity.` `NaN * NaN * @return the`  
largest  
double value that is smaller than or equal to the given value [x] and is a mathematical integer. `NaN * NaN * Special`  
cases: `NaN * - floor(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer. `NaN`  
`NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `floor(x: Double): Double =`  
`nativeMath.floor(x)` `NaN/**` `NaN * Rounds the given value [x] to an integer towards zero.` `NaN * NaN * @return the value [x]`  
having its fractional part truncated. `NaN * NaN * Special cases:` `NaN * - truncate(x)` is `x` where `x` is `NaN` or `+Inf` or `-`  
`Inf` or already a mathematical integer. `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun  
`truncate(x: Double): Double = nativeTrunc(x)` `NaN/**` `NaN * Rounds the given value [x] towards the closest integer with`  
ties rounded towards even integer. `NaN * NaN * Special cases:` `NaN * - round(x)` is `x` where `x` is `NaN` or `+Inf` or `-`  
`Inf` or already a mathematical integer. `NaN * ^` `@SinceKotlin("1.2")` `public` actual inline fun `round(x: Double):`  
`Double {` `NaN` `if (x % 0.5 != 0.0) {` `NaN` `return nativeMath.round(x)` `NaN` `}` `NaN` `val floor = floor(x)` `NaN` `return if (floor`  
`% 2 == 0.0) floor else ceil(x)` `NaN}` `NaN/**` `NaN * Returns the absolute value of the given value [x].` `NaN * NaN * Special`  
cases: `NaN * - abs(NaN)` is `NaN` `NaN * NaN * @see absoluteValue extension property for [Double]` `NaN`  
`NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `abs(x: Double): Double =`  
`nativeMath.abs(x)` `NaN/**` `NaN * Returns the sign of the given value [x]:` `NaN * - -1.0` if the value is negative, `NaN * - zero`  
if the value is zero, `NaN * - 1.0` if the value is positive `NaN * NaN * Special case:` `NaN * - sign(NaN)` is `NaN` `NaN`  
`NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `sign(x: Double): Double =`  
`nativeSign(x)` `NaN/**` `NaN * Returns the smaller of two values.` `NaN * NaN * If either value is NaN, then the result is`  
`NaN`. `NaN * ^` `@SinceKotlin("1.2")` `@InlineOnly` `public` actual inline fun `min(a: Double, b: Double): Double =`  
`nativeMath.min(a, b)` `NaN/**` `NaN`



```

* Returns the greater of two values.\n *\n * If either value is `NaN`, then the result is `NaN`.\n
*/\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun max(a: Double, b: Double): Double =
nativeMath.max(a, b)\n\n// extensions\n\n**\n * Raises this value to the power [x].\n *\n * Special cases:\n * -
`b.pow(0.0)` is `1.0`\n * - `b.pow(1.0) == b`\n * - `b.pow(NaN)` is `NaN`\n * - `NaN.pow(x)` is `NaN` for `x !=
0.0`\n * - `b.pow(Inf)` is `NaN` for `abs(b) == 1.0`\n * - `b.pow(x)` is `NaN` for `b < 0` and `x` is finite and not
an integer\n */\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun Double.pow(x: Double): Double =
nativeMath.pow(this, x)\n\n**\n * Raises this value to the integer power [n].\n *\n * See the other overload of
[pow] for details.\n */\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun Double.pow(n: Int): Double =
nativeMath.pow(this, n.toDouble())\n\n**\n * Returns the absolute value of this value.\n *\n * Special
cases:\n * - `NaN.absoluteValue` is `NaN`\n *\n * @see abs function\n
*/\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline val Double.absoluteValue: Double get() =
nativeMath.abs(this)\n\n**\n * Returns the sign of this value:\n * - `-1.0` if the value is negative,\n * - zero if the
value is zero,\n * - `1.0` if the value is positive\n *\n * Special case:\n * - `NaN.sign` is `NaN`\n
*/\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline val Double.sign: Double get() =
nativeSign(this)\n\n**\n * Returns this value with the sign bit same as of the [sign] value.\n
*/\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun Double.withSign(sign: Int): Double =
this.withSign(sign.toDouble())\n\n**\n * Returns the ulp (unit in the last place) of this value.\n *\n * An ulp is a
positive distance between this value and the next nearest [Double] value larger in magnitude.\n *\n * Special
Cases:\n * - `NaN.ulp` is `NaN`\n * - `x.ulp` is `+Inf` when `x`
is `+Inf` or `-Inf`\n * - `0.0.ulp` is `Double.MIN_VALUE`\n */\n@SinceKotlin("1.2")\npublic actual val
Double.ulp: Double get() = when {\n    this < 0 -> (-this).ulp\n    this.isNaN() || this ==
Double.POSITIVE_INFINITY -> this\n    this == Double.MAX_VALUE -> this - this.nextDown()\n    else ->
this.nextUp() - this\n}\n\n**\n * Returns the [Double] value nearest to this value in direction of positive infinity.\n
*/\n@SinceKotlin("1.2")\npublic actual fun Double.nextUp(): Double = when {\n    this.isNaN() || this ==
Double.POSITIVE_INFINITY -> this\n    this == 0.0 -> Double.MIN_VALUE\n    else ->
Double.fromBits(this.toRawBits() + if (this > 0) 1 else -1)\n}\n\n**\n * Returns the [Double] value nearest to this
value in direction of negative infinity.\n */\n@SinceKotlin("1.2")\npublic actual fun Double.nextDown(): Double =
when {\n    this.isNaN() || this == Double.NEGATIVE_INFINITY -> this\n    this == 0.0 -> -
Double.MIN_VALUE\n    else -> Double.fromBits(this.toRawBits() +
if (this > 0) -1 else 1)\n}\n\n**\n * Returns the [Double] value nearest to this value in direction from this value
towards the value [to].\n *\n * Special cases:\n * - `x.nextTowards(y)` is `NaN` if either `x` or `y` are `NaN`\n * -
`x.nextTowards(x) == x`\n */\n@SinceKotlin("1.2")\npublic actual fun Double.nextTowards(to: Double):
Double = when {\n    this.isNaN() || to.isNaN() -> Double.NaN\n    to == this -> to\n    to > this -> this.nextUp()\n
else /* to < this */ -> this.nextDown()\n}\n\n**\n * Rounds this [Double] value to the nearest integer and converts
the result to [Int].\n *\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n * - `x.roundToInt() ==
Int.MAX_VALUE` when `x > Int.MAX_VALUE`\n * - `x.roundToInt() == Int.MIN_VALUE` when `x <
Int.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value is `NaN`\n
*/\n@SinceKotlin("1.2")\npublic actual fun Double.roundToInt(): Int = when {\n    isNaN() -> throw
IllegalArgumentException("Cannot
round NaN value.")\n    this > Int.MAX_VALUE -> Int.MAX_VALUE\n    this < Int.MIN_VALUE ->
Int.MIN_VALUE\n    else -> nativeMath.round(this).toInt()\n}\n\n**\n * Rounds this [Double] value to the nearest
integer and converts the result to [Long].\n *\n * Ties are rounded towards positive infinity.\n *\n * Special cases:\n * -
`x.roundToLong() == Long.MAX_VALUE` when `x > Long.MAX_VALUE`\n * - `x.roundToLong() ==
Long.MIN_VALUE` when `x < Long.MIN_VALUE`\n *\n * @throws IllegalArgumentException when this value
is `NaN`\n */\n@SinceKotlin("1.2")\npublic actual fun Double.roundToLong(): Long = when {\n    isNaN() ->
throw IllegalArgumentException("Cannot round NaN value.")\n    this > Long.MAX_VALUE ->
Long.MAX_VALUE\n    this < Long.MIN_VALUE -> Long.MIN_VALUE\n    else ->
nativeMath.round(this).toLong()\n}\n\n// endregion\n\n// region ===== Float Math

```

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=====
\n\n** Computes the sine of the angle [x] given in
radians.\n
*\n * Special cases:\n * - `sin(NaN|+Inf|-Inf)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual
inline fun sin(x: Float): Float = nativeMath.sin(x.toDouble()).toFloat()\n\n** Computes the cosine of the angle [x]
given in radians.\n *\n * Special cases:\n * - `cos(NaN|+Inf|-Inf)` is `NaN`\n
*\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun cos(x: Float): Float =
nativeMath.cos(x.toDouble()).toFloat()\n\n** Computes the tangent of the angle [x] given in radians.\n *\n *
Special cases:\n * - `tan(NaN|+Inf|-Inf)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline
fun tan(x: Float): Float = nativeMath.tan(x.toDouble()).toFloat()\n\n**\n * Computes the arc sine of the value [x];\n
* the returned value is an angle in the range from  $-\pi/2$  to  $\pi/2$  radians.\n *\n * Special cases:\n * - `asin(x)` is
`NaN`, when  $abs(x) > 1$  or x is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun asin(x:
Float): Float
= nativeMath.asin(x.toDouble()).toFloat()\n\n**\n * Computes the arc cosine of the value [x];\n * the returned
value is an angle in the range from  $0.0$  to  $\pi$  radians.\n *\n * Special cases:\n * - `acos(x)` is `NaN`, when
 $abs(x) > 1$  or x is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun acos(x: Float): Float
= nativeMath.acos(x.toDouble()).toFloat()\n\n**\n * Computes the arc tangent of the value [x];\n * the returned
value is an angle in the range from  $-\pi/2$  to  $\pi/2$  radians.\n *\n * Special cases:\n * - `atan(NaN)` is `NaN`\n
*\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun atan(x: Float): Float =
nativeMath.atan(x.toDouble()).toFloat()\n\n**\n * Returns the angle `theta` of the polar coordinates `(r, theta)` that
correspond\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value  $y / x$ ;\n * the
returned value is an angle in the range from  $-\pi$  to  $\pi$  radians.\n *\n * Special cases:\n *
- `atan2(0.0, 0.0)` is  $0.0$ \n * - `atan2(0.0, x)` is  $0.0$  for  $x > 0$  and  $\pi$  for  $x < 0$ \n * - `atan2(-0.0, x)` is  $-
0.0$  for  $x > 0$  and  $-\pi$  for  $x < 0$ \n * - `atan2(y, +Inf)` is  $0.0$  for  $0 < y < +Inf$  and  $-0.0$  for  $-\text{Inf} < y < 0$ \n *
- `atan2(y, -Inf)` is  $\pi$  for  $0 < y < +Inf$  and  $-\pi$  for  $-\text{Inf} < y < 0$ \n * - `atan2(y, 0.0)` is  $\pi/2$  for  $y > 0$  and  $-\pi/2$ 
for  $y < 0$ \n * - `atan2(+Inf, x)` is  $\pi/2$  for finite  $x \neq y$ \n * - `atan2(-Inf, x)` is  $-\pi/2$  for finite  $x$ \n * -
`atan2(NaN, x)` and `atan2(y, NaN)` is `NaN`\n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun
atan2(y: Float, x: Float): Float = nativeMath.atan2(y.toDouble(), x.toDouble()).toFloat()\n\n**\n * Computes the
hyperbolic sine of the value [x].\n *\n * Special cases:\n * - `sinh(NaN)` is `NaN`\n * - `sinh(+Inf)` is  $+\text{Inf}$ \n *
- `sinh(-Inf)` is  $-\text{Inf}$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun sinh(x: Float): Float =
nativeSinh(x.toDouble()).toFloat()\n\n**\n * Computes the hyperbolic cosine of the value [x].\n *\n * Special cases:\n * - `cosh(NaN)` is `NaN`\n * -
`cosh(+Inf|-Inf)` is  $+\text{Inf}$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun cosh(x: Float): Float
= nativeCosh(x.toDouble()).toFloat()\n\n**\n * Computes the hyperbolic tangent of the value [x].\n *\n * Special
cases:\n * - `tanh(NaN)` is `NaN`\n * - `tanh(+Inf)` is  $1.0$ \n * - `tanh(-Inf)` is  $-1.0$ \n
*\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun tanh(x: Float): Float =
nativeTanh(x.toDouble()).toFloat()\n\n**\n * Computes the inverse hyperbolic sine of the value [x].\n *\n * The
returned value is `y` such that  $\sinh(y) == x$ .\n *\n * Special cases:\n * - `asinh(NaN)` is `NaN`\n * -
`asinh(+Inf)` is  $+\text{Inf}$ \n * - `asinh(-Inf)` is  $-\text{Inf}$ \n *\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline
fun asinh(x: Float): Float = nativeAsinh(x.toDouble()).toFloat()\n\n**\n * Computes the inverse hyperbolic cosine
of the value [x].\n *\n * The returned value is positive `y` such that  $\cosh(y) == x$ .\n *\n * Special cases:\n * -
`acosh(NaN)` is `NaN`\n * - `acosh(x)` is `NaN` when  $x < 1$ \n * - `acosh(+Inf)` is  $+\text{Inf}$ \n
*\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun acosh(x: Float): Float =
nativeAcosh(x.toDouble()).toFloat()\n\n**\n * Computes the inverse hyperbolic tangent of the value [x].\n *\n *
The returned value is `y` such that  $\tanh(y) == x$ .\n *\n * Special cases:\n * - `tanh(NaN)` is `NaN`\n * - `tanh(x)`
is `NaN` when  $x > 1$  or  $x < -1$ \n * - `tanh(1.0)` is  $+\text{Inf}$ \n * - `tanh(-1.0)` is  $-\text{Inf}$ \n
*\n @SinceKotlin("1.2")\n @InlineOnly\n public actual inline fun atanh(x: Float): Float =
nativeAtanh(x.toDouble()).toFloat()\n\n**\n * Computes  $\sqrt{x^2 + y^2}$  without intermediate overflow or
underflow.\n *\n * Special cases:\n * - returns  $+\text{Inf}$  if any of arguments is infinite\n * - returns `NaN` if any of

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arguments is `NaN` and the other is not infinite

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun hypot(x: Float, y: Float): Float =  
nativeHypot(x.toDouble(), y.toDouble()).toFloat()\n\n * Computes the positive square root of the value [x].  
 * Special cases: * - `sqrt(x)` is `NaN` when `x < 0` or `x` is `NaN`  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun sqrt(x: Float): Float =  
nativeMath.sqrt(x.toDouble()).toFloat()\n\n * Computes Euler's number `e` raised to the power of the value  
[x].  
 * Special cases: * - `exp(NaN)` is `NaN` * - `exp(+Inf)` is `+Inf` * - `exp(-Inf)` is `0.0`  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun exp(x: Float): Float =  
nativeMath.exp(x.toDouble()).toFloat()\n\n * Computes `exp(x) - 1`.  
 * This function can be implemented to produce more precise result for [x] near zero.  
 * Special cases: * - `expm1(NaN)` is `NaN` * -  
`expm1(+Inf)` is `+Inf` * - `expm1(-Inf)` is `-1.0` *  
 * @see  
[exp] function.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun expm1(x: Float): Float =  
nativeExp1(x.toDouble()).toFloat()\n\n * Computes the logarithm of the value [x] to the given [base].  
 * Special cases: * - `log(x, b)` is `NaN` if either `x` or `b` are `NaN` * - `log(x, b)` is `NaN` when `x < 0` or `b`  
<= 0` or `b == 1.0` * - `log(+Inf, +Inf)` is `NaN` * - `log(+Inf, b)` is `+Inf` for `b > 1` and `-Inf` for `b < 1`  
 * - `log(0.0, b)` is `-Inf` for `b > 1` and `+Inf` for `b > 1` *  
 * See also logarithm functions for common fixed bases: [ln], [log10] and [log2].  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun log(x: Float, base: Float): Float = log(x.toDouble(), base.toDouble()).toFloat()\n\n * Computes the natural logarithm (base  
`E`) of the value [x].  
 * Special cases: * - `ln(NaN)` is `NaN` * - `ln(x)` is `NaN` when `x < 0.0` * -  
`ln(+Inf)` is `+Inf` * - `ln(0.0)` is `-Inf`  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic  
actual inline fun ln(x: Float): Float = nativeMath.log(x.toDouble()).toFloat()\n\n * Computes the common  
logarithm (base 10) of the value [x].  
 * @see [ln] function for special cases.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun log10(x: Float): Float =  
nativeLog10(x.toDouble()).toFloat()\n\n * Computes the binary logarithm (base 2) of the value [x].  
 * @see [ln] function for special cases.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun log2(x: Float): Float = nativeLog2(x.toDouble()).toFloat()\n\n * Computes `ln(a + 1)`.  
 * This function can be implemented to produce more precise result for [x] near zero.  
 * Special cases: * - `ln1p(NaN)` is `NaN` * -  
`ln1p(x)` is `NaN` where `x < -1.0` * - `ln1p(-1.0)` is `-Inf` * - `ln1p(+Inf)` is `+Inf` *  
 * @see [ln] function * @see [expm1] function  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline  
fun ln1p(x: Float): Float = nativeLog1p(x.toDouble()).toFloat()\n\n * Rounds the given value [x] to an integer  
towards positive infinity.  
 * @return the smallest Float value that is greater than or equal to the given value [x]  
and is a mathematical integer.  
 * Special cases: * - `ceil(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or  
already a mathematical integer.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun ceil(x: Float): Float = nativeMath.ceil(x.toDouble()).toFloat()\n\n * Rounds the given value [x] to an integer towards negative  
infinity.  
 * @return the largest Float value that is smaller than or equal to the given value [x] and is a  
mathematical integer.  
 * Special cases: * - `floor(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a  
mathematical integer.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun floor(x: Float): Float = nativeMath.floor(x.toDouble()).toFloat()\n\n * Rounds the  
given value [x] to an integer towards zero.  
 * @return the value [x] having its fractional part truncated.  
 * Special cases: * - `truncate(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already a mathematical integer.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun truncate(x: Float): Float =  
truncate(x.toDouble()).toFloat()\n\n * Rounds the given value [x] towards the closest integer with ties rounded  
towards even integer.  
 * Special cases: * - `round(x)` is `x` where `x` is `NaN` or `+Inf` or `-Inf` or already  
a mathematical integer.  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun round(x: Float): Float = round(x.toDouble()).toFloat()\n\n * Returns the absolute value of the given value [x].  
 * Special cases: *  
 * - `abs(NaN)` is `NaN` *  
 * @see absoluteValue extension property for [Float]  
\n\n*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun abs(x: Float): Float = nativeMath.abs(x.toDouble()).toFloat()
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\* Returns the sign of the given value [x]:\n \* - -1.0` if the value is negative,\n \* - zero if the value is zero,\n \* - 1.0` if the value is positive\n \* \n \* Special case:\n \* - `sign(NaN)` is `NaN`\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun sign(x: Float): Float =
nativeSign(x.toDouble()).toFloat()\n\n\n**\n * Returns the smaller of two values.\n * \n * If either value is `NaN`,
then the result is `NaN`.\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun min(a: Float, b: Float):
Float = nativeMath.min(a, b)\n\n\n**\n * Returns the greater of two values.\n * \n * If either value is `NaN`, then the
result is `NaN`.\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun max(a: Float, b: Float): Float =
nativeMath.max(a, b)\n\n\n// extensions\n\n\n**\n * Raises this value to the power [x].\n * \n * Special cases:\n * -
`b.pow(0.0)` is `1.0`\n * - `b.pow(1.0) == b`\n * - `b.pow(NaN)` is `NaN`\n *
- `NaN.pow(x)` is `NaN` for `x != 0.0`\n * - `b.pow(Inf)` is `NaN` for `abs(b) == 1.0`\n * - `b.pow(x)` is `NaN`
for `b < 0` and `x` is finite and not an integer\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun
Float.pow(x: Float): Float = nativeMath.pow(this.toDouble(), x.toDouble()).toFloat()\n\n\n**\n * Raises this value to
the integer power [n].\n * \n * See the other overload of [pow] for details.\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun Float.pow(n: Int): Float =
nativeMath.pow(this.toDouble(), n.toDouble()).toFloat()\n\n\n**\n * Returns the absolute value of this value.\n * \n *
Special cases:\n * - `NaN.absoluteValue` is `NaN`\n * \n * @see abs function\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline val Float.absoluteValue: Float get() =
nativeMath.abs(this.toDouble()).toFloat()\n\n\n**\n * Returns the sign of this value:\n * - -1.0` if the value is
negative,\n * - zero if the value is zero,\n * - 1.0` if the
value is positive\n * \n * Special case:\n * - `NaN.sign` is `NaN`\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline val Float.sign: Float get() =
nativeSign(this.toDouble()).toFloat()\n\n\n**\n * Returns this value with the sign bit same as of the [sign] value.\n
\n * \n * If [sign] is `NaN` the sign of the result is undefined.\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic actual
inline fun Float.withSign(sign: Float): Float = this.toDouble().withSign(sign.toDouble()).toFloat()\n\n\n**\n *
Returns this value with the sign bit same as of the [sign] value.\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic
actual inline fun Float.withSign(sign: Int): Float = this.toDouble().withSign(sign.toDouble()).toFloat()\n\n\n**\n *
Rounds this [Float] value to the nearest integer and converts the result to [Int].\n * Ties are rounded towards positive
infinity.\n * \n * Special cases:\n * - `x.roundToInt() == Int.MAX_VALUE` when `x > Int.MAX_VALUE`\n * -
`x.roundToInt() == Int.MIN_VALUE`
when `x < Int.MIN_VALUE`\n * \n * @throws IllegalArgumentException when this value is `NaN`\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun Float.roundToInt(): Int =
toDouble().roundToInt()\n\n\n**\n * Rounds this [Float] value to the nearest integer and converts the result to
[Long].\n * Ties are rounded towards positive infinity.\n * \n * Special cases:\n * - `x.roundToLong() ==
Long.MAX_VALUE` when `x > Long.MAX_VALUE`\n * - `x.roundToLong() == Long.MIN_VALUE` when `x
< Long.MIN_VALUE`\n * \n * @throws IllegalArgumentException when this value is `NaN`\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun Float.roundToLong(): Long =
toDouble().roundToLong()\n\n\n// endregion\n\n\n// region ===== Integer Math
=====
\n\n\n**\n * Returns the absolute value of the given value
[n].\n * \n * Special cases:\n * - `abs(Int.MIN_VALUE)` is `Int.MIN_VALUE` due to an overflow\n * \n * @see
absoluteValue extension property

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for [Int]\n * \n@// TODO: remove manual 'or' when KT-19290 is fixed\n@SinceKotlin("1.2")\npublic actual fun
abs(n: Int): Int = if (n < 0) (-n or 0) else n\n\n\n**\n * Returns the smaller of two values.\n

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*\n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun min(a: Int, b: Int): Int = nativeMath.min(a,
b)\n\n\n**\n * Returns the greater of two values.\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline fun
max(a: Int, b: Int): Int = nativeMath.max(a, b)\n\n\n**\n * Returns the absolute value of this value.\n * \n * Special
cases:\n * - `Int.MIN_VALUE.absoluteValue` is `Int.MIN_VALUE` due to an overflow\n * \n * @see abs
function\n * \n@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline val Int.absoluteValue: Int get() =
abs(this)\n\n\n**\n * Returns the sign of this value:\n * - -1` if the value is negative,\n * - 0` if the value is zero,\n

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* - `1` if the value is positive\n *^@SinceKotlin("1.2")\npublic actual val Int.sign: Int get() = when {\n
    this < 0 -> -1\n    this > 0 -> 1\n    else -> 0\n}\n\n\n/**\n * Returns the absolute value of the given value [n].\n
*\n * Special cases:\n * - `abs(Long.MIN_VALUE)` is `Long.MIN_VALUE` due to an overflow\n * - @see
absoluteValue extension property for [Long]\n *^@SinceKotlin("1.2")\npublic actual fun abs(n: Long): Long = if
(n < 0) -n else n\n\n/**\n * Returns the smaller of two values.\n
*\n *^@SinceKotlin("1.2")\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline fun min(a: Long, b:
Long): Long = if (a <= b) a else b\n\n/**\n * Returns the greater of two values.\n
*\n *^@SinceKotlin("1.2")\n@Suppress("NOTHING_TO_INLINE")\npublic actual inline fun max(a: Long, b:
Long): Long = if (a >= b) a else b\n\n/**\n * Returns the absolute value of this value.\n * -
Special cases:\n * - `Long.MIN_VALUE.absoluteValue` is `Long.MIN_VALUE` due to an overflow\n * - @see abs function\n
*\n *^@SinceKotlin("1.2")\n@InlineOnly\npublic actual inline val Long.absoluteValue: Long
get() = abs(this)\n\n/**\n * Returns the sign of this value:\n * - `1` if the value is negative,\n * - `0` if the value
is zero,\n * - `1` if the value is positive\n *^@SinceKotlin("1.2")\npublic actual val Long.sign: Int get() = when
{\n    this < 0 -> -1\n    this > 0 -> 1\n    else -> 0\n}\n\n// endregion\n", "/*\n * Copyright 2010-2021 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n *^@npackage kotlin\n\n/**\n * Returns `true` if the
specified number is a\n * Not-a-Number (NaN) value, `false` otherwise.\n *^@npublic actual fun Double.isNaN():
Boolean = this != this\n\n/**\n * Returns `true` if the specified number is a\n * Not-a-Number (NaN) value, `false`
otherwise.\n *^@npublic actual fun Float.isNaN(): Boolean = this != this\n\n/**\n * Returns `true` if this value is
infinitely large in magnitude.\n *^@npublic actual fun Double.isInfinite():
Boolean = this == Double.POSITIVE_INFINITY || this == Double.NEGATIVE_INFINITY\n\n/**\n * Returns
`true` if this value is infinitely large in magnitude.\n *^@npublic actual fun Float.isInfinite(): Boolean = this ==
Float.POSITIVE_INFINITY || this == Float.NEGATIVE_INFINITY\n\n/**\n * Returns `true` if the argument is a
finite floating-point value; returns `false` otherwise (for `NaN` and infinity arguments).\n *^@npublic actual fun
Double.isFinite(): Boolean = !isInfinite() && !isNaN()\n\n/**\n * Returns `true` if the argument is a finite floating-
point value; returns `false` otherwise (for `NaN` and infinity arguments).\n *^@npublic actual fun Float.isFinite():
Boolean = !isInfinite() && !isNaN()\n\n/**\n * Counts the number of set bits in the binary representation of this
[Int] number.\n *^@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun
Int.countOneBits(): Int {\n    // Hacker's Delight 5-1 algorithm\n    var v = this\n    v =
(v and 0x55555555) + (v.ushr(1) and 0x55555555)\n    v = (v and 0x33333333) + (v.ushr(2) and 0x33333333)\n    v
= (v and 0x0F0F0F0F) + (v.ushr(4) and 0x0F0F0F0F)\n    v = (v and 0x00FF00FF) + (v.ushr(8) and 0x00FF00FF)\n    v
= (v and 0x0000FFFF) + (v.ushr(16))\n    return v\n}\n\n/**\n * Counts the number of consecutive most
significant bits that are zero in the binary representation of this [Int] number.\n
*\n *^@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
actual inline fun Int.countLeadingZeroBits(): Int = nativeClz32(this)\n\n/**\n * Counts the number of consecutive
least significant bits that are zero in the binary representation of this [Int] number.\n
*\n *^@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun
Int.countTrailingZeroBits(): Int =\n    // Hacker's Delight 5-4 algorithm for expressing countTrailingZeroBits with
countLeadingZeroBits\n    Int.SIZE_BITS - (this or -this).inv().countLeadingZeroBits()\n\n/**\n * Returns a
number having a single bit set in the position of the most significant set bit of this [Int] number,\n * or
zero, if this number is zero.\n
*\n *^@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun
Int.takeHighestOneBit(): Int =\n    if (this == 0) 0 else 1.shl(Int.SIZE_BITS - 1 - countLeadingZeroBits())\n\n/**\n *
Returns a number having a single bit set in the position of the least significant set bit of this [Int] number,\n * or
zero, if this number is zero.\n
*\n *^@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun
Int.takeLowestOneBit(): Int =\n    // Hacker's Delight 2-1 algorithm for isolating rightmost 1-bit\n    this and -
this\n\n/**\n * Rotates the binary representation of this [Int] number left by the specified [bitCount] number of

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bits.\n \* The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n

\*\n \* Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n \* `number.rotateLeft(-n) == number.rotateRight(n)`\n \* Rotating by a multiple of [Int.SIZE\_BITS] (32) returns the same number, or more generally\n \* `number.rotateLeft(n) == number.rotateLeft(n % 32)`\n

\*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.rotateLeft(bitCount: Int): Int =\n shl(bitCount) or ushr(Int.SIZE\_BITS - bitCount)\n\n\n\*\*\n \* Rotates the binary representation of this [Int] number right by the specified [bitCount] number of bits.\n \* The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n \* Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n \* `number.rotateRight(-n) == number.rotateLeft(n)`\n \* Rotating by a multiple of [Int.SIZE\_BITS] (32) returns the same number,

or more generally\n \* `number.rotateRight(n) == number.rotateRight(n % 32)`\n

\*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Int.rotateRight(bitCount: Int): Int =\n shl(Int.SIZE\_BITS - bitCount) or ushr(bitCount)\n\n\n\*\*\n \* Counts the number of set bits in the binary representation of this [Long] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.countOneBits(): Int =\n high.countOneBits() + low.countOneBits()\n\n\n\*\*\n \* Counts the number of consecutive most significant bits that are zero in the binary representation of this [Long] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.countLeadingZeroBits(): Int =\n when (val high = this.high) {\n 0 -> Int.SIZE\_BITS + low.countLeadingZeroBits()\n else -> high.countLeadingZeroBits()\n }\n\n\n\*\*\n \* Counts the number of consecutive least significant bits

that are zero in the binary representation of this [Long] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.countTrailingZeroBits(): Int =\n when (val low = this.low) {\n 0 -> Int.SIZE\_BITS + high.countTrailingZeroBits()\n else -> low.countTrailingZeroBits()\n }\n\n\n\*\*\n \* Returns a number having a single bit set in the position of the most significant set bit of this [Long] number,\n \* or zero, if this number is zero.\n \*@\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun

Long.takeHighestOneBit(): Long =\n when (val high = this.high) {\n 0 -> Long(low.takeHighestOneBit(), 0)\n else -> Long(0, high.takeHighestOneBit())\n }\n\n\n\*\*\n \* Returns a number having a single bit set in the position of the least significant set bit of this [Long] number,\n \* or zero, if this number is zero.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.takeLowestOneBit(): Long =\n when (val low = this.low) {\n 0 -> Long(0, high.takeLowestOneBit())\n else -> Long(low.takeLowestOneBit(), 0)\n }\n\n\n\*\*\n \* Rotates the binary representation of this [Long] number left by the specified [bitCount] number of bits.\n \* The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n \* Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n \* `number.rotateLeft(-n) == number.rotateRight(n)`\n \* Rotating by a multiple of [Long.SIZE\_BITS] (64) returns the same number, or more generally\n \* `number.rotateLeft(n) == number.rotateLeft(n % 64)`\n

\*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic actual fun Long.rotateLeft(bitCount: Int): Long {\n if ((bitCount and 31) != 0) {\n val low = this.low\n val high = this.high\n val newLow = low.shl(bitCount) or high.ushr(-bitCount)\n val newHigh = high.shl(bitCount) or low.ushr(-bitCount)\n return if ((bitCount and 32) == 0) Long(newLow, newHigh) else Long(newHigh, newLow)\n } else {\n return if ((bitCount and 32) == 0) this else Long(high, low)\n }\n\n\n\*\*\n \* Rotates the binary representation of this [Long] number right by the specified [bitCount] number of bits.\n \* The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n \* Rotating the

```

number right by a negative bit count is the same as rotating it left by the negated bit count:\n *
`number.rotateRight(-n) == number.rotateLeft(n)`\n * Rotating by a multiple of [Long.SIZE_BITS] (64) returns
the same number, or more generally\n * `number.rotateRight(n) == number.rotateRight(n % 64)`\n
*/\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npubli
c actual
inline fun Long.rotateRight(bitCount: Int): Long = rotateLeft(-bitCount)\n", "/*\n * Copyright 2010-2018 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\nimport
kotlin.internal.LowPriorityInOverloadResolution\n\n/**\n * Exposes the JavaScript [Promise
object](https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/Promise) to Kotlin.\n
*/\n@Suppress("NOT_DOCUMENTED")\npublic open external class Promise<out T>(executor: (resolve: (T) ->
Unit, reject: (Throwable) -> Unit) -> Unit) {\n    @LowPriorityInOverloadResolution\n    public open fun <S>
then(onFulfilled: ((T) -> S)?): Promise<S>\n\n    @LowPriorityInOverloadResolution\n    public open fun <S>
then(onFulfilled: ((T) -> S)?, onRejected: ((Throwable) -> S)?): Promise<S>\n\n    public open fun <S>
catch(onRejected: (Throwable) -> S): Promise<S>\n\n    public
open fun finally(onFinally: () -> Unit): Promise<T>\n\n    companion object {\n        public fun <S> all(promise:
Array<out Promise<S>>): Promise<Array<out S>>\n\n        public fun <S> race(promise: Array<out
Promise<S>>): Promise<S>\n\n        public fun reject(e: Throwable): Promise<Nothing>\n\n        public fun <S>
resolve(e: S): Promise<S>\n\n        public fun <S> resolve(e: Promise<S>): Promise<S>\n    }\n}\n\n// It's workaround
for KT-19672 since we can fix it properly until KT-11265 isn't fixed.\n\ninline fun <T, S>
Promise<Promise<T>>.then(\n    noinline onFulfilled: ((T) -> S)?\n): Promise<S> {\n    return
this.unsafeCast<Promise<T>>().then(onFulfilled)\n}\n\ninline fun <T, S> Promise<Promise<T>>.then(\n    noinline
onFulfilled: ((T) -> S)?,\n    noinline onRejected: ((Throwable) -> S)?\n): Promise<S> {\n    return
this.unsafeCast<Promise<T>>().then(onFulfilled, onRejected)\n}\n", "/*\n * Copyright 2010-2018 JetBrains s.r.o.
and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin.random\n\nimport kotlin.math.pow\n\ninternal actual fun defaultPlatformRandom(): Random
=\n    Random(js\{"(Math.random() * Math.pow(2, 32)) | 0"\}).unsafeCast<Int>())\n\nprivate val INV_2_26:
Double = 2.0.pow(-26)\nprivate val INV_2_53: Double = 2.0.pow(-53)\n\ninternal actual fun doubleFromParts(hi26:
Int, low27: Int): Double =\n    hi26 * INV_2_26 + low27 * INV_2_53", "/*\n * Copyright 2010-2020 JetBrains s.r.o.
and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license
that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\nimport
findAssociatedObject\n\n/**\n * The experimental marker for associated objects API.\n * Any usage of a
declaration annotated with `@ExperimentalAssociatedObjects` must be accepted either by\n * annotating that usage
with the [OptIn] annotation,
e.g. `@OptIn(ExperimentalAssociatedObjects::class)`,\n * or by using the compiler argument `-opt-
in=kotlin.reflect.ExperimentalAssociatedObjects`.\n */\n@RequiresOptIn(level =
RequiresOptIn.Level.ERROR)\n@Retention(value = AnnotationRetention.BINARY)\npublic annotation class
ExperimentalAssociatedObjects\n\n/**\n * Makes the annotated annotation class an associated object key.\n * An
associated object key annotation should have single [KClass] parameter.\n * When applied to a class with
reference to an object declaration as an argument, it binds\n * the object to the class, making this binding
discoverable at runtime using [findAssociatedObject].\n
*/\n@ExperimentalAssociatedObjects\n@Retention(AnnotationRetention.BINARY)\n@Target(AnnotationTarget.A
NNOTATION_CLASS)\npublic annotation class AssociatedObjectKey\n\n/**\n * If [T] is an
@[AssociatedObjectKey]-annotated annotation class and [this] class is annotated with @[T] (`S::class`),\n * returns
object `S`.\n * Otherwise
returns `null`.\n */\n@ExperimentalAssociatedObjects\npublic inline fun <reified T : Annotation>
KClass<*>.findAssociatedObject(): Any? =\n    this.findAssociatedObject(T::class)", "/*\n * Copyright 2010-2020

```

```

JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.js\n\nimport
getKClass\nimport kotlin.reflect.KClass\nimport kotlin.reflect.js.internal.KClassImpl\n\n/**\n * Represents the
constructor of a class. Instances of `JsClass` can be passed to JavaScript APIs that expect a constructor reference.\n
*/\n\nexternal interface JsClass<T : Any> {\n    /**\n     * Returns the unqualified name of the class represented by
this instance.\n     */\n    val name: String\n}\n\n/**\n * Obtains a constructor reference for the given `KClass`.\n
*/\n\nval <T : Any> KClass<T>.js: JsClass<T>\n    get() = (this as KClassImpl<T>).jClass\n\n/**\n * Obtains a
`KClass` instance for the given constructor reference.\n */\n\nval <T : Any> JsClass<T>.kotlin: KClass<T>\n    get()
= getKClass(this)\n", "\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.reflect.js.internal\n\nimport kotlin.reflect.*\n\ninternal abstract
class KClassImpl<T : Any>(\n    internal open val jClass: JsClass<T>\n) : KClass<T> {\n\n    override val
qualifiedName: String?\n    get() = TODO()\n\n    override fun equals(other: Any?): Boolean {\n        return other
is KClassImpl<*> && jClass == other.jClass\n    }\n\n    // TODO: use FQN\n    override fun hashCode(): Int =
simpleName?.hashCode() ?: 0\n\n    override fun toString(): String {\n        // TODO: use FQN\n        return "\"class
$simpleName\"\n    }\n}\n\ninternal class SimpleKClassImpl<T : Any>(jClass: JsClass<T>) :
KClassImpl<T>(jClass)\n    {\n        override val simpleName: String? =
jClass.asDynamic().$metadata$.simpleName.unsafeCast<String?>()\n\n        override fun isInstance(value: Any?):
Boolean {\n            return jsIsType(value, jClass)\n        }\n}\n\ninternal class PrimitiveKClassImpl<T : Any>(\n
jClass: JsClass<T>,\n    private val givenSimpleName: String,\n    private val isInstanceFunction: (Any?) ->
Boolean\n) : KClassImpl<T>(jClass) {\n    override fun equals(other: Any?): Boolean {\n        if (other lis
PrimitiveKClassImpl<*>) return false\n        return super.equals(other) && givenSimpleName ==
other.givenSimpleName\n    }\n\n    override val simpleName: String? get() = givenSimpleName\n\n    override fun
isInstance(value: Any?): Boolean {\n        return isInstanceFunction(value)\n    }\n}\n\ninternal object
NothingKClassImpl : KClassImpl<Nothing>(js("Object")) {\n    override val simpleName: String =
\"Nothing\"\n\n    override fun isInstance(value: Any?): Boolean = false\n\n    override val jClass:
JsClass<Nothing>\n        get() = throw UnsupportedOperationException("There's no native JS class for Nothing type")\n\n    override
fun equals(other: Any?): Boolean = other === this\n\n    override fun hashCode(): Int = 0\n}\n\ninternal class
ErrorKClass : KClass<Nothing> {\n    override val simpleName: String? get() = error("Unknown simpleName for
ErrorKClass")\n    override val qualifiedName: String? get() = error("Unknown qualifiedName for
ErrorKClass")\n    override fun isInstance(value: Any?): Boolean = error("Can's check isInstance on
ErrorKClass")\n    override fun equals(other: Any?): Boolean = other === this\n    override fun hashCode(): Int
= 0\n", "\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin.reflect\n\ninternal actual inline val KClass<*>.qualifiedOrSimpleName: String?\n    get()
= simpleName", "\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n// a package is omitted to get declarations directly under the module\n\n// TODO: Remove once
JsReflectionAPICallChecker supports more reflection types\n\n@file:Suppress("Unsupported")\n\nimport
kotlin.reflect.*\nimport kotlin.reflect.js.internal.*\n\n@JsName("createKType")\n\ninternal fun createKType(\n
classifier: KClassifier,\n    arguments: Array<KTypeProjection>,\n    isMarkedNullable: Boolean\n) =\n    KTypeImpl(classifier, arguments.asList(), isMarkedNullable)\n\n@JsName("createDynamicKType")\n\ninternal fun
createDynamicKType(): KType = DynamicKType\n\n@JsName("markKTypeNullable")\n\ninternal fun
markKTypeNullable(kType: KType) = KTypeImpl(kType.classifier!!, kType.arguments,
true)\n\n@JsName("createKTypeParameter")\n\ninternal fun createKTypeParameter(\n

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    name: String,\n    upperBounds: Array<KType>,\n    variance: String\n): KTypeParameter {\n    val kVariance =
when (variance) {\n    \"in\" -> KVariance.IN\n    \"out\" -> KVariance.OUT\n    else ->
KVariance.INVARIANT\n    }\n\n    return KTypeParameterImpl(name, upperBounds.asList(), kVariance,
false)\n}\n\n@jsName(\"getStarKTypeProjection\")\ninternal fun getStarKTypeProjection(): KTypeProjection =\nKTypeProjection.STAR\n\n@jsName(\"createCovariantKTypeProjection\")\ninternal fun
createCovariantKTypeProjection(type: KType): KTypeProjection =\nKTypeProjection.covariant(type)\n\n@jsName(\"createInvariantKTypeProjection\")\ninternal fun
createInvariantKTypeProjection(type: KType): KTypeProjection =\nKTypeProjection.invariant(type)\n\n@jsName(\"createContravariantKTypeProjection\")\ninternal fun
createContravariantKTypeProjection(type: KType): KTypeProjection =\nKTypeProjection.contravariant(type)\n\n\"/*\n * Copyright 2010-2019 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect.js.internal\n\nimport
kotlin.reflect.*\n\ninternal class KTypeImpl(\n    override val classifier: KClassifier,\n    override val arguments:
List<KTypeProjection>,\n    override val isMarkedNullable: Boolean\n) : KType {\n    override fun equals(other:
Any?): Boolean =\n        other is KTypeImpl &&\n            classifier == other.classifier && arguments ==
other.arguments && isMarkedNullable == other.isMarkedNullable\n\n    override fun hashCode(): Int =\n        (classifier.hashCode() * 31 + arguments.hashCode()) * 31 + isMarkedNullable.hashCode()\n\n    override fun
toString(): String {\n        val kClass = (classifier as? KClass<*>)\n        val classifierName = when {\n            kClass
== null -> classifier.toString()\n            kClass.simpleName != null -> kClass.simpleName\n            else -> \"(non-denotable type)\"\n        }\n\n        val args =\n            if (arguments.isEmpty()) \"\"\n            else
arguments.joinToString(\" \", \"<\", \">\")\n\n        val nullable = if (isMarkedNullable) \"?\" else \"\"\n\n        return
classifierName + args + nullable\n    }\n}\n\ninternal object DynamicKType : KType {\n    override val classifier:
KClassifier? = null\n    override val arguments: List<KTypeProjection> = emptyList()\n    override val
isMarkedNullable: Boolean = false\n    override fun toString(): String = \"dynamic\"\n}\n\n\"/*\n * Copyright 2010-
2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.reflect.js.internal\n\nimport kotlin.reflect.*\n\ninternal data class KTypeParameterImpl(\n    override val
name: String,\n    override val upperBounds: List<KType>,\n    override val variance: KVariance,\n    override val isReified: Boolean\n) : KTypeParameter {\n    override fun toString(): String = name\n}\n\n\"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.reflect.js.internal\n\nimport kotlin.js.JsClass\n\n@jsName(\"PrimitiveClasses\")\ninternal object
PrimitiveClasses {\n    @JsName(\"anyClass\")\n    val anyClass =
PrimitiveKClassImpl(js(\"Object\").unsafeCast<JsClass<Any>>(), \"Any\", { it is Any })\n\n    @JsName(\"numberClass\")\n    val numberClass =
PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Number>>(), \"Number\", { it is Number })\n\n    @JsName(\"nothingClass\")\n    val nothingClass = NothingKClassImpl\n\n    @JsName(\"booleanClass\")\n    val
booleanClass = PrimitiveKClassImpl(js(\"Boolean\").unsafeCast<JsClass<Boolean>>(), \"Boolean\", { it is Boolean
})\n\n    @JsName(\"byteClass\")\n    val byteClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Byte>>(), \"Byte\", { it is Byte })\n\n    @JsName(\"shortClass\")\n    val shortClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Short>>(),
\"Short\", { it is Short })\n\n    @JsName(\"intClass\")\n    val intClass =
PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Int>>(), \"Int\", { it is Int })\n\n    @JsName(\"floatClass\")\n    val floatClass = PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Float>>(),
\"Float\", { it is Float })\n\n    @JsName(\"doubleClass\")\n    val doubleClass =
PrimitiveKClassImpl(js(\"Number\").unsafeCast<JsClass<Double>>(), \"Double\", { it is Double })\n\n    @JsName(\"arrayClass\")\n    val arrayClass =

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PrimitiveKClassImpl(js("Array").unsafeCast<JsClass<Array<*>>>(), "Array", { it is Array<*> })\n\n
@JsName("stringClass")\n val stringClass = PrimitiveKClassImpl(js("String").unsafeCast<JsClass<String>>(),
"String", { it is String })\n\n
@JsName("throwableClass")\n val throwableClass =
PrimitiveKClassImpl(js("Error").unsafeCast<JsClass<Throwable>>(), "Throwable", { it is Throwable })\n\n
@JsName("booleanArrayClass")\n val booleanArrayClass =
PrimitiveKClassImpl(js("Array").unsafeCast<JsClass<BooleanArray>>(), "BooleanArray", { it is BooleanArray
})\n\n @JsName("charArrayClass")\n val charArrayClass =
PrimitiveKClassImpl(js("Uint16Array").unsafeCast<JsClass<CharArray>>(), "CharArray", { it is CharArray
})\n\n @JsName("byteArrayClass")\n val byteArrayClass =
PrimitiveKClassImpl(js("Int8Array").unsafeCast<JsClass<ByteArray>>(), "ByteArray", { it is ByteArray })\n\n
@JsName("shortArrayClass")\n val shortArrayClass =
PrimitiveKClassImpl(js("Int16Array").unsafeCast<JsClass<ShortArray>>(), "ShortArray", { it is ShortArray
})\n\n @JsName("intArrayClass")\n val intArrayClass =
PrimitiveKClassImpl(js("Int32Array").unsafeCast<JsClass<IntArray>>(), "IntArray",
{ it is IntArray })\n\n @JsName("longArrayClass")\n val longArrayClass =
PrimitiveKClassImpl(js("Array").unsafeCast<JsClass<LongArray>>(), "LongArray", { it is LongArray })\n\n
@JsName("floatArrayClass")\n val floatArrayClass =
PrimitiveKClassImpl(js("Float32Array").unsafeCast<JsClass<FloatArray>>(), "FloatArray", { it is FloatArray
})\n\n @JsName("doubleArrayClass")\n val doubleArrayClass =
PrimitiveKClassImpl(js("Float64Array").unsafeCast<JsClass<DoubleArray>>(), "DoubleArray", { it is
DoubleArray })\n\n @JsName("functionClass")\n fun functionClass(arity: Int): KClassImpl<Any> {\n
return functionClasses.get(arity) ?: run {\n val result =
PrimitiveKClassImpl(js("Function").unsafeCast<JsClass<Any>>(), "Function$arity",\n
{ jsTypeOf(it) === "function" && it.asDynamic().length === arity })\n functionClasses.asDynamic()[arity]
= result\n result\n }\n
}\n\nprivate val functionClasses = arrayOfNulls<KClassImpl<Any>>(0), /*\n * Copyright 2010-2020
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n\n// a package is omitted to get
declarations directly under the module\n\nimport kotlin.reflect.*\nimport
kotlin.reflect.js.internal.*\n\n@JsName("getKClass")\n\ninternal fun <T : Any> getKClass(jClass: Any /*
JsClass<T> | Array<JsClass<T>> */): KClass<T> {\n return if (js("Array").isArray(jClass)) {\n
getKClassM(jClass.unsafeCast<Array<JsClass<T>>>())\n } else {\n
getKClass1(jClass.unsafeCast<JsClass<T>>())\n }\n}\n\n@JsName("getKClassM")\n\ninternal fun <T : Any>
getKClassM(jClasses: Array<JsClass<T>>): KClass<T> = when (jClasses.size) {\n 1 ->
getKClass1(jClasses[0])\n 0 -> NothingKClassImpl.unsafeCast<KClass<T>>()\n else ->
ErrorKClass().unsafeCast<KClass<T>>()\n}\n\n@JsName("getKClassFromExpression")\n\ninternal
fun <T : Any> getKClassFromExpression(e: T): KClass<T> =\n when (jsTypeOf(e)) {\n "string" ->
PrimitiveClasses.stringClass\n "number" -> if (jsBitwiseOr(e, 0).asDynamic() === e)
PrimitiveClasses.intClass else PrimitiveClasses.doubleClass\n "boolean" -> PrimitiveClasses.booleanClass\n
"function" -> PrimitiveClasses.functionClass(e.asDynamic().length)\n else -> {\n when {\n e
is BooleanArray -> PrimitiveClasses.booleanArrayClass\n e is CharArray ->
PrimitiveClasses.charArrayClass\n e is ByteArray -> PrimitiveClasses.byteArrayClass\n e is
ShortArray -> PrimitiveClasses.shortArrayClass\n e is IntArray -> PrimitiveClasses.intArrayClass\n
e is LongArray -> PrimitiveClasses.longArrayClass\n e is FloatArray ->
PrimitiveClasses.floatArrayClass\n e is DoubleArray -> PrimitiveClasses.doubleArrayClass\n
e is KClass<*> -> KClass::class\n e is Array<*> -> PrimitiveClasses.arrayClass\n else -
> {\n val constructor = js("Object").getPrototypeOf(e).constructor\n when {\n

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constructor === js("Object") -> PrimitiveClasses.anyClass\n
PrimitiveClasses.throwableClass\n
else -> {\n
constructor\n
getKClass1(jsClass)\n
}\n
}\n
}.unsafeCast<KClass<T>>()\n\n@JsName("getKClass1")\n\ninternal fun <T : Any> getKClass1(jClass:
JsClass<T>): KClass<T> {\n
if (jClass === js("String")) return
PrimitiveClasses.stringClass.unsafeCast<KClass<T>>()\n\n
val metadata = jClass.asDynamic().`$metadata$\`\n\n
return if (metadata
!= null) {\n
if (metadata.`$kClass$\` == null) {\n
val kClass = SimpleKClassImpl(jClass)\n
metadata.`$kClass$\` = kClass\n
kClass\n
} else {\n
metadata.`$kClass$\`\n
}\n
} else {\n
SimpleKClassImpl(jClass)\n
}\n
}" ,"/*\n
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Language contributors.\n
* Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*/\n\n
package kotlin.js\n\n/**\n
* Exposes the JavaScript [RegExp
object](https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/RegExp) to Kotlin.\n
*/\n\n
@Suppress("NOT_DOCUMENTED")\n\n
public external class RegExp(pattern: String, flags: String? =
definedExternally) {\n\n
public fun test(str: String): Boolean\n\n
public fun exec(str: String): RegExpMatch?\n\n
public override fun toString(): String\n\n
/**\n
* The lastIndex is a read/write integer property
of regular expressions that specifies the index at which to start the next match.\n
*/\n\n
public var lastIndex:
Int\n\n
public val global: Boolean\n\n
public val ignoreCase: Boolean\n\n
public val multiline:
Boolean\n\n
}\n\n
/**\n
* Resets the regular expression so that subsequent [RegExp.test] and [RegExp.exec] calls will
match starting with the beginning of the input string.\n
*/\n\n
public fun RegExp.reset() {\n
lastIndex = 0\n
}\n\n
//
TODO: Inherit from array or introduce asArray() extension\n\n
/**\n
* Represents the return value of
[RegExp.exec].\n
*/\n\n
@Suppress("NOT_DOCUMENTED")\n\n
public external interface RegExpMatch {\n\n
public
val index: Int\n\n
public val input: String\n\n
public val length: Int\n
}\n\n
/**\n
* Returns the entire text matched by
[RegExp.exec] if the [index] parameter is 0, or the text matched by the capturing parenthesis\n
* at the given
index.\n
*/\n\n
public inline operator fun RegExpMatch.get(index: Int): String? = asDynamic()[index]\n\n
/**\n
*
Converts
the result of [RegExp.exec] to an array where the first element contains the entire matched text and each
subsequent\n
* element is the text matched by each capturing parenthesis.\n
*/\n\n
public inline fun
RegExpMatch.asArray(): Array<out String?> = unsafeCast<Array<out String?>>()\n\n
"/*\n
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* Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n
package kotlin.sequences\n\n
internal
actual class ConstrainedOnceSequence<T> actual constructor(sequence: Sequence<T>) : Sequence<T> {\n\n
private
var sequenceRef: Sequence<T>? = sequence\n\n
actual override fun iterator(): Iterator<T> {\n\n
val sequence =
sequenceRef ?: throw IllegalStateException("This sequence can be consumed only once.")\n\n
sequenceRef =
null\n\n
return sequence.iterator()\n
}\n
}\n\n
"/*\n
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Programming
Language contributors.\n
* Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*/\n\n
package kotlin.text\n\n
@SinceKotlin("1.5")\n\n
public actual enum class
CharCategory(internal val value: Int, public actual val code: String) {\n\n
/**\n
* General category "Cn" in the
Unicode specification.\n
*/\n\n
UNASSIGNED(0, "Cn"),\n\n
/**\n
* General category "Lu" in the Unicode
specification.\n
*/\n\n
UPPERCASE_LETTER(1, "Lu"),\n\n
/**\n
* General category "Ll" in the Unicode
specification.\n
*/\n\n
LOWERCASE_LETTER(2, "Ll"),\n\n
/**\n
* General category "Lt" in the Unicode
specification.\n
*/\n\n
TITLECASE_LETTER(3, "Lt"),\n\n
/**\n
* General category "Lm" in the Unicode
specification.\n
*/\n\n
MODIFIER_LETTER(4, "Lm"),\n\n
/**\n
* General category "Lo" in the Unicode
specification.\n
*/\n\n
OTHER_LETTER(5, "Lo"),\n\n
/**\n
* General
category "Mn" in the Unicode specification.\n
*/\n\n
NON_SPACING_MARK(6, "Mn"),\n\n
/**\n
*
General category "Me" in the Unicode specification.\n
*/\n\n
ENCLOSING_MARK(7, "Me"),\n\n
/**\n
*
General category "Mc" in the Unicode specification.\n
*/\n\n
COMBINING_SPACING_MARK(8, "Mc"),\n\n
}

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/**\n * General category '\Nd' in the Unicode specification.\n *\n DECIMAL_DIGIT_NUMBER(9,
'\Nd'),\n\n /**\n * General category '\NI' in the Unicode specification.\n *\n LETTER_NUMBER(10,
'\NI'),\n\n /**\n * General category '\No' in the Unicode specification.\n *\n OTHER_NUMBER(11,
'\No'),\n\n /**\n * General category '\Zs' in the Unicode specification.\n *\n SPACE_SEPARATOR(12,
'\Zs'),\n\n /**\n * General category '\ZI' in the Unicode specification.\n *\n LINE_SEPARATOR(13,
'\ZI'),\n\n /**\n * General category '\Zp' in the Unicode specification.\n *\n
PARAGRAPH_SEPARATOR(14,
'\Zp'),\n\n /**\n * General category '\Cc' in the Unicode specification.\n *\n CONTROL(15,
'\Cc'),\n\n /**\n * General category '\Cf' in the Unicode specification.\n *\n FORMAT(16, '\Cf'),\n\n
/**\n * General category '\Co' in the Unicode specification.\n *\n PRIVATE_USE(18, '\Co'),\n\n /**\n
* General category '\Cs' in the Unicode specification.\n *\n SURROGATE(19, '\Cs'),\n\n /**\n *
General category '\Pd' in the Unicode specification.\n *\n DASH_PUNCTUATION(20, '\Pd'),\n\n /**\n
* General category '\Ps' in the Unicode specification.\n *\n START_PUNCTUATION(21, '\Ps'),\n\n /**\n
* General category '\Pe' in the Unicode specification.\n *\n END_PUNCTUATION(22, '\Pe'),\n\n /**\n
* General category '\Pc' in the Unicode specification.\n *\n CONNECTOR_PUNCTUATION(23,
'\Pc'),\n\n /**\n * General category '\Po' in the Unicode specification.\n
*\n OTHER_PUNCTUATION(24, '\Po'),\n\n /**\n * General category '\Sm' in the Unicode
specification.\n *\n MATH_SYMBOL(25, '\Sm'),\n\n /**\n * General category '\Sc' in the Unicode
specification.\n *\n CURRENCY_SYMBOL(26, '\Sc'),\n\n /**\n * General category '\Sk' in the
Unicode specification.\n *\n MODIFIER_SYMBOL(27, '\Sk'),\n\n /**\n * General category '\So' in the
Unicode specification.\n *\n OTHER_SYMBOL(28, '\So'),\n\n /**\n * General category '\Pi' in the
Unicode specification.\n *\n INITIAL_QUOTE_PUNCTUATION(29, '\Pi'),\n\n /**\n * General
category '\Pf' in the Unicode specification.\n *\n FINAL_QUOTE_PUNCTUATION(30, '\Pf');\n\n /**\n
* Returns `true` if [char] character belongs to this category.\n *\n public actual operator fun contains(char:
Char): Boolean = char.getCategoryValue() == this.value\n\n companion object {\n internal fun
valueOf(category: Int): CharCategory =\n when (category) {\n in 0..16 -> values()[category]\n
in 18..30 -> values()[category - 1]\n else -> throw IllegalArgumentException("Category #\$category is
not defined.")\n }\n }\n\n", "/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n *\n\npackage kotlin.text\n\n/**\n * The exception thrown when a character encoding
or decoding error occurs.\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic
actual open class CharacterCodingException(message: String?) : Exception(message) {\n actual constructor() :
this(null)\n\n", "/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n\npackage kotlin.text\n\n/**\n * A mutable sequence of characters.\n
*\n * String builder can be used to efficiently perform multiple string manipulation operations.\n *\n\npublic actual
class StringBuilder actual constructor(content: String) : Appendable, CharSequence {\n /**\n * Constructs an
empty string builder with the specified initial [capacity].\n *\n * In Kotlin/JS implementation of StringBuilder
the initial capacity has no effect on the further performance of operations.\n *\n actual constructor(capacity:
Int) : this() {\n }\n\n /**\n * Constructs a string builder that contains the same characters as the specified [content]
char sequence.\n *\n actual constructor(content: CharSequence) : this(content.toString()) {\n }\n\n /**\n * Constructs an
empty string builder.\n *\n actual constructor() : this("")\n\n private var string: String = if (content !=
undefined) content else ""\n\n actual override
val length: Int\n get() = string.asDynamic().length\n\n actual override fun get(index: Int): Char =\n
string.getOrNull(index) { throw IndexOutOfBoundsException("index: \$index, length: \$length")} }\n\n actual
override fun subSequence(startIndex: Int, endIndex: Int): CharSequence = string.substring(startIndex, endIndex)\n\n
actual override fun append(value: Char): StringBuilder {\n string += value\n return this\n }\n\n actual
override fun append(value: CharSequence?): StringBuilder {\n string += value.toString()\n return this\n

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}\n\n actual override fun append(value: CharSequence?, startIndex: Int, endIndex: Int): StringBuilder =\n
this.appendRange(value ?: \"null\", startIndex, endIndex)\n\n /**\n * Reverses the contents of this string builder\n
and returns this instance.\n * \n * Surrogate pairs included in this string builder are treated as single\n
characters.\n * Therefore, the order of the high-low\n
surrogates is never reversed.\n * \n * Note that the reverse operation may produce new surrogate pairs that were\n
unpaired low-surrogates and high-surrogates before the operation.\n * For example, reversing\n
`\"\\uDC00\\uD800\"` produces `\"\\uD800\\uDC00\"` which is a valid surrogate pair.\n */\n actual fun\n
reverse(): StringBuilder {\n    var reversed = \"\"\n    var index = string.length - 1\n    while (index >= 0) {\n
        val low = string[index--]\n        if (low.isLowSurrogate() && index >= 0) {\n            val high =\n
string[index--]\n            if (high.isHighSurrogate()) {\n                reversed = reversed + high + low\n            }\n
        } else {\n            reversed = reversed + low + high\n        }\n    } else {\n        reversed += low\n    }\n
}\n\n string = reversed\n    return this\n }\n\n /**\n * Appends the string representation of the\n
specified object\n
[value] to this string builder and returns this instance.\n * \n * The overall effect is exactly as if the [value] were\n
converted to a string by the `value.toString()` method,\n * and then that string was appended to this string\n
builder.\n */\n actual fun append(value: Any?): StringBuilder {\n    string += value.toString()\n    return\n
this\n }\n\n /**\n * Appends the string representation of the specified boolean [value] to this string builder and\n
returns this instance.\n * \n * The overall effect is exactly as if the [value] were converted to a string by the\n
`value.toString()` method,\n * and then that string was appended to this string builder.\n */\n\n @SinceKotlin(\"1.3\")\n actual fun append(value: Boolean): StringBuilder {\n    string += value\n    return\n
this\n }\n\n /**\n * Appends characters in the specified character array [value] to this string builder and\n
returns this instance.\n * \n * Characters\n
are appended in order, starting at the index 0.\n */\n @SinceKotlin(\"1.4\")\n\n @WasExperimental(ExperimentalStdlibApi::class)\n actual fun append(value: CharArray): StringBuilder {\n
string += value.concatToString()\n    return this\n }\n\n @Deprecated(\"Provided for binary compatibility.\",\n
level = DeprecationLevel.HIDDEN)\n fun append(value: String): StringBuilder = append(value)\n\n /**\n * Appends the specified string [value] to this string builder and returns this instance.\n * \n * If [value] is `null`,\n
then the four characters `\"null\"` are appended.\n */\n @SinceKotlin(\"1.3\")\n actual fun append(value:\n
String?): StringBuilder {\n    this.string += value ?: \"null\"\n    return this\n }\n\n /**\n * Returns the\n
current capacity of this string builder.\n * \n * The capacity is the maximum length this string builder can have\n
before an allocation occurs.\n * \n * In Kotlin/JS implementation\n
of StringBuilder the value returned from this method may not indicate the actual size of the backing storage.\n */\n @SinceKotlin(\"1.3\")\n// @ExperimentalStdlibApi\n @Deprecated(\"Obtaining StringBuilder capacity is\n
not supported in JS and common code.\", level = DeprecationLevel.ERROR)\n actual fun capacity(): Int =\n
length\n\n /**\n * Ensures that the capacity of this string builder is at least equal to the specified\n
[minimumCapacity].\n * \n * If the current capacity is less than the [minimumCapacity], a new backing storage\n
is allocated with greater capacity.\n * Otherwise, this method takes no action and simply returns.\n * \n * In\n
Kotlin/JS implementation of StringBuilder the size of the backing storage is not extended to comply the given\n
[minimumCapacity],\n * thus calling this method has no effect on the further performance of operations.\n */\n\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n\n actual fun ensureCapacity(minimumCapacity: Int) {\n    }\n\n /**\n * Returns the index within this string\n
builder of the first occurrence of the specified [string].\n * \n * Returns `-1` if the specified [string] does not\n
occur in this string builder.\n */\n @SinceKotlin(\"1.4\")\n\n @WasExperimental(ExperimentalStdlibApi::class)\n actual fun indexOf(string: String): Int =\n
this.string.asDynamic().indexOf(string)\n\n /**\n * Returns the index within this string builder of the first\n
occurrence of the specified [string],\n * starting at the specified [startIndex].\n * \n * Returns `-1` if the\n
specified [string] does not occur in this string builder starting at the specified [startIndex].\n */\n\n @SinceKotlin(\"1.4\")\n @WasExperimental(ExperimentalStdlibApi::class)\n actual fun indexOf(string: String,

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startIndex: Int): Int = this.string.asDynamic().indexOf(string, startIndex)\n\n /**\n * Returns the index within
this string
builder of the last occurrence of the specified [string].\n * The last occurrence of empty string `""` is considered
to be at the index equal to `this.length`.\n *\n * Returns `-1` if the specified [string] does not occur in this string
builder.\n *\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n actual fun
lastIndexOf(string: String): Int = this.string.asDynamic().lastIndexOf(string)\n\n /**\n * Returns the index
within this string builder of the last occurrence of the specified [string],\n * starting from the specified [startIndex]
toward the beginning.\n *\n * Returns `-1` if the specified [string] does not occur in this string builder starting
at the specified [startIndex].\n *\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n actual fun lastIndexOf(string: String, startIndex: Int): Int {\n
    if (string.isEmpty() && startIndex < 0) return -1\n    return this.string.asDynamic().lastIndexOf(string,
startIndex)\n }\n\n /**\n * Inserts the string representation of the specified boolean [value] into this string
builder at the specified [index] and returns this instance.\n *\n * The overall effect is exactly as if the [value]
were converted to a string by the `value.toString()` method,\n * and then that string was inserted into this string
builder at the specified [index].\n *\n * @throws IndexOutOfBoundsException if [index] is less than zero or
greater than the length of this string builder.\n *\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n actual fun insert(index: Int, value: Boolean): StringBuilder
{\n    AbstractList.checkPositionIndex(index, length)\n    string = string.substring(0, index) + value +
string.substring(index)\n    return this\n }\n\n /**\n * Inserts the specified character [value] into this string
builder at the specified [index] and
returns this instance.\n *\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than
the length of this string builder.\n *\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n actual fun insert(index: Int, value: Char): StringBuilder {\n
    AbstractList.checkPositionIndex(index, length)\n    string = string.substring(0, index) + value +
string.substring(index)\n    return this\n }\n\n /**\n * Inserts characters in the specified character array
[value] into this string builder at the specified [index] and returns this instance.\n *\n * The inserted characters
go in same order as in the [value] character array, starting at [index].\n *\n * @throws
IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n *\n
@SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n actual fun insert(index: Int, value:
CharArray): StringBuilder {\n    AbstractList.checkPositionIndex(index, length)\n    string =
string.substring(0, index) + value.concatToString() + string.substring(index)\n    return this\n }\n\n /**\n *
Inserts characters in the specified character sequence [value] into this string builder at the specified [index] and
returns this instance.\n *\n * The inserted characters go in the same order as in the [value] character sequence,
starting at [index].\n *\n * @param index the position in this string builder to insert at.\n * @param value the
character sequence from which characters are inserted. If [value] is `null`, then the four characters `"\null"` are
inserted.\n *\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of
this string builder.\n *\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n
actual fun insert(index: Int, value: CharSequence?): StringBuilder
{\n    AbstractList.checkPositionIndex(index, length)\n    string = string.substring(0, index) +
value.toString() + string.substring(index)\n    return this\n }\n\n /**\n * Inserts the string representation of
the specified object [value] into this string builder at the specified [index] and returns this instance.\n *\n * The
overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n * and then
that string was inserted into this string builder at the specified [index].\n *\n * @throws
IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n *\n
@SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n actual fun insert(index: Int, value:
Any?): StringBuilder {\n    AbstractList.checkPositionIndex(index, length)\n    string = string.substring(0,
index) + value.toString() + string.substring(index)\n

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return this\n }\n\n @Deprecated("Provided for binary compatibility.", level =
DeprecationLevel.HIDDEN)\n fun insert(index: Int, value: String): StringBuilder = insert(index, value)\n\n /**\n * Inserts the string [value] into this string builder at the specified [index] and returns this instance.\n * If [value] is `null`, then the four characters `\\null\\` are inserted.\n * \n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n * \n * @SinceKotlin("1.4")\n * @WasExperimental(ExperimentalStdlibApi::class)\n actual fun insert(index: Int, value: String?): StringBuilder {\n     AbstractList.checkPositionIndex(index, length)\n     val toInsert = value ?: "\\null"\n     this.string = this.string.substring(0, index) + toInsert + this.string.substring(index)\n     return this\n }\n\n /**\n * Sets the length of this string builder to the specified [newLength].\n * \n * If the [newLength] is less than the current length, it is changed to the specified [newLength].\n * Otherwise, null characters '\\u0000' are appended to this string builder until its length is less than the [newLength].\n * \n * Note that in Kotlin/JS [set] operator function has non-constant execution time complexity.\n * \n * Therefore, increasing length of this string builder and then updating each character by index may slow down your program.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] if [newLength] is less than zero.\n * \n * @SinceKotlin("1.4")\n * @WasExperimental(ExperimentalStdlibApi::class)\n actual fun setLength(newLength: Int) {\n     if (newLength < 0) {\n         throw IllegalArgumentException("Negative new length: $newLength.")\n     }\n     if (newLength <= length) {\n         string = string.substring(0, newLength)\n     } else {\n         for (i in length until newLength) {\n             string += "\\u0000"\n         }\n     }\n }\n\n /**\n * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [length] (exclusive).\n * \n * @throws IndexOutOfBoundsException if [startIndex] is less than zero or greater than the length of this string builder.\n * \n * @SinceKotlin("1.4")\n * @WasExperimental(ExperimentalStdlibApi::class)\n actual fun substring(startIndex: Int): String {\n     AbstractList.checkPositionIndex(startIndex, length)\n     return string.substring(startIndex)\n }\n\n /**\n * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [endIndex] (exclusive).\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n * \n * @SinceKotlin("1.4")\n * @WasExperimental(ExperimentalStdlibApi::class)\n actual fun substring(startIndex: Int, endIndex: Int): String {\n     AbstractList.checkBoundsIndexes(startIndex, endIndex, length)\n     return string.substring(startIndex, endIndex)\n }\n\n /**\n * Attempts to reduce storage used for this string builder.\n * \n * If the backing storage of this string builder is larger than necessary to hold its current contents,\n * then it may be resized to become more space efficient.\n * \n * Calling this method may, but is not required to, affect the value of the [capacity] property.\n * \n * In Kotlin/JS implementation of StringBuilder the size of the backing storage is always equal to the length of the string builder.\n * \n * @SinceKotlin("1.4")\n * @WasExperimental(ExperimentalStdlibApi::class)\n actual fun trimToSize() {\n }\n\n override fun toString(): String = string\n\n /**\n * Clears the content of this string builder making it empty and returns this instance.\n * \n * @sample samples.text.Strings.clearStringBuilder\n * \n * @SinceKotlin("1.3")\n public fun clear(): StringBuilder {\n     string = ""\n     return this\n }\n\n /**\n * Sets the character at the specified [index] to the specified [value].\n * \n * @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n * \n * @SinceKotlin("1.4")\n * @WasExperimental(ExperimentalStdlibApi::class)\n public operator fun set(index: Int, value: Char) {\n     AbstractList.checkElementIndex(index, length)\n     string = string.substring(0, index) + value + string.substring(index + 1)\n }\n\n /**\n * Replaces characters in the specified range of this string builder with characters in the specified string [value] and returns this instance.\n * \n * @param startIndex the beginning (inclusive) of the range to replace.\n * @param endIndex the end (exclusive) of the range to replace.\n * @param value the string to replace with.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] if [startIndex] is less than zero, greater than the length of this string builder, or `startIndex > endIndex`.\n * \n * @SinceKotlin("1.4")\n
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@WasExperimental(ExperimentalStdlibApi::class)\n public fun setRange(startIndex: Int, endIndex: Int, value:
String): StringBuilder {\n checkReplaceRange(startIndex, endIndex, length)\n this.string =
this.string.substring(0, startIndex) + value + this.string.substring(endIndex)\n return this\n }\n\n private fun
checkReplaceRange(startIndex: Int, endIndex: Int, length: Int) {\n if (startIndex < 0 || startIndex > length) {\n
throw IndexOutOfBoundsException("\startIndex: $startIndex, length: $length")\n }\n if (startIndex >
endIndex) {\n throw IllegalArgumentException("\startIndex($startIndex) >
endIndex($endIndex)")\n }\n }\n\n /**\n * Removes the character at the specified [index] from this
string builder and returns this instance.\n *\n * If the `Char` at the specified [index] is part of a supplementary
code point, this method does not remove the entire supplementary character.\n *\n * @param index the index of
`Char` to remove.\n *\n * @throws IndexOutOfBoundsException if [index] is out of bounds of this string
builder.\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun
deleteAt(index: Int): StringBuilder {\n AbstractList.checkElementIndex(index, length)\n\n string =
string.substring(0, index) + string.substring(index + 1)\n return this\n }\n\n /**\n * Removes characters in
the specified range from this string builder and returns this instance.\n *\n * @param startIndex the beginning
(inclusive) of the range to remove.\n * @param endIndex
the end (exclusive) of the range to remove.\n *\n * @throws IndexOutOfBoundsException or
[IllegalArgumentException] when [startIndex] is out of range of this string builder indices or when `startIndex >
endIndex`.\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun
deleteRange(startIndex: Int, endIndex: Int): StringBuilder {\n checkReplaceRange(startIndex, endIndex,
length)\n\n string = string.substring(0, startIndex) + string.substring(endIndex)\n return this\n }\n\n
/**\n * Copies characters from this string builder into the [destination] character array.\n *\n * @param
destination the array to copy to.\n * @param destinationOffset the position in the array to copy to, 0 by default.\n
* @param startIndex the beginning (inclusive) of the range to copy, 0 by default.\n * @param endIndex the end
(exclusive) of the range to copy, length of this string builder by default.\n *\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is
out of range of this string builder indices or when `startIndex > endIndex`.\n * @throws
IndexOutOfBoundsException when the subrange doesn't fit into the [destination] array starting at the specified
[destinationOffset],\n * or when that index is out of the [destination] array indices range.\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun
toCharArray(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int = this.length) {\n
AbstractList.checkBoundsIndexes(startIndex, endIndex, length)\n
AbstractList.checkBoundsIndexes(destinationOffset, destinationOffset + endIndex - startIndex, destination.size)\n\n
var dstIndex = destinationOffset\n for (index in startIndex until endIndex) {\n destination[dstIndex++]
= string[index]\n }\n }\n\n /**\n * Appends characters in a subarray of the specified character array [value] to this string builder and returns this
instance.\n *\n * Characters are appended in order, starting at specified [startIndex].\n *\n * @param value
the array from which characters are appended.\n * @param startIndex the beginning (inclusive) of the subarray to
append.\n * @param endIndex the end (exclusive) of the subarray to append.\n *\n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the
[value] array indices or when `startIndex > endIndex`.\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun appendRange(value: CharArray, startIndex: Int,
endIndex: Int): StringBuilder {\n string += value.concatToString(startIndex, endIndex)\n return this\n
}\n\n /**\n * Appends a subsequence of the specified character sequence [value] to this
string builder and returns this instance.\n *\n * @param value the character sequence from which a
subsequence is appended.\n * @param startIndex the beginning (inclusive) of the subsequence to append.\n *
@param endIndex the end (exclusive) of the subsequence to append.\n *\n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the
[value] character sequence indices or when `startIndex > endIndex`.\n */\n @SinceKotlin("1.4")\n

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@WasExperimental(ExperimentalStdlibApi::class)\n public fun appendRange(value: CharSequence, startIndex:
Int, endIndex: Int): StringBuilder {\n     val stringCsq = value.toString()\n
AbstractList.checkBoundsIndexes(startIndex, endIndex, stringCsq.length)\n     string +=
stringCsq.substring(startIndex, endIndex)\n     return this\n }\n\n /**\n  * Inserts characters in a subarray of
the specified character array [value] into this string
builder at the specified [index] and returns this instance.\n  *\n  * The inserted characters go in same order as in
the [value] array, starting at [index].\n  *\n  * @param index the position in this string builder to insert at.\n  *
@param value the array from which characters are inserted.\n  * @param startIndex the beginning (inclusive) of
the subarray to insert.\n  * @param endIndex the end (exclusive) of the subarray to insert.\n  *\n  * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the
[value] array indices or when `startIndex > endIndex`.\n  * @throws IndexOutOfBoundsException if [index] is
less than zero or greater than the length of this string builder.\n  */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n public fun insertRange(index: Int, value: CharArray,
startIndex: Int, endIndex: Int): StringBuilder {\n     AbstractList.checkPositionIndex(index,
this.length)\n     string = string.substring(0, index) + value.concatToString(startIndex, endIndex) +
string.substring(index)\n     return this\n }\n\n /**\n  * Inserts characters in a subsequence of the specified
character sequence [value] into this string builder at the specified [index] and returns this instance.\n  *\n  * The
inserted characters go in the same order as in the [value] character sequence, starting at [index].\n  *\n  *
@param index the position in this string builder to insert at.\n  * @param value the character sequence from which
a subsequence is inserted.\n  * @param startIndex the beginning (inclusive) of the subsequence to insert.\n  *
@param endIndex the end (exclusive) of the subsequence to insert.\n  *\n  * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the
[value] character sequence indices or when `startIndex > endIndex`.\n  *
@throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n
*/\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public fun
insertRange(index: Int, value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder {\n
AbstractList.checkPositionIndex(index, length)\n     val stringCsq = value.toString()\n
AbstractList.checkBoundsIndexes(startIndex, endIndex, stringCsq.length)\n     string = string.substring(0, index)
+ stringCsq.substring(startIndex, endIndex) + string.substring(index)\n     return this\n }\n\n /**\n  * Clears
the content of this string builder making it empty and returns this instance.\n  */\n @sample
samples.text.Strings.clearStringBuilder\n
*/\n @SinceKotlin("1.3")\n @Suppress("EXTENSION_SHADOWED_BY_MEMBER",
"NOTHING_TO_INLINE")\n public actual inline fun StringBuilder.clear(): StringBuilder = this.clear()\n\n /**\n  *
Sets the character at
the specified [index] to the specified [value].\n  *\n  * @throws IndexOutOfBoundsException if [index] is out of
bounds of this string builder.\n
*/\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n @Suppress("EXTENSION_SHA
DOWED_BY_MEMBER", "NOTHING_TO_INLINE")\n public actual inline operator fun
StringBuilder.set(index: Int, value: Char) = this.set(index, value)\n\n /**\n  * Replaces characters in the specified
range of this string builder with characters in the specified string [value] and returns this instance.\n  *\n  *
@param startIndex the beginning (inclusive) of the range to replace.\n  * @param endIndex the end (exclusive) of the range to
replace.\n  * @param value the string to replace with.\n  *\n  * @throws IndexOutOfBoundsException or
[IllegalArgumentException] if [startIndex] is less than zero, greater than the length of this string builder, or
`startIndex > endIndex`.\n
*/\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n @Suppress("EXTENSION_SHA
DOWED_BY_MEMBER",
"NOTHING_TO_INLINE")\n public actual inline fun StringBuilder.setRange(startIndex: Int, endIndex: Int, value:
String): StringBuilder =\n     this.setRange(startIndex, endIndex, value)\n\n /**\n  * Removes the character at the

```

specified [index] from this string builder and returns this instance.\n \*\n \* If the `Char` at the specified [index] is part of a supplementary code point, this method does not remove the entire supplementary character.\n \*\n \* @param index the index of `Char` to remove.\n \*\n \* @throws IndexOutOfBoundsException if [index] is out of bounds of this string builder.\n

```

*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHA
DOWED_BY_MEMBER", "NOTHING_TO_INLINE")\npublic actual inline fun StringBuilder.deleteAt(index:
Int): StringBuilder = this.deleteAt(index)\n\n/**\n * Removes characters in the specified range from this string
builder and returns this instance.\n *\n * @param startIndex the
beginning (inclusive) of the range to remove.\n * @param endIndex the end (exclusive) of the range to remove.\n
*\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] is out of range of
this string builder indices or when `startIndex > endIndex`.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHA
DOWED_BY_MEMBER", "NOTHING_TO_INLINE")\npublic actual inline fun
StringBuilder.deleteRange(startIndex: Int, endIndex: Int): StringBuilder = this.deleteRange(startIndex,
endIndex)\n\n/**\n * Copies characters from this string builder into the [destination] character array.\n *\n *
@param destination the array to copy to.\n * @param destinationOffset the position in the array to copy to, 0 by
default.\n * @param startIndex the beginning (inclusive) of the range to copy, 0 by default.\n * @param endIndex
the end (exclusive) of the range to copy, length of this string builder by default.\n *\n * @throws
IndexOutOfBoundsException
or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this string builder indices or when
`startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the subrange doesn't fit into the
[destination] array starting at the specified [destinationOffset],\n * or when that index is out of the [destination]
array indices range.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHA
DOWED_BY_MEMBER", "NOTHING_TO_INLINE",
"ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual inline fun
StringBuilder.toCharArray(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int =
this.length) =\n    this.toCharArray(destination, destinationOffset, startIndex, endIndex)\n\n/**\n * Appends
characters in a subarray of the specified character array [value] to this string builder and returns this instance.\n *\n *
Characters are appended in order, starting at specified [startIndex].\n
*\n * @param value the array from which characters are appended.\n * @param startIndex the beginning
(inclusive) of the subarray to append.\n * @param endIndex the end (exclusive) of the subarray to append.\n *\n *
@throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of
range of the [value] array indices or when `startIndex > endIndex`.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHA
DOWED_BY_MEMBER", "NOTHING_TO_INLINE")\npublic actual inline fun
StringBuilder.appendRange(value: CharArray, startIndex: Int, endIndex: Int): StringBuilder =\n
this.appendRange(value, startIndex, endIndex)\n\n/**\n * Appends a subsequence of the specified character
sequence [value] to this string builder and returns this instance.\n *\n * @param value the character sequence from
which a subsequence is appended.\n * @param startIndex the beginning (inclusive) of the subsequence to append.\n
*\n * @param endIndex the end (exclusive) of the subsequence to append.\n *\n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the
[value] character sequence indices or when `startIndex > endIndex`.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHA
DOWED_BY_MEMBER", "NOTHING_TO_INLINE")\npublic actual inline fun
StringBuilder.appendRange(value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder =\n
this.appendRange(value, startIndex, endIndex)\n\n/**\n * Inserts characters in a subarray of the specified character
array [value] into this string builder at the specified [index] and returns this instance.\n *\n * The inserted characters

```

go in same order as in the [value] array, starting at [index].\n \* \n \* @param index the position in this string builder to insert at.\n \* @param value the array from which characters are inserted.\n \* @param startIndex the beginning (inclusive) of the subarray to insert.\n \* @param endIndex the end (exclusive) of the subarray to insert.\n \* \n \* @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n

```

*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER", "NOTHING_TO_INLINE")\npublic actual inline fun
StringBuilder.insertRange(index: Int, value: CharArray, startIndex: Int, endIndex: Int): StringBuilder =\nthis.insertRange(index, value, startIndex, endIndex)\n\n/**\n * Inserts characters in a subsequence of the specified
character sequence [value] into this string builder at the specified [index] and returns this instance.\n * \n * The
inserted characters go in the same order as in the [value] character
sequence, starting at [index].\n * \n * @param index the position in this string builder to insert at.\n * @param value
the character sequence from which a subsequence is inserted.\n * @param startIndex the beginning (inclusive) of the
subsequence to insert.\n * @param endIndex the end (exclusive) of the subsequence to insert.\n * \n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the
[value] character sequence indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException if
[index] is less than zero or greater than the length of this string builder.\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER", "NOTHING_TO_INLINE")\npublic actual inline fun
StringBuilder.insertRange(index: Int, value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder =\nthis.insertRange(index, value, startIndex, endIndex)\n\n"/*\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n * Returns `true` if the content of this string is equal to the word `true`, ignoring case, and `false` otherwise.\n * \n * @Deprecated("Use Kotlin compiler 1.4 to avoid deprecation
warning.")\n */\n@DeprecatedSinceKotlin(hiddenSince = "1.4")\n@kotlin.internal.InlineOnly\npublic actual inline
fun String.toBoolean(): Boolean = this.toBoolean()\n\n/**\n * Returns `true` if this string is not `null` and its content
is equal to the word `true`, ignoring case, and `false` otherwise.\n * \n * There are also strict versions of the
function available on non-nullable String, [toBooleanStrict] and [toBooleanStrictOrNull].\n
*/\n@SinceKotlin("1.4")\npublic actual fun String?.toBoolean(): Boolean = this != null && this.lowercase() ==
"true"\n\n/**\n * Parses the string as
a signed [Byte] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation of a number.\n */\npublic actual fun String.toByte(): Byte = toByteOrNull() ?:
numberFormatException(this)\n\n/**\n * Parses the string as a signed [Byte] number and returns the result.\n * @throws
NumberFormatException if the string is not a valid representation of a number.\n * @throws
IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\npublic actual fun
String.toByte(radix: Int): Byte = toByteOrNull(radix) ?: numberFormatException(this)\n\n/**\n * Parses the string as a
[Short] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation of a number.\n */\npublic actual fun String.toShort(): Short = toShortOrNull() ?:
numberFormatException(this)\n\n/**\n * Parses the string as a [Short] number and returns the result.\n * @throws
NumberFormatException if the string is not a valid
representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to
number conversion.\n */\npublic actual fun String.toShort(radix: Int): Short = toShortOrNull(radix) ?:
numberFormatException(this)\n\n/**\n * Parses the string as an [Int] number and returns the result.\n * @throws
NumberFormatException if the string is not a valid representation of a number.\n */\npublic actual fun
String.toInt(): Int = toIntOrNull() ?: numberFormatException(this)\n\n/**\n * Parses the string as an [Int] number and
returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n *

```

```

@throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.
public actual fun String.toInt(radix: Int): Int = toIntOrNull(radix) ?: numberFormatError(this)
* Parses the string as a [Long] number and returns the result.
* @throws NumberFormatException if the string is not a valid representation
of a number.
public actual fun String.toLong(): Long = toLongOrNull() ?: numberFormatError(this)
* Parses the string as a [Long] number and returns the result.
* @throws NumberFormatException if the string is not a valid representation of a number.
* @throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.
public actual fun String.toLong(radix: Int): Long = toLongOrNull(radix) ?:
numberFormatError(this)
* Parses the string as a [Double] number and returns the result.
* @throws NumberFormatException if the string is not a valid representation of a number.
public actual fun String.toDouble(): Double = +(this.asDynamic()).unsafeCast<Double>().also {
    if (it.isNaN() && !this.isNaN() || it == 0.0 && this.isBlank())
        numberFormatError(this)
}
* Parses the string as a [Float] number and returns the result.
* @throws NumberFormatException if the string is not a valid representation
of a number.
@kotlin.internal.InlineOnly
public actual inline fun String.toFloat(): Float =
toDouble().unsafeCast<Float>()
* Parses the string as a [Double] number and returns the result
* or `null` if the string is not a valid representation of a number.
public actual fun String.toDoubleOrNull(): Double? =
+(this.asDynamic()).unsafeCast<Double>().takeIf {
    !(it.isNaN() && !this.isNaN() || it == 0.0 &&
this.isBlank())
}
* Parses the string as a [Float] number and returns the result
* or `null` if the string is not a valid representation of a number.
@kotlin.internal.InlineOnly
public actual inline fun String.toFloatOrNull(): Float? =
toDoubleOrNull().unsafeCast<Float?>()
* Returns a string representation
of this [Byte] value in the specified [radix].
* @throws IllegalArgumentException when [radix] is not a valid
radix for number to string conversion.
@SinceKotlin("1.2")
@kotlin.internal.InlineOnly
public actual inline fun Byte.toString(radix: Int): String = this.toInt().toString(radix)
* Returns a string
representation of this [Short] value in the specified [radix].
* @throws IllegalArgumentException when [radix]
is not a valid radix for number to string conversion.
@SinceKotlin("1.2")
@kotlin.internal.InlineOnly
public actual inline fun Short.toString(radix: Int): String =
this.toInt().toString(radix)
* Returns a string representation of this [Int] value in the specified [radix].
* @throws IllegalArgumentException when [radix] is not a valid radix for number to string conversion.
@SinceKotlin("1.2")
public actual fun Int.toString(radix: Int): String =
asDynamic().toString(checkRadix(radix))
private fun String.isNaN(): Boolean = when (this.lowercase()) {
    "nan", "+nan", "-nan" -> true
    else -> false
}
* Checks whether the given [radix] is valid radix for
string to number and number to string conversion.
@PublishedApi
internal
actual fun checkRadix(radix: Int): Int {
    if (radix !in 2..36)
        throw IllegalArgumentException("radix
$radix was not in valid range 2..36")
    return radix
}
internal actual fun digitOf(char: Char, radix: Int):
Int = when {
    char >= '0' && char <= '9' -> char - '0'
    char >= 'A' && char <= 'Z' -> char - 'A' + 10
    char >= 'a' && char <= 'z' -> char - 'a' + 10
    char < "\u0080" -> -1
    char >= "\uFF21" && char <= "\uFF3A" -> char -
"\uFF21" + 10 // full-width latin capital letter
    char >= "\uFF41" && char <= "\uFF5A" -> char - "\uFF41" + 10 //
full-width latin small letter
    else -> char.digitToIntImpl()
}.let { if (it >= radix) -1 else it }
/* Copyright
2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.
* Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.
package kotlin.text
import
kotlin.js.RegExp
* Provides enumeration values to use to set regular expression options.
public actual enum class
RegexOption(val value: String) {
    /** Enables case-insensitive matching.
IGNORE_CASE("i"),
    /** Enables multiline mode.
* In multiline mode the expressions `^` and `$` match just after or just before,
* respectively, a line terminator or the end of the input sequence.
MULTILINE("m")
}
private fun
Iterable<RegexOption>.toFlags(prepend: String): String = joinToString("\", prefix = prepend) { it.value
}
* Represents the results from a single capturing group within a [MatchResult] of [Regex].
* @param value The value of captured group.
public actual data class MatchGroup(actual val value:

```

String)\n\n/\*\*\n \* Returns a named group with the specified [name].\n \* @return An instance of [MatchGroup] if the group with the specified [name] was matched or `null` otherwise.\n \* @throws IllegalArgumentException if there is no group with the specified [name] defined in the regex pattern.\n \* @throws UnsupportedOperationException if this match group collection doesn't support getting match groups by name,\n \* for example, when it's not supported by the current platform.\n \* @since Kotlin("1.7")\n\npublic operator fun MatchGroupCollection.get(name: String): MatchGroup? {\n val namedGroups = this as? MatchNamedGroupCollection\n ?: throw UnsupportedOperationException("Retrieving groups by name is not supported on this platform.")\n return namedGroups[name]\n}\n\n/\*\*\n \* Represents a compiled regular expression.\n \* Provides functions to match strings in text with a pattern, replace the found occurrences and split text around matches.\n \* For pattern syntax reference see [MDN RegExp](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global\_Objects/RegExp#Special\_characters\_meaning\_in\_regular\_expressions)\n \* and [http://www.w3schools.com/jsref/jsref\_obj\_regexp.asp](https://www.w3schools.com/jsref/jsref\_obj\_regexp.asp).\n \* Note that `RegExp` objects under the hood are constructed with [the `u` flag](https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global\_Objects/RegExp/unicode)\n \* that enables Unicode-related features in regular expressions. This also makes the pattern syntax more strict,\n \* for example, prohibiting unnecessary escape sequences.\n \* @constructor Creates a regular expression from the specified [pattern] string and the specified set of [options].\n \* @public actual class Regex actual constructor(pattern: String, options: Set<RegexOption>) {\n /\*\* Creates a regular expression from the specified [pattern] string and the specified single [option].\n \* @public actual constructor(pattern: String, option: RegexOption) : this(pattern, setOf(option))\n /\*\* Creates a regular expression from the specified [pattern] string and the default options.\n \* @public actual constructor(pattern: String) : this(pattern, emptySet())\n /\*\* The pattern string of this regular expression.\n \* @public actual val pattern: String = pattern\n /\*\* The set of options that were used to create this regular expression.\n \* @public actual val options: Set<RegexOption> = options.toSet()\n private val nativePattern: Regex = Regex(pattern, options.toFlags("gu"))\n private var nativeStickyPattern: Regex? = null\n private fun initStickyPattern(): Regex =\n nativeStickyPattern ?: Regex(pattern, options.toFlags("yu")).also { nativeStickyPattern = it }\n private var nativeMatchesEntirePattern: Regex? = null\n private fun initMatchesEntirePattern(): Regex =\n nativeMatchesEntirePattern ?: run {\n if (pattern.startsWith('^') && pattern.endsWith('\$'))\n nativePattern\n else\n return Regex("^\${pattern.trimStart('^').trimEnd('\$')}\$", options.toFlags("gu"))\n }.also { nativeMatchesEntirePattern = it }\n /\*\* Indicates whether the regular expression matches the entire [input].\n \* @public actual infix fun matches(input: CharSequence): Boolean {\n nativePattern.reset()\n val match = nativePattern.exec(input.toString())\n return match != null && match.index == 0 && nativePattern.lastIndex == input.length\n }\n /\*\* Indicates whether the regular expression can find at least one match in the specified [input].\n \* @public actual fun containsMatchIn(input: CharSequence): Boolean {\n nativePattern.reset()\n return nativePattern.test(input.toString())\n }\n @SinceKotlin("1.7")\n @WasExperimental(ExperimentalStdlibApi::class)\n public actual fun matchesAt(input: CharSequence, index: Int): Boolean {\n if (index < 0 || index > input.length) {\n throw IndexOutOfBoundsException("index out of bounds: \$index, input length: \${input.length}")\n }\n val pattern = initStickyPattern()\n pattern.lastIndex = index\n return pattern.test(input.toString())\n }\n /\*\*\n \* Returns the first match of a regular expression in the [input], beginning at the specified [startIndex].\n \* @param startIndex An index to start search with, by default 0. Must be not less than zero and not greater than `input.length`\n \* @return An instance of [MatchResult] if match was found or `null` otherwise.\n \* @throws IndexOutOfBoundsException if [startIndex] is less than zero or greater than the length of the [input] char sequence.\n \* @sample samples.text.Regexps.find\n \* @suppress("ACTUAL\_FUNCTION\_WITH\_DEFAULT\_ARGUMENTS")\n public actual fun find(input:

```

CharSequence, startIndex: Int = 0): MatchResult? {
    if (startIndex < 0 || startIndex > input.length) {
        throw IndexOutOfBoundsException("Start index out of bounds: $startIndex, input length: ${input.length}")
    }
    return nativePattern.findNext(input.toString(),
        startIndex, nativePattern)
}

/**
 * Returns a sequence of all occurrences of a regular expression within
 the [input] string, beginning at the specified [startIndex].
 * @throws IndexOutOfBoundsException if
 [startIndex] is less than zero or greater than the length of the [input] char sequence.
 * @sample
 samples.text.Regexp.findAll
 */
@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
public actual fun findAll(input:
CharSequence, startIndex: Int = 0): Sequence<MatchResult> {
    if (startIndex < 0 || startIndex > input.length) {
        throw IndexOutOfBoundsException("Start index out of bounds: $startIndex, input length:
${input.length}")
    }
    return generateSequence({ find(input, startIndex) }, { match -> match.next() })
}

/**
 * Attempts to match the entire [input] CharSequence against the pattern.
 * @return An
 instance of [MatchResult] if the
 entire input matches or `null` otherwise.
 */
public actual fun matchEntire(input: CharSequence):
MatchResult? =
    initMatchesEntirePattern().findNext(input.toString(), 0, nativePattern)

@SinceKotlin("1.7")
@WasExperimental(ExperimentalStdlibApi::class)
public actual fun matchAt(input:
CharSequence, index: Int): MatchResult? {
    if (index < 0 || index > input.length) {
        throw
IndexOutOfBoundsException("index out of bounds: $index, input length: ${input.length}")
    }
    return
initStickyPattern().findNext(input.toString(), index, nativePattern)
}

/**
 * Replaces all occurrences
 of this regular expression in the specified [input] string with specified [replacement] expression.
 * The
 replacement string may contain references to the captured groups during a match. Occurrences of `${name}` or
`$index`
 * in the replacement string will be substituted with the subsequences corresponding
 to the captured groups with the specified name or index.
 * In case of `$index`, the first digit after '$' is always
 treated as a part of group reference. Subsequent digits are incorporated
 * into `index` only if they would form a
 valid group reference. Only the digits '0'..'9' are considered as potential components
 * of the group reference.
 Note that indexes of captured groups start from 1, and the group with index 0 is the whole match.
 * In case of
`${name}`, the `name` can consist of latin letters 'a'..'z' and 'A'..'Z', or digits '0'..'9'. The first character must be
 * a letter.
 * Backslash character '\' can be used to include the succeeding character as a literal in the
 replacement string, e.g, `\\$` or `\\|`.
 * [Regex.escapeReplacement] can be used if [replacement] have to be
 treated as a literal string.
 * @param input the char sequence to find matches of this regular expression
 in
 * @param replacement the expression
 to replace found matches with
 * @return the result of replacing each occurrence of this regular expression in
 [input] with the result of evaluating the [replacement] expression
 * @throws RuntimeException if
 [replacement] expression is malformed, or capturing group with specified `name` or `index` does not exist
 */
public actual fun replace(input: CharSequence, replacement: String): String {
    if (!replacement.contains("\\|")
&& !replacement.contains('$')) {
        return input.toString().nativeReplace(nativePattern, replacement)
    }
    return replace(input) { substituteGroupRefs(it, replacement) }
}

/**
 * Replaces all
 occurrences of this regular expression in the specified [input] string with the result of
 * the given function
 [transform] that takes [MatchResult] and returns a string to be used as a
 * replacement for that match.
 */
public actual fun replace(input: CharSequence, transform:
(MatchResult) -> CharSequence): String {
    var match = find(input)
    if (match == null) return
input.toString()
    var lastStart = 0
    val length = input.length
    val sb = StringBuilder(length)
do {
    val foundMatch = match!!
    sb.append(input, lastStart, foundMatch.range.start)
sb.append(transform(foundMatch))
    lastStart = foundMatch.range.endInclusive + 1
    match =
foundMatch.next()
} while (lastStart < length && match != null)
    if (lastStart < length) {
        sb.append(input, lastStart, length)
    }
    return sb.toString()
}

/**
 * Replaces the first
 occurrence of this regular expression in the specified [input] string with specified [replacement] expression.
 * The
 replacement string may contain references to the captured groups during a match. Occurrences of `${name}`
 *

```

or ``$index`\n`` \* in the replacement string will be substituted with the subsequences corresponding to the captured groups with the specified name or index.\n

\* In case of ``$index``, the first digit after '\$' is always treated as a part of group reference. Subsequent digits are incorporated\n` into ``index`` only if they would form a valid group reference. Only the digits '0'..'9' are considered as potential components\n` of the group reference. Note that indexes of captured groups start from 1, and the group with index 0 is the whole match.\n`

\* In case of ``${name}``, the ``name`` can consist of latin letters 'a'..'z' and 'A'..'Z', or digits '0'..'9'. The first character must be\n` a letter.\n` \* Backslash character ``\`` can be used to include the succeeding character as a literal in the replacement string, e.g, ``\\$`` or ``\\\\``.\n`

[Regex.escapeReplacement] can be used if [replacement] have to be treated as a literal string.\n` \* @param input the char sequence to find a match of

this regular expression in\n` \* @param replacement the expression to replace the found match with\n` \* @return the result of replacing the first occurrence of this regular expression in [input] with the result of evaluating the [replacement] expression\n` \* @throws RuntimeException if [replacement] expression is malformed, or capturing group with specified ``name`` or ``index`` does not exist\n` \*/\n`

```

public actual fun replaceFirst(input: CharSequence,
replacement: String): String {
    if (!replacement.contains("\\\\") && !replacement.contains('$')) {
        val nonGlobalOptions = options.toFlags("\\u")
        return input.toString().nativeReplace(RegExp(pattern, nonGlobalOptions), replacement)
    }
    val match = find(input) ?: return input.toString()
    return buildString {
        append(input.substring(0, match.range.first))
        append(substituteGroupRefs(match, replacement))
        append(input.substring(match.range.last + 1, input.length))
    }
}

```

/\*\n` \* Splits the [input] CharSequence to a list of strings around matches of this regular expression.\n` \* @param limit Non-negative value specifying the maximum number of substrings the string can be split to.\n` \* Zero by default means no limit is set.\n` \*/\n`

```

@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
public actual fun split(input: CharSequence, limit: Int = 0): List<String> {
    requireNonNegativeLimit(limit)
    val matches = findAll(input).let { if (limit == 0) it else it.take(limit - 1) }
    val result = mutableListOf<String>()
    var lastStart = 0
    for (match in matches) {
        result.add(input.subSequence(lastStart, match.range.start).toString())
        lastStart = match.range.endInclusive + 1
    }
    result.add(input.subSequence(lastStart, input.length).toString())
    return result
}

```

/\*\n` \* Splits the [input] CharSequence to a sequence of strings around matches of this regular expression.\n` \* @param limit Non-negative value specifying the maximum number of substrings the string can be split to.\n` \* Zero by default means no limit is set.\n` \* @sample samples.text.Regexps.splitToSequence\n` \* @SinceKotlin("1.6")\n` \* @WasExperimental(ExperimentalStdlibApi::class)\n`

```

@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")
public actual fun splitToSequence(input: CharSequence, limit: Int = 0): Sequence<String> {
    requireNonNegativeLimit(limit)
    return sequence {
        var match = find(input)
        if (match == null || limit == 1) {
            yield(input.toString())
            return@sequence
        }
        var nextStart = 0
        var splitCount = 0
        do {
            val foundMatch = match!!
            yield(input.substring(nextStart, foundMatch.range.first))
            nextStart = foundMatch.range.endInclusive + 1
            match = foundMatch.next()
        } while (++splitCount != limit - 1 && match != null)
        yield(input.substring(nextStart, input.length))
    }
}

```

/\*\n` \* Returns the string representation of this regular expression, namely the [pattern] of this regular expression.\n` \* Note that another regular expression constructed from the same pattern string may have different [options]\n` \* and may match strings differently.\n` \*/\n`

```

public override fun toString(): String = nativePattern.toString()

```

actual companion object {\n` /\*\n` \* Returns a regular expression that matches the specified [literal] string literally.\n` \* No characters of that string will have special meaning when searching for an occurrence of the regular expression.\n` \*/\n`

```

public actual fun fromLiteral(literal: String): Regex = Regex(escape(literal))

```

```

    /**\n      * Returns a regular expression pattern string that matches the specified [literal] string literally.\n
    * No characters of that string will have special meaning when searching for an occurrence of the regular
    expression.\n      */\n      public actual fun escape(literal: String): String = literal.nativeReplace(patternEscape,
    '\\\\\\\\$&\\')\n\n    /**\n      * Returns a literal replacement expression for the specified [literal] string.\n      * No
    characters of that string will have special meaning when it is used as a replacement string in [Regex.replace]
    function.\n      */\n      public actual fun escapeReplacement(literal: String): String =
    literal.nativeReplace(replacementEscape, '\\\\\\\\$&\\')\n\n      private val patternEscape =
    RegExp("\\\\\\"[\\\\\\\\^$*+?.()|\\[\\]{}]"\"\", \"g\")\n      private val replacementEscape = RegExp("\\\\\\"[\\\\\\\\$]"\"\",
    \"g\")\n\n      internal fun nativeEscapeReplacement(literal: String): String =
    literal.nativeReplace(nativeReplacementEscape,
    '\\$$$$')\n      private val nativeReplacementEscape = RegExp("\\\\\\"\\$\\\"\", \"g\")\n    }\n\n\nprivate fun
    RegExp.findNext(input: String, from: Int, nextPattern: RegExp): MatchResult? {\n      this.lastIndex = from\n      val
    match = exec(input)\n      if (match == null) return null\n      val range = match.index..lastIndex - 1\n      return object :
    MatchResult {\n          override val range: IntRange = range\n          override val value: String\n              get() =
    match[0]!\n          override val groups: MatchGroupCollection = object : MatchNamedGroupCollection,
    AbstractCollection<MatchGroup?>() {\n              override val size: Int get() = match.length\n              override fun
    iterator(): Iterator<MatchGroup?> = indices.asSequence().map { this[it] }.iterator()\n              override fun get(index:
    Int): MatchGroup? = match[index]?.let { MatchGroup(it) }\n              override fun get(name: String): MatchGroup?
    {\n                  // An object
    of named capturing groups whose keys are the names and values are the capturing groups\n                  // or undefined
    if no named capturing groups were defined.\n                  val groups = match.asDynamic().groups\n                  ?:
    throw IllegalArgumentException(\"Capturing group with name { $name } does not exist. No named capturing group
    was defined in Regex\")\n                  // If the match was successful but the group specified failed to match any part
    of the input sequence,\n                  // the associated value is 'undefined'. Value for a non-existent key is also
    'undefined'. Thus, explicitly check if the key exists.\n                  if (!hasOwnPrototypeProperty(groups, name))\n
    throw IllegalArgumentException(\"Capturing group with name { $name } does not exist\")\n                  val
    value = groups[name]\n                  return if (value == undefined) null else MatchGroup(value as String)\n              }\n
    }\n\n      private fun hasOwnPrototypeProperty(o:
    Any?, name: String): Boolean {\n          return js(\"Object\").prototype.hasOwnProperty.call(o,
    name).unsafeCast<Boolean>()\n      }\n\n      private var groupValues_: List<String>? = null\n\n      override
    val groupValues: List<String>\n          get() {\n              if (groupValues_ == null) {\n                  groupValues_ =
    object : AbstractList<String>() {\n                      override val size: Int get() = match.length\n                      override
    fun get(index: Int): String = match[index] ?: \"\"\n                      }\n                      }\n                      return groupValues_!!\n
    }\n\n              override fun next(): MatchResult? =\n                  nextPattern.findNext(input, if (range.isEmpty())
    advanceToNextCharacter(range.start) else range.endInclusive + 1, nextPattern)\n\n                  private fun
    advanceToNextCharacter(index: Int): Int {\n                      if (index < input.lastIndex) {\n                          val code1 =
    input.asDynamic().charCodeAt(index).unsafeCast<Int>()\n                          if (code1 in 0xD800..0xDBFF) {\n
    val code2 = input.asDynamic().charCodeAt(index +
    1).unsafeCast<Int>()\n                          if (code2 in 0xDC00..0xDFFF) {\n                              return index + 2\n
    }\n                          }\n                          return index + 1\n                      }\n                      }\n\n                      // The same code from K/N
    }\n\n\nRegex.kt\nprivate fun substituteGroupRefs(match: MatchResult, replacement: String): String {\n      var index = 0\n
    val result = StringBuilder()\n      while (index < replacement.length) {\n          val char = replacement[index++]\n
    if (char == '\\\\\\\\') {\n              if (index == replacement.length)\n                  throw IllegalArgumentException(\"The Char
    to be escaped is missing\")\n              result.append(replacement[index++])\n          } else if (char == '$') {\n              if
    (index == replacement.length)\n                  throw IllegalArgumentException(\"Capturing group index
    is missing\")\n              if (replacement[index] == '{') {\n                  val endIndex =
    replacement.readGroupName(++index)\n                  if (index == endIndex)\n                      throw
    IllegalArgumentException(\"Named capturing group reference should have a non-empty name\")\n                  if

```



```

(endIndex == replacement.length || replacement[endIndex] != '}')\n                throw
IllegalArgumentException("Named capturing group reference is missing trailing '}")\n                val groupName
= replacement.substring(index, endIndex)\n                result.append(match.groups[groupName]?.value ?: "\\")\n                index = endIndex + 1 // skip past '}'\n                } else {\n                if (replacement[index] !in '0'..'9')\n                throw IllegalArgumentException("Invalid capturing group reference")\n                val groups = match.groups\n                val endIndex = replacement.readGroupIndex(index, groups.size)\n                val groupIndex = replacement.substring(index, endIndex).toInt()\n                if (groupIndex >= groups.size)\n                throw IndexOutOfBoundsException("Group with index $groupIndex does not exist")\n                result.append(groups[groupIndex]?.value ?: "\\")\n                index = endIndex\n                }\n                } else {\n                result.append(char)\n                }\n                }\n                return result.toString()\n            }\n            // The name must be a legal JavaScript identifier.
            See https://262.ecma-international.org/5.1/#sec-7.6\n            // Don't try to validate the referenced group name as it may be
            time-consuming.\n            // If the name is invalid, it won't be found in `match.groups` anyway and will throw.\n            // Group names in the target Regex are validated at creation time.\n            private fun String.readGroupName(startIndex: Int): Int {\n            var index = startIndex\n            while (index < length) {\n            if (this[index] == '}') {\n            break\n            } else {\n            index++\n            }\n            }\n            return index\n            }\n            private fun String.readGroupIndex(startIndex: Int, groupCount: Int): Int {\n            // at least
            one digit after '$' is always captured\n            var index = startIndex + 1\n            var groupIndex = this[startIndex] - '0'\n            //
            capture the largest valid group index\n            while (index < length && this[index] in '0'..'9') {\n            val newGroupIndex
            = (groupIndex * 10) + (this[index] - '0')\n            if (newGroupIndex in 0 until groupCount) {\n            groupIndex =
            newGroupIndex\n            index++\n            } else {\n            break\n            }\n            }\n            return index\n            }
            }
            /*\n            *\n            @file:kotlin.jvm.JvmMultifileClass\n            @file:kotlin.jvm.JvmName("StringsKt")\n            @file:Suppress("EXTENSI
            ON_SHADOWED_BY_MEMBER")\n            package kotlin.text\n            import kotlin.contracts.*\n            /**\n            *\n            * A mutable sequence of characters.\n            *\n            * String builder can be used to efficiently perform multiple string
            manipulation operations.\n            *\n            * expect class StringBuilder : Appendable, CharSequence {\n            /** Constructs an
            empty string builder. *\n            constructor()\n            /** Constructs an empty string builder with the specified initial
            [capacity]. *\n            constructor(capacity: Int)\n            /** Constructs a string builder that contains the same characters as
            the specified [content] char sequence. *\n            constructor(content: CharSequence)\n            /** Constructs a string
            builder that contains the same characters as the specified [content] string. *\n            @SinceKotlin("1.3")\n            //
            @ExperimentalStdlibApi\n            constructor(content: String)\n            override val length: Int\n            override operator fun
            get(index: Int): Char\n            override fun subSequence(startIndex: Int, endIndex: Int): CharSequence\n            override
            fun append(value: Char): StringBuilder\n            override fun append(value: CharSequence?):
            StringBuilder\n            override fun append(value: CharSequence?, startIndex: Int, endIndex: Int): StringBuilder\n            /**\n            *\n            * Reverses the contents of this string builder and returns this instance.\n            *\n            * Surrogate pairs included
            in this string builder are treated as single characters.\n            * Therefore, the order of the high-low surrogates is never
            reversed.\n            *\n            * Note that the reverse operation may produce new surrogate pairs that were unpaired low-
            surrogates and high-surrogates before the operation.\n            * For example, reversing "\\uDC00\uD800" produces
            "\\uD800\uDC00" which is a valid surrogate pair.\n            *\n            fun reverse(): StringBuilder\n            /**\n            *\n            * Appends the string representation of the specified object [value] to this string builder and returns this instance.\n            *\n            * The overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n            * and then that string was appended
            to this string builder.\n            *\n            fun append(value: Any?): StringBuilder\n            /**\n            *\n            * Appends the string
            representation of the specified boolean [value] to this string builder and returns this instance.\n            *\n            * The
            overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n            * and then
            that string was appended to this string builder.\n            *\n            @SinceKotlin("1.3")\n            fun append(value: Boolean):
            StringBuilder\n            /**\n            *\n            * Appends characters in the specified character array [value] to this string builder and
            returns this instance.\n            *\n            * Characters are appended in order, starting at the index 0.\n            */
            */

```

```

@SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun append(value: CharArray):
StringBuilder\n\n /**\n * Appends the specified string [value] to this string builder and returns this instance.\n
*\n * If [value] is `null`, then the four characters `\\null`
are appended.\n */\n @SinceKotlin("1.3")\n fun append(value: String?): StringBuilder\n\n /**\n *
Returns the current capacity of this string builder.\n */\n * The capacity is the maximum length this string
builder can have before an allocation occurs.\n */\n @SinceKotlin("1.3")\n// @ExperimentalStdlibApi\n
@Deprecated("Obtaining StringBuilder capacity is not supported in JS and common code.", level =
DeprecationLevel.ERROR)\n fun capacity(): Int\n\n /**\n * Ensures that the capacity of this string builder is
at least equal to the specified [minimumCapacity].\n */\n * If the current capacity is less than the
[minimumCapacity], a new backing storage is allocated with greater capacity.\n * Otherwise, this method takes
no action and simply returns.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun ensureCapacity(minimumCapacity: Int)\n\n /**\n *
Returns the index
within this string builder of the first occurrence of the specified [string].\n */\n * Returns `-1` if the specified
[string] does not occur in this string builder.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun indexOf(string: String): Int\n\n /**\n * Returns the
index within this string builder of the first occurrence of the specified [string],\n * starting at the specified
[startIndex].\n */\n * Returns `-1` if the specified [string] does not occur in this string builder starting at the
specified [startIndex].\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n
fun indexOf(string: String, startIndex: Int): Int\n\n /**\n * Returns the index within this string builder of the last
occurrence of the specified [string].\n * The last occurrence of empty string `""` is considered to be at the index
equal to `this.length`.\n */\n * Returns `-1` if the specified
[string] does not occur in this string builder.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun lastIndexOf(string: String): Int\n\n /**\n * Returns
the index within this string builder of the last occurrence of the specified [string],\n * starting from the specified
[startIndex] toward the beginning.\n */\n * Returns `-1` if the specified [string] does not occur in this string
builder starting at the specified [startIndex].\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun lastIndexOf(string: String, startIndex: Int): Int\n\n
/**\n * Inserts the string representation of the specified boolean [value] into this string builder at the specified
[index] and returns this instance.\n */\n * The overall effect is exactly as if the [value] were converted to a string
by the `value.toString()` method,\n * and then that string was inserted into this string builder
at the specified [index].\n */\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater
than the length of this string builder.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun insert(index: Int, value: Boolean): StringBuilder\n\n
/**\n * Inserts the specified character [value] into this string builder at the specified [index] and returns this
instance.\n */\n * @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of
this string builder.\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun
insert(index: Int, value: Char): StringBuilder\n\n /**\n * Inserts characters in the specified character array
[value] into this string builder at the specified [index] and returns this instance.\n */\n * The inserted characters
go in same order as in the [value] character array, starting at [index].\n */\n *
@throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n
*/\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun insert(index: Int,
value: CharArray): StringBuilder\n\n /**\n * Inserts characters in the specified character sequence [value] into
this string builder at the specified [index] and returns this instance.\n */\n * The inserted characters go in the
same order as in the [value] character sequence, starting at [index].\n */\n * @param index the position in this
string builder to insert at.\n * @param value the character sequence from which characters are inserted. If [value]
is `null`, then the four characters `\\null` are inserted.\n */\n * @throws IndexOutOfBoundsException if
[index] is less than zero or greater than the length of this string builder.\n */\n @SinceKotlin("1.4")\n

```

```

@WasExperimental(ExperimentalStdlibApi::class)\n fun
insert(index: Int, value: CharSequence?): StringBuilder\n\n /**\n * Inserts the string representation of the
specified object [value] into this string builder at the specified [index] and returns this instance.\n * The
overall effect is exactly as if the [value] were converted to a string by the `value.toString()` method,\n * and then
that string was inserted into this string builder at the specified [index].\n * @throws
IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n */\n
@SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun insert(index: Int, value:
Any?): StringBuilder\n\n /**\n * Inserts the string [value] into this string builder at the specified [index] and
returns this instance.\n * If [value] is `null`, then the four characters `\\null` are inserted.\n * @throws
IndexOutOfBoundsException if [index] is less than zero
or greater than the length of this string builder.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun insert(index: Int, value: String?): StringBuilder\n\n
/**\n * Sets the length of this string builder to the specified [newLength].\n * If the [newLength] is less
than the current length, it is changed to the specified [newLength].\n * Otherwise, null characters `\\u0000` are
appended to this string builder until its length is less than the [newLength].\n * Note that in Kotlin/JS [set]
operator function has non-constant execution time complexity.\n * Therefore, increasing length of this string
builder and then updating each character by index may slow down your program.\n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] if [newLength] is less than zero.\n */\n
@SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun setLength(newLength:
Int)\n\n /**\n * Returns a new [String] that contains characters in this string builder at [startIndex] (inclusive)
and up to the [length] (exclusive).\n * @throws IndexOutOfBoundsException if [startIndex] is less than
zero or greater than the length of this string builder.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun substring(startIndex: Int): String\n\n /**\n * Returns
a new [String] that contains characters in this string builder at [startIndex] (inclusive) and up to the [endIndex]
(exclusive).\n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex]
or [endIndex] is out of range of this string builder indices or when `startIndex > endIndex`.\n */\n
@SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n fun substring(startIndex: Int,
endIndex: Int): String\n\n /**\n * Attempts to reduce storage used for this string builder.\n
*\n * If the backing storage of this string builder is larger than necessary to hold its current contents,\n *
then it may be resized to become more space efficient.\n * Calling this method may, but is not required to, affect
the value of the [capacity] property.\n */\n @SinceKotlin("1.4")\n
@WasExperimental(ExperimentalStdlibApi::class)\n fun trimToSize()\n\n\n /**\n * Clears the content of this
string builder making it empty and returns this instance.\n * @sample samples.text.Strings.clearStringBuilder\n
*/\n @SinceKotlin("1.3")\n public expect fun StringBuilder.clear(): String\n\n /**\n * Sets the character at
the specified [index] to the specified [value].\n * @throws IndexOutOfBoundsException if [index] is out of
bounds of this string builder.\n
*/\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public expect operator fun
StringBuilder.set(index: Int, value: Char)\n\n\n /**\n * Replaces characters in the specified
range of this string builder with characters in the specified string [value] and returns this instance.\n * @param
startIndex the beginning (inclusive) of the range to replace.\n * @param endIndex the end (exclusive) of the range to
replace.\n * @param value the string to replace with.\n * @throws IndexOutOfBoundsException or
[IllegalArgumentException] if [startIndex] is less than zero, greater than the length of this string builder, or
`startIndex > endIndex`.\n */\n @SinceKotlin("1.4")\n @WasExperimental(ExperimentalStdlibApi::class)\n public
expect fun StringBuilder.setRange(startIndex: Int, endIndex: Int, value: String): String\n\n\n /**\n * Removes
the character at the specified [index] from this string builder and returns this instance.\n * If the `Char` at the
specified [index] is part of a supplementary code point, this method does not remove the entire supplementary
character.\n * @param index the index of `Char` to remove.\n * @throws IndexOutOfBoundsException

```

if [index] is out of bounds of this string builder.\n

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.deleteAt(index: Int): StringBuilder\n\n/**\n * Removes characters in the specified range from this
string builder and returns this instance.\n * \n * @param startIndex the beginning (inclusive) of the range to
remove.\n * @param endIndex the end (exclusive) of the range to remove.\n * \n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] is out of range of this string builder
indices or when `startIndex > endIndex`.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.deleteRange(startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Copies characters from this
string builder into the [destination] character array.\n * \n * @param destination the array to copy to.\n * @param
destinationOffset the position in the array to copy to,
0 by default.\n * @param startIndex the beginning (inclusive) of the range to copy, 0 by default.\n * @param
endIndex the end (exclusive) of the range to copy, length of this string builder by default.\n * \n * @throws
IndexOutOfBoundsException or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of this
string builder indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException when the
subrange doesn't fit into the [destination] array starting at the specified [destinationOffset],\n * or when that index is
out of the [destination] array indices range.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.toCharArray(destination: CharArray, destinationOffset: Int = 0, startIndex: Int = 0, endIndex: Int =
this.length)\n\n/**\n * Appends characters in a subarray of the specified character array [value] to this string builder
and returns this instance.\n * \n * Characters are appended in order,
starting at specified [startIndex].\n * \n * @param value the array from which characters are appended.\n * @param
startIndex the beginning (inclusive) of the subarray to append.\n * @param endIndex the end (exclusive) of the
subarray to append.\n * \n * @throws IndexOutOfBoundsException or [IllegalArgumentException] when
[startIndex] or [endIndex] is out of range of the [value] array indices or when `startIndex > endIndex`.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.appendRange(value: CharArray, startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Appends a
subsequence of the specified character sequence [value] to this string builder and returns this instance.\n * \n *
@param value the character sequence from which a subsequence is appended.\n * @param startIndex the beginning
(inclusive) of the subsequence to append.\n * @param endIndex the end (exclusive) of the subsequence to append.\n
*\n * @throws IndexOutOfBoundsException
or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence
indices or when `startIndex > endIndex`.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.appendRange(value: CharSequence, startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Inserts
characters in a subarray of the specified character array [value] into this string builder at the specified [index] and
returns this instance.\n * \n * The inserted characters go in same order as in the [value] array, starting at [index].\n
*\n * @param index the position in this string builder to insert at.\n * @param value the array from which characters
are inserted.\n * @param startIndex the beginning (inclusive) of the subarray to insert.\n * @param endIndex the
end (exclusive) of the subarray to insert.\n * \n * @throws IndexOutOfBoundsException or
[IllegalArgumentException] when [startIndex] or [endIndex] is out
of range of the [value] array indices or when `startIndex > endIndex`.\n * @throws IndexOutOfBoundsException if
[index] is less than zero or greater than the length of this string builder.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.insertRange(index: Int, value: CharArray, startIndex: Int, endIndex: Int): StringBuilder\n\n/**\n * Inserts
characters in a subsequence of the specified character sequence [value] into this string builder at the specified
[index] and returns this instance.\n * \n * The inserted characters go in the same order as in the [value] character
sequence, starting at [index].\n * \n * @param index the position in this string builder to insert at.\n * @param value
```

the character sequence from which a subsequence is inserted.\n \* @param startIndex the beginning (inclusive) of the subsequence to insert.\n \* @param endIndex the end (exclusive) of the subsequence to insert.\n \* @throws IndexOutOfBoundsException

or [IllegalArgumentException] when [startIndex] or [endIndex] is out of range of the [value] character sequence indices or when `startIndex > endIndex`.\n \* @throws IndexOutOfBoundsException if [index] is less than zero or greater than the length of this string builder.\n

```

*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun
StringBuilder.insertRange(index: Int, value: CharSequence, startIndex: Int, endIndex: Int):
StringBuilder\n\n@Suppress("EXTENSION_SHADOWED_BY_MEMBER")\n@Deprecated("Use
append(value: Any?) instead", ReplaceWith("append(value = obj)")),
DeprecationLevel.WARNING)\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.append(obj: Any?):
StringBuilder = this.append(obj)\n\n/**\n * Builds new string by populating newly created [StringBuilder] using
provided [builderAction]\n * and then converting it to [String].\n *\n@kotlin.internal.InlineOnly\npublic inline fun
buildString(builderAction: String Builder.() -> Unit):
String {\n    contract { callsInPlace(builderAction, InvocationKind.EXACTLY_ONCE) }\n    return
StringBuilder().apply(builderAction).toString()\n}\n\n/**\n * Builds new string by populating newly created
[StringBuilder] initialized with the given [capacity]\n * using provided [builderAction] and then converting it to
[String].\n *\n@SinceKotlin("1.1")\n@kotlin.internal.InlineOnly\npublic inline fun buildString(capacity: Int,
builderAction: String Builder.() -> Unit): String {\n    contract { callsInPlace(builderAction,
InvocationKind.EXACTLY_ONCE) }\n    return
StringBuilder(capacity).apply(builderAction).toString()\n}\n\n/**\n * Appends all arguments to the given
StringBuilder.\n *\n@public fun StringBuilder.append(vararg value: String?): String Builder {\n    for (item in
value)\n        append(item)\n    return this\n}\n\n/**\n * Appends all arguments to the given StringBuilder.\n
*\n@public fun StringBuilder.append(vararg value: Any?): String Builder {\n    for (item in value)\n
        append(item)\n    return this\n}\n\n/**\n * Appends a line feed character (`\n`) to this StringBuilder.
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine():
StringBuilder = append("\n")\n\n/**\n * Appends [value] to this [StringBuilder], followed by a line feed character
(`\n`).\n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value:
CharSequence?): String Builder = append(value).appendLine()\n\n/**\n * Appends [value] to this [StringBuilder],
followed by a line feed character (`\n`).\n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun
StringBuilder.appendLine(value: String?): String Builder = append(value).appendLine()\n\n/**\n * Appends [value] to
this [StringBuilder], followed by a line feed character (`\n`).\n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value: Any?):
String Builder = append(value).appendLine()\n\n/**\n * Appends [value] to this [StringBuilder], followed by a line feed character (`\n`).\n
*\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value:
CharArray): String Builder = append(value).appendLine()\n\n/**\n * Appends [value] to this [StringBuilder], followed
by a line feed character (`\n`).\n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun
StringBuilder.appendLine(value: Char): String Builder = append(value).appendLine()\n\n/**\n * Appends [value] to this
[StringBuilder], followed by a line feed character (`\n`).\n *\n@SinceKotlin("1.4")\n@kotlin.internal.InlineOnly\npublic inline fun StringBuilder.appendLine(value:
Boolean): String Builder = append(value).appendLine()\n\n"/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n@npackage kotlin.text\n\nimport
kotlin.js.RegExp\n\n@kotlin.internal.InlineOnly\ninternal
actual inline fun String.nativeIndexOf(ch: Char, fromIndex: Int): Int = nativeIndexOf(ch.toString(),
fromIndex)\n\n@kotlin.internal.InlineOnly\ninternal actual inline fun String.nativeLastIndexOf(ch: Char,
fromIndex: Int): Int = nativeLastIndexOf(ch.toString(), fromIndex)\n\n/**\n * Returns `true` if this string starts with

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the specified prefix.\n *\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun String.startsWith(prefix: String, ignoreCase: Boolean = false): Boolean {\n if (!ignoreCase)\n return
nativeStartsWith(prefix, 0)\n else\n return regionMatches(0, prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n *
Returns `true` if a substring of this string starting at the specified offset [startIndex] starts with the specified prefix.\n
*\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual fun
String.startsWith(prefix: String, startIndex: Int, ignoreCase: Boolean = false): Boolean
{\n if (!ignoreCase)\n return nativeStartsWith(prefix, startIndex)\n else\n return
regionMatches(startIndex, prefix, 0, prefix.length, ignoreCase)\n}\n\n/**\n * Returns `true` if this string ends with
the specified suffix.\n *\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic
actual fun String.endsWith(suffix: String, ignoreCase: Boolean = false): Boolean {\n if (!ignoreCase)\n return
nativeEndsWith(suffix)\n else\n return regionMatches(length - suffix.length, suffix, 0, suffix.length,
ignoreCase)\n}\n\n@Deprecated("Use Regex.matches() instead",
ReplaceWith("regex.toRegex().matches(this)")\n)\n@DeprecatedSinceKotlin(warningSince = "1.6")\npublic fun
String.matches(regex: String): Boolean {\n @Suppress("DEPRECATION")\n val result = this.match(regex)\n
return result != null && result.size != 0\n}\n\n/**\n * Returns `true` if this string is empty or consists solely of
whitespace characters.\n *\n * @sample samples.text.Strings.stringIsBlank\n
*\npublic actual fun CharSequence.isBlank(): Boolean = length == 0 || indices.all { this[it].isWhitespace()
}\n\n/**\n * Returns `true` if this string is equal to [other], optionally ignoring character case.\n *\n * Two strings
are considered to be equal if they have the same length and the same character at the same index.\n *\n * If [ignoreCase]
is true, the result of `Char.uppercaseChar().lowercaseChar()` on each character is compared.\n *\n * @param
ignoreCase `true` to ignore character case when comparing strings. By default `false`.\n
*\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual fun
String?.equals(other: String?, ignoreCase: Boolean = false): Boolean {\n if (this == null) return other == null\n if
(other == null) return false\n if (!ignoreCase) return this == other\n\n if (this.length != other.length) return
false\n\n for (index in 0 until this.length) {\n val thisChar = this[index]\n val otherChar
= other[index]\n if (!thisChar.equals(otherChar, ignoreCase)) {\n return false\n }\n }\n\n return
true\n}\n\n@Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual fun
CharSequence.regionMatches(thisOffset: Int, other: CharSequence, otherOffset: Int, length: Int, ignoreCase:
Boolean = false): Boolean =\n regionMatchesImpl(thisOffset, other, otherOffset, length, ignoreCase)\n\n/**\n *
Returns a copy of this string having its first letter titlecased using the rules of the default locale,\n * or the original
string if it's empty or already starts with a title case letter.\n *\n * The title case of a character is usually the same as
its upper case with several exceptions.\n * The particular list of characters with the special title case form depends
on the underlying platform.\n *\n * @sample samples.text.Strings.capitalize\n *\n@Deprecated("Use
replaceFirstChar instead.", ReplaceWith("replaceFirstChar { if (it.isLowerCase()) it.titlecase()
else it.toString() }"))\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic actual fun String.capitalize():
String {\n return if (isEmpty()) substring(0, 1).uppercase() + substring(1) else this\n}\n\n/**\n * Returns a
copy of this string having its first letter lowercased using the rules of the default locale,\n * or the original string if
it's empty or already starts with a lower case letter.\n *\n * @sample samples.text.Strings.decapitalize\n
*\n@Deprecated("Use replaceFirstChar instead.", ReplaceWith("replaceFirstChar { it.lowercase()
}")\n)\n@DeprecatedSinceKotlin(warningSince = "1.5")\npublic actual fun String.decapitalize(): String {\n return
if (isEmpty()) substring(0, 1).lowercase() + substring(1) else this\n}\n\n/**\n * Returns a string containing this
char sequence repeated [n] times.\n *\n * @throws [IllegalArgumentException] when n < 0.\n *\n * @sample
samples.text.Strings.repeat\n *\npublic actual fun CharSequence.repeat(n: Int): String {\n require(n
>= 0) {\n "Count 'n' must be non-negative, but was $n." }\n return when (n) {\n 0 -> ""\n 1 ->
this.toString()\n else -> {\n var result = ""\n if (!isEmpty()) {\n var s = this.toString()\n
var count = n\n while (true) {\n if ((count and 1) == 1) {\n result += s\n }\n count = count ushr 1\n if (count == 0) {\n break\n }\n
s += s\n }\n }\n return result\n }\n }\n}\n\n/**\n * Returns a new string

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obtained by replacing all occurrences of the [oldValue] substring in this string\n * with the specified [newValue]
string.\n *\n * @sample samples.text.Strings.replace\n
*\n@\Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual fun
String.replace(oldValue: String, newValue: String,
ignoreCase: Boolean = false): String =\n    nativeReplace(RegExp(Regex.escape(oldValue), if (ignoreCase) "\"gui\"
else \"gu\""), Regex.nativeEscapeReplacement(newValue))\n\n/**\n * Returns a new string with all occurrences of
[oldChar] replaced with [newChar].\n *\n * @sample samples.text.Strings.replace\n
*\n@\Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual fun
String.replace(oldChar: Char, newChar: Char, ignoreCase: Boolean = false): String =\n
nativeReplace(RegExp(Regex.escape(oldChar.toString()), if (ignoreCase) "\"gui\" else \"gu\""),
newChar.toString())\n\n@\Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGUMENTS")\npublic actual
fun String.replaceFirst(oldValue: String, newValue: String, ignoreCase: Boolean = false): String =\n
nativeReplace(RegExp(Regex.escape(oldValue), if (ignoreCase) "\"ui\" else \"u\""),
Regex.nativeEscapeReplacement(newValue))\n\n@\Suppress("ACTUAL_FUNCTION_WITH_DEFAULT_ARGU
MENTS")\npublic actual fun String.replaceFirst(oldChar: Char, newChar:
Char, ignoreCase: Boolean = false): String =\n    nativeReplace(RegExp(Regex.escape(oldChar.toString()), if
(ignoreCase) "\"ui\" else \"u\""), newChar.toString())\n\n",/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n\npackage kotlin.text\n\n/**\n * Returns the negative [size] if
[throwOnMalformed] is false, throws [CharacterCodingException] otherwise. *\nprivate fun malformed(size: Int,
index: Int, throwOnMalformed: Boolean): Int {\n    if (throwOnMalformed) throw
CharacterCodingException("Malformed sequence starting at ${index - 1}")\n    return -size\n}\n\n/**\n * Returns
code point corresponding to UTF-16 surrogate pair,\n * where the first of the pair is the [high] and the second is in
the [string] at the [index].\n * Returns zero if the pair is malformed and [throwOnMalformed] is false.\n *\n *
@throws CharacterCodingException
if the pair is malformed and [throwOnMalformed] is true.\n *\nprivate fun codePointFromSurrogate(string: String,
high: Int, index: Int, endIndex: Int, throwOnMalformed: Boolean): Int {\n    if (high !in 0xD800..0xDBFF || index
>= endIndex) {\n        return malformed(0, index, throwOnMalformed)\n    }\n    val low = string[index].code\n    if
(low !in 0xDC00..0xDFFF) {\n        return malformed(0, index, throwOnMalformed)\n    }\n    return 0x10000 +
((high and 0x3FF) shl 10) or (low and 0x3FF)\n}\n\n/**\n * Returns code point corresponding to UTF-8 sequence of
two bytes,\n * where the first byte of the sequence is the [byte1] and the second byte is in the [bytes] array at the
[index].\n * Returns zero if the sequence is malformed and [throwOnMalformed] is false.\n *\n * @throws
CharacterCodingException if the sequence of two bytes is malformed and [throwOnMalformed] is true.\n
*\nprivate fun codePointFrom2(bytes: ByteArray, byte1: Int, index: Int, endIndex: Int, throwOnMalformed:
Boolean): Int {\n    if (byte1 and 0x1E == 0 || index >= endIndex) {\n        return malformed(0, index,
throwOnMalformed)\n    }\n    val byte2 = bytes[index].toInt()\n    if (byte2 and 0xC0 != 0x80) {\n        return
malformed(0, index, throwOnMalformed)\n    }\n    return (byte1 shl 6) xor byte2 xor 0xF80\n}\n\n/**\n * Returns
code point corresponding to UTF-8 sequence of three bytes,\n * where the first byte of the sequence is the [byte1]
and the others are in the [bytes] array starting from the [index].\n * Returns a non-positive value indicating number
of bytes from [bytes] included in malformed sequence\n * if the sequence is malformed and [throwOnMalformed] is
false.\n *\n * @throws CharacterCodingException if the sequence of three bytes is malformed and
[throwOnMalformed] is true.\n *\nprivate fun codePointFrom3(bytes: ByteArray, byte1: Int, index: Int, endIndex:
Int, throwOnMalformed: Boolean): Int {\n    if (index >= endIndex) {\n        return malformed(0, index,
throwOnMalformed)\n    }\n    val byte2 = bytes[index].toInt()\n    if (byte1 and 0xF == 0) {\n        if (byte2
and 0xE0 != 0xA0) {\n            // Non-shortest form\n            return malformed(0, index, throwOnMalformed)\n        }\n    } else if (byte1 and 0xF
== 0xD) {\n        if (byte2 and 0xE0 != 0x80) {\n            // Surrogate code point\n            return malformed(0, index,
throwOnMalformed)\n        }\n    } else if (byte2 and 0xC0 != 0x80) {\n        return malformed(0, index,

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throwOnMalformed)\n }\n\n if (index + 1 == endIndex) {\n     return malformed(1, index,
throwOnMalformed)\n }\n\n val byte3 = bytes[index + 1].toInt()\n if (byte3 and 0xC0 != 0x80) {\n     return
malformed(1, index, throwOnMalformed)\n }\n\n return (byte1 shl 12) xor (byte2 shl 6) xor byte3 xor -
0x1E080)\n\n\n/**\n * Returns code point corresponding to UTF-8 sequence of four bytes,\n * where the first byte
of the sequence is the [byte1] and the others are in the [bytes]
array starting from the [index].\n * Returns a non-positive value indicating number of bytes from [bytes] included in
malformed sequence\n * if the sequence is malformed and [throwOnMalformed] is false.\n * @throws
CharacterCodingException if the sequence of four bytes is malformed and [throwOnMalformed] is true.\n
*/\nprivate fun codePointFrom4(bytes: ByteArray, byte1: Int, index: Int, endIndex: Int, throwOnMalformed:
Boolean): Int {\n    if (index >= endIndex) {\n        malformed(0, index, throwOnMalformed)\n    }\n\n    val byte2 =
bytes[index].toInt()\n    if (byte1 and 0xF == 0x0) {\n        if (byte2 and 0xF0 <= 0x80) {\n            // Non-shortest
form\n            return malformed(0, index, throwOnMalformed)\n        }\n    } else if (byte1 and 0xF == 0x4) {\n
if (byte2 and 0xF0 != 0x80) {\n        // Out of Unicode code points domain (larger than U+10FFFF)\n
return malformed(0, index, throwOnMalformed)\n    }\n    } else if (byte1 and 0xF > 0x4)
{\n        return malformed(0, index, throwOnMalformed)\n    } else if (byte2 and 0xC0 != 0x80) {\n        return
malformed(0, index, throwOnMalformed)\n    }\n\n    if (index + 1 == endIndex) {\n        return malformed(1, index,
throwOnMalformed)\n    }\n\n    val byte3 = bytes[index + 1].toInt()\n    if (byte3 and 0xC0 != 0x80) {\n        return
malformed(1, index, throwOnMalformed)\n    }\n\n    if (index + 2 == endIndex) {\n        return malformed(2, index,
throwOnMalformed)\n    }\n\n    val byte4 = bytes[index + 2].toInt()\n    if (byte4 and 0xC0 != 0x80) {\n        return
malformed(2, index, throwOnMalformed)\n    }\n\n    return (byte1 shl 18) xor (byte2 shl 12) xor (byte3 shl 6) xor
byte4 xor 0x381F80)\n\n\n/**\n * Maximum number of bytes needed to encode a single char.\n * Code points in
`0..0x7F` are encoded in a single byte.\n * Code points in `0x80..0x7FF` are encoded in two bytes.\n * Code points
in `0x800..0xD7FF` or in `0xE000..0xFFFF` are encoded in three bytes.\n * Surrogate
code points in `0xD800..0xDFFF` are not Unicode scalar values, therefore aren't encoded.\n * Code points in
`0x10000..0x10FFFF` are represented by a pair of surrogate `Char`s and are encoded in four bytes.\n
*/\nprivate
const val MAX_BYTES_PER_CHAR = 3\n\n/**\n * The byte sequence a malformed UTF-16 char sequence is
replaced by.\n */\nprivate val REPLACEMENT_BYTE_SEQUENCE: ByteArray = byteArrayOf(0xEF.toByte(),
0xBF.toByte(), 0xBD.toByte())\n\n/**\n * Encodes the [string] using UTF-8 and returns the resulting [ByteArray].\n
*\n * @param string the string to encode.\n * @param startIndex the start offset (inclusive) of the substring to
encode.\n * @param endIndex the end offset (exclusive) of the substring to encode.\n * @param
throwOnMalformed whether to throw on malformed char sequence or replace by the
[REPLACEMENT_BYTE_SEQUENCE].\n * @throws CharacterCodingException if the char sequence is
malformed and [throwOnMalformed] is true.\n
*/\ninternal fun encodeUtf8(string: String,
startIndex: Int, endIndex: Int, throwOnMalformed: Boolean): ByteArray {\n    require(startIndex >= 0 &&
endIndex <= string.length && startIndex <= endIndex)\n\n    val bytes = ByteArray((endIndex - startIndex) *
MAX_BYTES_PER_CHAR)\n    var byteIndex = 0\n    var charIndex = startIndex\n\n    while (charIndex <
endIndex) {\n        val code = string[charIndex++].code\n        when {\n            code < 0x80 ->\n
bytes[byteIndex++] = code.toByte()\n            code < 0x800 -> {\n                bytes[byteIndex++] = ((code shr 6) or
0xC0).toByte()\n                bytes[byteIndex++] = ((code and 0x3F) or 0x80).toByte()\n            }\n            code <
0xD800 || code >= 0xE000 -> {\n                bytes[byteIndex++] = ((code shr 12) or 0xE0).toByte()\n
bytes[byteIndex++] = (((code shr 6) and 0x3F) or 0x80).toByte()\n                bytes[byteIndex++] = ((code and 0x3F)
or 0x80).toByte()\n            }\n            else -> { // Surrogate char value\n
                val codePoint = codePointFromSurrogate(string, code, charIndex, endIndex, throwOnMalformed)\n
                if (codePoint <= 0) {\n                    bytes[byteIndex++] = REPLACEMENT_BYTE_SEQUENCE[0]\n
bytes[byteIndex++] = REPLACEMENT_BYTE_SEQUENCE[1]\n                    bytes[byteIndex++] =
REPLACEMENT_BYTE_SEQUENCE[2]\n                } else {\n                    bytes[byteIndex++] = ((codePoint shr
18) or 0xF0).toByte()\n                    bytes[byteIndex++] = (((codePoint shr 12) and 0x3F) or 0x80).toByte()\n
bytes[byteIndex++] = (((codePoint shr 6) and 0x3F) or 0x80).toByte()\n                    bytes[byteIndex++] =

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}\n\n private fun Throwable.dumpFullTrace(indent:
String, qualifier: String) {\n    this.dumpSelfTrace(indent, qualifier) || return\n\n    var cause = this.cause\nwhile (cause != null) {\n    cause.dumpSelfTrace(indent, "\"Caused by: \") || return\n    cause =
cause.cause\n    }\n}\n\n private fun Throwable.dumpSelfTrace(indent: String, qualifier: String): Boolean {\n
target.append(indent).append(qualifier)\n    val shortInfo = this.toString()\n    if (hasSeen(this)) {\n
target.append("[CIRCULAR REFERENCE, SEE ABOVE: \").append(shortInfo).append("\n\n")\n    return
false\n    }\n    visited.asDynamic().push(this)\n\n    var stack = this.asDynamic().stack as String?\n    if
(stack != null) {\n    val stackStart = stack.indexOf(shortInfo).let { if (it < 0) 0 else it + shortInfo.length }\n
if (stackStart == 0) target.append(shortInfo).append("\n\n")\n    if (topStack.isEmpty()) {\n    topStack
= stack\n
topStackStart = stackStart\n    } else {\n    stack = dropCommonFrames(stack, stackStart)\n
}\n    if (indent.isNotEmpty()) {\n    // indent stack, but avoid indenting exception message lines\n
val messageLines = if (stackStart == 0) 0 else 1 + shortInfo.count { c -> c == '\n' }\n
stack.lineSequence().forEachIndexed { index: Int, line: String ->}\n    if (index >= messageLines)
target.append(indent)\n    target.append(line).append("\n\n")\n    }\n    } else {\n
target.append(stack).append("\n\n")\n    }\n    } else {\n    target.append(shortInfo).append("\n\n")\n
}\n\n    val suppressed = suppressedExceptions\n    if (suppressed.isNotEmpty()) {\n    val
suppressedIndent = indent + "\n    \n"    for (s in suppressed) {\n    s.dumpFullTrace(suppressedIndent,
"\nSuppressed:
\n")\n    }\n    }\n    return true\n }\n\n private fun dropCommonFrames(stack: String, stackStart: Int):
String {\n    var commonFrames: Int = 0\n    var lastBreak: Int = 0\n    var preLastBreak: Int = 0\n    for
(pos in 0 until minOf(topStack.length - topStackStart, stack.length - stackStart)) {\n    val c =
stack[stack.lastIndex - pos]\n    if (c != topStack[topStack.lastIndex - pos]) break\n    if (c == '\n') {\n
commonFrames += 1\n    preLastBreak = lastBreak\n    lastBreak = pos\n    }\n    }\n
if (commonFrames <= 1) return stack\n    while (preLastBreak > 0 && stack[stack.lastIndex - (preLastBreak - 1)]
== '\n')\n    preLastBreak -= 1\n    // leave 1 common frame to ease matching with the top exception stack\n
return stack.dropLast(preLastBreak) + "... and ${commonFrames - 1} more common stack frames skipped"\n
}\n}"/*\n
* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code
is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin.time\n\nimport kotlin.js.json\nimport kotlin.math.*\n\ninternal actual inline val durationAssertionsEnabled:
Boolean get() = true\n\ninternal actual fun formatToExactDecimals(value: Double, decimals: Int): String {\n    val
rounded = if (decimals == 0) {\n    value\n    } else {\n    val pow = 10.0.pow(decimals)\n
JsMath.round(abs(value) * pow) / pow * sign(value)\n    }\n    return if (abs(rounded) < 1e21) {\n    // toFixed
switches to scientific format after 1e21\n    rounded.asDynamic().toFixed(decimals).unsafeCast<String>()\n    }
else {\n    // toPrecision outputs the specified number of digits, but only for positive numbers\n    val positive =
abs(rounded)\n    val positiveString = positive.asDynamic().toPrecision(ceil(log10(positive))
+ decimals).unsafeCast<String>()\n    if (rounded < 0) \"-$positiveString\" else positiveString\n
}\n}\n\ninternal actual fun formatUpToDecimals(value: Double, decimals: Int): String {\n    return
value.asDynamic().toLocaleString(\"en-us\", json(\"maximumFractionDigits\" to
decimals)).unsafeCast<String>()\n}\n}"/*\n
* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage
kotlin.time\n\n@SinceKotlin(\"1.6\")\n@WasExperimental(ExperimentalTime::class)\n\npublic actual enum class
DurationUnit(internal val scale: Double) {\n    /**\n    * Time unit representing one nanosecond, which is 1/1000 of
a microsecond.\n    */\n    NANOSECONDS(1e0),\n    /**\n    * Time unit representing one microsecond, which is
1/1000 of a millisecond.\n    */\n    MICROSECONDS(1e3),\n    /**\n    * Time unit representing one millisecond,

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which is 1/1000 of a second.\n    *\n    MILLISECONDS(1e6),\n    /**\n    * Time unit representing one second.\n    *\n    SECONDS(1e9),\n    /**\n    * Time unit representing one minute.\n    *\n    MINUTES(60e9),\n    /**\n    * Time unit representing one hour.\n    *\n    HOURS(3600e9),\n    /**\n    * Time unit representing one day,
which is always equal to 24 hours.\n    *\n    DAYS(86400e9);\n}\n\n@SinceKotlin("1.3")\ninternal actual fun
convertDurationUnit(value: Double, sourceUnit: DurationUnit, targetUnit: DurationUnit): Double {\n    val
sourceCompareTarget = sourceUnit.scale.compareTo(targetUnit.scale)\n    return when {\n
sourceCompareTarget > 0 -> value * (sourceUnit.scale / targetUnit.scale)\n    sourceCompareTarget < 0 -> value /
(targetUnit.scale / sourceUnit.scale)\n    else -> value\n    }\n}\n\n@SinceKotlin("1.5")\ninternal actual fun
convertDurationUnitOverflow(value: Long, sourceUnit: DurationUnit, targetUnit: DurationUnit):
Long {\n    val sourceCompareTarget = sourceUnit.scale.compareTo(targetUnit.scale)\n    return when {\n
sourceCompareTarget > 0 -> value * (sourceUnit.scale / targetUnit.scale).toLong()\n    sourceCompareTarget < 0
-> value / (targetUnit.scale / sourceUnit.scale).toLong()\n    else -> value\n
}\n}\n\n@SinceKotlin("1.5")\ninternal actual fun convertDurationUnit(value: Long, sourceUnit: DurationUnit,
targetUnit: DurationUnit): Long {\n    val sourceCompareTarget = sourceUnit.scale.compareTo(targetUnit.scale)\n
return when {\n    sourceCompareTarget > 0 -> {\n        val scale = (sourceUnit.scale /
targetUnit.scale).toLong()\n        val result = value * scale\n        when {\n            result / scale == value ->
result\n            value > 0 -> Long.MAX_VALUE\n            else -> Long.MIN_VALUE\n        }\n    }\n    sourceCompareTarget < 0 -> value / (targetUnit.scale / sourceUnit.scale).toLong()\n    else -> value\n
}\n}\n\n"/\n\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use
of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\npackage kotlin.time\nimport org.w3c.performance.GlobalPerformance\nimport
org.w3c.performance.Performance\nimport kotlin.math.truncate\nimport
kotlin.time.Duration.Companion.milliseconds\nimport
kotlin.time.TimeSource.Monotonic.ValueTimeMark\n\n@Suppress("ACTUAL_WITHOUT_EXPECT") //
visibility\ninternal actual typealias ValueTimeMarkReading = Any\n\n@ExperimentalTime\ninternal interface
DefaultTimeSource : TimeSource {\n    override fun markNow(): ValueTimeMark\n    fun elapsedFrom(timeMark:
ValueTimeMark): Duration\n    fun adjustReading(timeMark: ValueTimeMark, duration: Duration):
ValueTimeMark\n}\n\n@SinceKotlin("1.3")\n@ExperimentalTime\ninternal actual object MonotonicTimeSource
: DefaultTimeSource, TimeSource { // TODO: interface should not be
required here\n\n    private val actualSource: DefaultTimeSource = run {\n        val isNode: Boolean = js("typeof
process !== 'undefined' && process.versions && !process.versions.node")\n        if (isNode)\n            HrTimeSource(js("process").unsafeCast<Process>())\n        else\n            js("self").unsafeCast<GlobalPerformance?>()?.performance?.let(::PerformanceTimeSource)\n        ?\n    }\n\n    DateNowTimeSource\n}\n\n    actual override fun markNow(): ValueTimeMark = actualSource.markNow()\n
actual override fun elapsedFrom(timeMark: ValueTimeMark): Duration = actualSource.elapsedFrom(timeMark)\n
actual override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\n    actualSource.adjustReading(timeMark, duration)\n}\n\ninternal external interface Process {\n    fun hrtime(time:
Array<Double> = definedExternally): Array<Double>\n}\n\n@SinceKotlin("1.3")\n@ExperimentalTime\ninternal
class HrTimeSource(private val process: Process)
: DefaultTimeSource {\n\n    override fun markNow(): ValueTimeMark = ValueTimeMark(process.hrtime())\n
override fun elapsedFrom(timeMark: ValueTimeMark): Duration =\n        @Suppress("UNCHECKED_CAST")\n        process.hrtime(timeMark.reading as Array<Double>)\n            .let { (seconds, nanos) ->
seconds.toDuration(DurationUnit.SECONDS) + nanos.toDuration(DurationUnit.NANOSECONDS) }\n\n    override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\n        @Suppress("UNCHECKED_CAST")\n        (timeMark.reading as Array<Double>).let { (seconds, nanos) ->\n            duration.toComponents { _, addNanos ->\n                arrayOf<Double>(sumCheckNaN(seconds +
truncate(duration.toDouble(DurationUnit.SECONDS))), nanos + addNanos)\n            }\n        }.let(TimeSource.Monotonic::ValueTimeMark)\n}\n\n    override fun toString(): String =

```

```

\`TimeSource(process.hrtime())\`}\n}\n\n@SinceKotlin("1.3")\n@ExperimentalTime\ninternal class
PerformanceTimeSource(val
    performance: Performance) : \n    DefaultTimeSource { // AbstractDoubleTimeSource(unit =
DurationUnit.MILLISECONDS) {\n    private fun read(): Double = performance.now()\n\n    override fun
markNow(): ValueTimeMark = ValueTimeMark(read())\n    override fun elapsedFrom(timeMark:
ValueTimeMark): Duration = (read() - timeMark.reading as Double).milliseconds\n    override fun
adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\nValueTimeMark(sumCheckNaN(timeMark.reading as Double +
duration.toDouble(DurationUnit.MILLISECONDS)))\n\n    override fun toString(): String =
\`TimeSource(self.performance.now())\`}\n}\n\n@SinceKotlin("1.3")\n@ExperimentalTime\ninternal object
DateNowTimeSource : DefaultTimeSource {\n    private fun read(): Double = kotlin.js.Date.now()\n\n    override
fun markNow(): ValueTimeMark = ValueTimeMark(read())\n    override fun elapsedFrom(timeMark:
ValueTimeMark): Duration = (read() - timeMark.reading as Double).milliseconds\n
    override fun adjustReading(timeMark: ValueTimeMark, duration: Duration): ValueTimeMark =\nValueTimeMark(sumCheckNaN(timeMark.reading as Double +
duration.toDouble(DurationUnit.MILLISECONDS)))\n\n    override fun toString(): String =
\`TimeSource(Date.now())\`}\n}\n\nprivate fun sumCheckNaN(value: Double): Double = value.also { if (it.isNaN())
throw IllegalArgumentException("Summing infinities of different signs") }", "/*\n * Copyright 2010-2020
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlinx.dom\n\nimport
org.w3c.dom.*\nimport kotlin.contracts.*\n\n/**\n * Creates a new element with the specified [name].\n * \n * The
element is initialized with the specified [init] function.\n * \n */\n@SinceKotlin("1.4")\npublic fun
Document.createElement(name: String, init: Element.() -> Unit): Element {\n    contract { callsInPlace(init,
InvocationKind.EXACTLY_ONCE) }\n    return createElement(name).apply(init)\n}\n\n/**\n * Appends a newly
created element with the specified [name] to this element.\n * \n * The element is initialized with the specified [init]
function.\n * \n */\n@SinceKotlin("1.4")\npublic fun Element.appendChild(name: String, init: Element.() -> Unit):
Element {\n    contract { callsInPlace(init, InvocationKind.EXACTLY_ONCE) }\n    return
ownerDocument!!.createElement(name, init).also { appendChild(it) }\n}\n\n", "/*\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlinx.dom\n\nimport
org.w3c.dom.*\n\n/**\n * Returns true if the element has the given CSS class style in its 'class' attribute\n *
 */\n@SinceKotlin("1.4")\nfun Element.hasClass(cssClass: String): Boolean =
className.matches("\\\\\\"(\\^.*\\s+)$cssClass(\\|\\s+.*)"")\\.toRegex())\n\n/**\n * Adds CSS class to element. Has no effect if all specified classes are already in class attribute of the element\n * \n *
@return true if at least one class has been added\n * \n */\n@SinceKotlin("1.4")\nfun Element.addClass(vararg
cssClasses: String): Boolean {\n    val missingClasses = cssClasses.filterNot { hasClass(it) }\n    if
(missingClasses.isNotEmpty()) {\n        val presentClasses = className.trim()\n        className = buildString {\n
            append(presentClasses)\n            if (!presentClasses.isEmpty()) {\n                append(" ")\n            }\n
missingClasses.joinTo(this, " ")\n        }\n        return true\n    }\n    return false\n}\n\n/**\n * Removes all
[cssClasses] from element. Has no effect if all specified classes are missing in class attribute of the element\n * \n *
@return true if at least one class has been removed\n * \n */\n@SinceKotlin("1.4")\nfun Element.removeClass(vararg
cssClasses: String): Boolean {\n    if (cssClasses.any
{ hasClass(it) }) {\n        val toBeRemoved = cssClasses.toSet()\n        className =
className.trim().split("\\\\\\"s+").toRegex().filter { it !in toBeRemoved }.joinToString(" ")\n        return true\n
    }\n    return false\n}\n\n", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("StringsKt")\n\npackage

```

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kotlin.text\n\n/**\n * Converts the string into a regular expression [Regex] with the default options.\n
*\n@\n@kotlin.internal.InlineOnly\npublic inline fun String.toRegex(): Regex = Regex(this)\n\n/**\n * Converts the
string into a regular expression [Regex] with the specified single [option].\n *\n@\n@kotlin.internal.InlineOnly\npublic
inline fun String.toRegex(option: RegexOptions): Regex = Regex(this, option)\n\n/**\n * Converts the string into a
regular
expression [Regex] with the specified set of [options].\n *\n@\n@kotlin.internal.InlineOnly\npublic inline fun
String.toRegex(options: Set<RegexOption>): Regex = Regex(this, options)\n", "/*\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n\npackage kotlin.dom\n\nimport
org.w3c.dom.*\n\n/**\n * Gets a value indicating whether this node is a TEXT_NODE or a
CDATA_SECTION_NODE.\n *\n@\n@SinceKotlin("1.4")\npublic val Node.isText: Boolean\n    get() = nodeType
== Node.TEXT_NODE || nodeType == Node.CDATA_SECTION_NODE\n\n/**\n * Gets a value indicating
whether this node is an [Element].\n *\n@\n@SinceKotlin("1.4")\npublic val Node.isElement: Boolean\n    get() =
nodeType == Node.ELEMENT_NODE\n", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache
2.0 license that can be found in the license/LICENSE.txt file.\n *\n\npackage kotlin.dom\n\nimport
org.w3c.dom.*\n\n/**\n * Removes all the children from this node. *\n@\n@SinceKotlin("1.4")\npublic fun Node.clear()
{\n    while (hasChildNodes()) {\n        removeChild(firstChild!!)\n    }\n}\n\n/**\n * Creates text node and append it
to the element.\n *\n * @return this element\n *\n@\n@SinceKotlin("1.4")\nfun Element.appendChild(text: String):
Element {\n    appendChild(ownerDocument!!.createTextNode(text))\n    return this\n}\n", "/*\n * Copyright 2010-
2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n\npackage
org.w3c.dom\n\n@Deprecated("Use UnionMessagePortOrWindowProxy instead.")
ReplaceWith("UnionMessagePortOrWindowProxy")\n\ntypealias UnionMessagePortOrWindow =
UnionMessagePortOrWindowProxy\n\n@Deprecated("Use `as` instead.", ReplaceWith("`as`"))\nvar
HTMLLinkElement.as_ \n    get() = `as`\n    set(value) {\n        `as` = value\n    }\n\n@Deprecated("Use `is`
instead.", ReplaceWith("`is`"))\nvar ElementCreationOptions.is_ \n    get() = `is`\n    set(value) {\n        `is` =
value\n    }\n", "/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use
of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for
details\n\npackage org.khronos.webgl\n\nimport kotlin.js.*\nimport org.w3c.dom.*\nimport
org.w3c.dom.events.*\n\npublic external interface WebGLContextAttributes {\n    var alpha: Boolean? /* = true *\n
    get() = definedExternally\n    set(value) = definedExternally\n    var depth: Boolean? /* = true *\n    get() =
definedExternally\n    set(value) = definedExternally\n    var stencil: Boolean? /* = false *\n
    get() = definedExternally\n    set(value) = definedExternally\n    var antialias: Boolean? /* = true *\n
    get() = definedExternally\n    set(value) = definedExternally\n    var premultipliedAlpha: Boolean? /* = true *\n
    get() = definedExternally\n    set(value) = definedExternally\n    var preserveDrawingBuffer: Boolean? /* =
false *\n    get() = definedExternally\n    set(value) = definedExternally\n    var
preferLowPowerToHighPerformance: Boolean? /* = false *\n    get() = definedExternally\n    set(value) =
definedExternally\n    var failIfMajorPerformanceCaveat: Boolean? /* = false *\n    get() = definedExternally\n
    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@\n@kotlin.internal.InlineOnly\npublic inline fun WebGLContextAttributes(alpha:
Boolean? = true, depth: Boolean? = true, stencil: Boolean? = false, antialias: Boolean? = true, premultipliedAlpha:
Boolean? = true, preserveDrawingBuffer:
Boolean? = false, preferLowPowerToHighPerformance: Boolean? = false, failIfMajorPerformanceCaveat:
Boolean? = false): WebGLContextAttributes {\n    val o = js("{}")\n    o["alpha"] = alpha\n    o["depth"] =
depth\n    o["stencil"] = stencil\n    o["antialias"] = antialias\n    o["premultipliedAlpha"] = premultipliedAlpha\n
    o["preserveDrawingBuffer"] = preserveDrawingBuffer\n    o["preferLowPowerToHighPerformance"] =

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preferLowPowerToHighPerformance\n  o["failIfMajorPerformanceCaveat"] = failIfMajorPerformanceCaveat\n
return o\n}\n\npublic external abstract class WebGLObject\n\n/**\n * Exposes the JavaScript
[WebGLBuffer](https://developer.mozilla.org/en/docs/Web/API/WebGLBuffer) to Kotlin\n *\n\npublic external
abstract class WebGLBuffer : WebGLObject\n\n/**\n * Exposes the JavaScript
[WebGLFramebuffer](https://developer.mozilla.org/en/docs/Web/API/WebGLFramebuffer) to Kotlin\n *\n\npublic
external abstract class WebGLFramebuffer : WebGLObject\n\n/**\n
* Exposes the JavaScript [WebGLProgram](https://developer.mozilla.org/en/docs/Web/API/WebGLProgram) to
Kotlin\n *\n\npublic external abstract class WebGLProgram : WebGLObject\n\n/**\n * Exposes the JavaScript
[WebGLRenderbuffer](https://developer.mozilla.org/en/docs/Web/API/WebGLRenderbuffer) to Kotlin\n *\n\npublic
external abstract class WebGLRenderbuffer : WebGLObject\n\n/**\n * Exposes the JavaScript
[WebGLShader](https://developer.mozilla.org/en/docs/Web/API/WebGLShader) to Kotlin\n *\n\npublic external
abstract class WebGLShader : WebGLObject\n\n/**\n * Exposes the JavaScript
[WebGLTexture](https://developer.mozilla.org/en/docs/Web/API/WebGLTexture) to Kotlin\n *\n\npublic external
abstract class WebGLTexture : WebGLObject\n\n/**\n * Exposes the JavaScript
[WebGLUniformLocation](https://developer.mozilla.org/en/docs/Web/API/WebGLUniformLocation) to Kotlin\n
*\n\npublic external abstract class WebGLUniformLocation\n\n/**\n * Exposes the JavaScript
[WebGLActiveInfo](https://developer.mozilla.org/en/docs/Web/API/WebGLActiveInfo)
to Kotlin\n *\n\npublic external abstract class WebGLActiveInfo {\n  open val size: Int\n  open val type: Int\n
open val name: String\n}\n\n/**\n * Exposes the JavaScript
[WebGLShaderPrecisionFormat](https://developer.mozilla.org/en/docs/Web/API/WebGLShaderPrecisionFormat) to
Kotlin\n *\n\npublic external abstract class WebGLShaderPrecisionFormat {\n  open val rangeMin: Int\n  open val
rangeMax: Int\n  open val precision:
Int\n}\n\n\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external interface
WebGLRenderingContextBase {\n  val canvas: HTMLCanvasElement\n  val drawingBufferWidth: Int\n  val
drawingBufferHeight: Int\n  fun getContextAttributes(): WebGLContextAttributes?\n  fun isContextLost():
Boolean\n  fun getSupportedExtensions(): Array<String>?\n  fun getExtension(name: String): dynamic\n  fun
activeTexture(texture: Int)\n  fun attachShader(program: WebGLProgram?, shader: WebGLShader?)\n
  fun bindAttribLocation(program: WebGLProgram?, index: Int, name: String)\n  fun bindBuffer(target: Int,
buffer: WebGLBuffer?)\n  fun bindFramebuffer(target: Int, framebuffer: WebGLFramebuffer?)\n  fun
bindRenderbuffer(target: Int, renderbuffer: WebGLRenderbuffer?)\n  fun bindTexture(target: Int, texture:
WebGLTexture?)\n  fun blendColor(red: Float, green: Float, blue: Float, alpha: Float)\n  fun
blendEquation(mode: Int)\n  fun blendEquationSeparate(modeRGB: Int, modeAlpha: Int)\n  fun
blendFunc(sfactor: Int, dfactor: Int)\n  fun blendFuncSeparate(srcRGB: Int, dstRGB: Int, srcAlpha: Int, dstAlpha:
Int)\n  fun bufferData(target: Int, size: Int, usage: Int)\n  fun bufferData(target: Int, data: BufferDataSource?,
usage: Int)\n  fun bufferSubData(target: Int, offset: Int, data: BufferDataSource?)\n  fun
checkFramebufferStatus(target: Int): Int\n  fun clear(mask: Int)\n  fun clearColor(red: Float, green: Float, blue:
Float, alpha: Float)\n  fun clearDepth(depth:
Float)\n  fun clearStencil(s: Int)\n  fun colorMask(red: Boolean, green: Boolean, blue: Boolean, alpha:
Boolean)\n  fun compileShader(shader: WebGLShader?)\n  fun compressedTexImage2D(target: Int, level: Int,
internalformat: Int, width: Int, height: Int, border: Int, data: ArrayBufferView)\n  fun
compressedTexSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, width: Int, height: Int, format: Int, data:
ArrayBufferView)\n  fun copyTexImage2D(target: Int, level: Int, internalformat: Int, x: Int, y: Int, width: Int,
height: Int, border: Int)\n  fun copyTexSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, x: Int, y: Int,
width: Int, height: Int)\n  fun createBuffer(): WebGLBuffer?\n  fun createFramebuffer(): WebGLFramebuffer?\n
fun createProgram(): WebGLProgram?\n  fun createRenderbuffer(): WebGLRenderbuffer?\n  fun
createShader(type: Int): WebGLShader?\n  fun createTexture(): WebGLTexture?\n  fun cullFace(mode: Int)\n
fun

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deleteBuffer(buffer: WebGLBuffer?)\n fun deleteFramebuffer(framebuffer: WebGLFramebuffer?)\n fun
deleteProgram(program: WebGLProgram?)\n fun deleteRenderbuffer(renderbuffer: WebGLRenderbuffer?)\n
fun deleteShader(shader: WebGLShader?)\n fun deleteTexture(texture: WebGLTexture?)\n fun depthFunc(func:
Int)\n fun depthMask(flag: Boolean)\n fun depthRange(zNear: Float, zFar: Float)\n fun detachShader(program:
WebGLProgram?, shader: WebGLShader?)\n fun disable(cap: Int)\n fun disableVertexAttribArray(index: Int)\n
fun drawArrays(mode: Int, first: Int, count: Int)\n fun drawElements(mode: Int, count: Int, type: Int, offset: Int)\n
fun enable(cap: Int)\n fun enableVertexAttribArray(index: Int)\n fun finish()\n fun flush()\n fun
framebufferRenderbuffer(target: Int, attachment: Int, renderbuffertarget: Int, renderbuffer: WebGLRenderbuffer?)\n
fun framebufferTexture2D(target: Int, attachment: Int, textarget: Int, texture: WebGLTexture?, level:
Int)\n fun frontFace(mode: Int)\n fun generateMipmap(target: Int)\n fun getActiveAttrib(program:
WebGLProgram?, index: Int): WebGLActiveInfo?\n fun getActiveUniform(program: WebGLProgram?, index:
Int): WebGLActiveInfo?\n fun getAttachedShaders(program: WebGLProgram?): Array<WebGLShader>?\n fun
getAttribLocation(program: WebGLProgram?, name: String): Int\n fun getBufferParameter(target: Int, pname:
Int): Any?\n fun getParameter(pname: Int): Any?\n fun getError(): Int\n fun
getFramebufferAttachmentParameter(target: Int, attachment: Int, pname: Int): Any?\n fun
getProgramParameter(program: WebGLProgram?, pname: Int): Any?\n fun getProgramInfoLog(program:
WebGLProgram?): String?\n fun getRenderbufferParameter(target: Int, pname: Int): Any?\n fun
getShaderParameter(shader: WebGLShader?, pname: Int): Any?\n fun getShaderPrecisionFormat(shaderType: Int,
precisionType: Int): WebGLShaderPrecisionFormat?\n fun getShaderInfoLog(shader: WebGLShader?):
String?\n fun getShaderSource(shader: WebGLShader?): String?\n fun getTexParameter(target: Int, pname: Int):
Any?\n fun getUniform(program: WebGLProgram?, location: WebGLUniformLocation?): Any?\n fun
getUniformLocation(program: WebGLProgram?, name: String): WebGLUniformLocation?\n fun
getVertexAttrib(index: Int, pname: Int): Any?\n fun getVertexAttribOffset(index: Int, pname: Int): Int\n fun
hint(target: Int, mode: Int)\n fun isBuffer(buffer: WebGLBuffer?): Boolean\n fun isEnabled(cap: Int): Boolean\n
fun isFramebuffer(framebuffer: WebGLFramebuffer?): Boolean\n fun isProgram(program: WebGLProgram?):
Boolean\n fun isRenderbuffer(renderbuffer: WebGLRenderbuffer?): Boolean\n fun isShader(shader:
WebGLShader?): Boolean\n fun isTexture(texture: WebGLTexture?): Boolean\n fun lineWidth(width: Float)\n
fun linkProgram(program: WebGLProgram?)\n fun pixelStorei(pname: Int, param: Int)\n fun
polygonOffset(factor: Float, units: Float)\n
fun readPixels(x: Int, y: Int, width: Int, height: Int, format: Int, type: Int, pixels: ArrayBufferView?)\n fun
renderbufferStorage(target: Int, internalformat: Int, width: Int, height: Int)\n fun sampleCoverage(value: Float,
invert: Boolean)\n fun scissor(x: Int, y: Int, width: Int, height: Int)\n fun shaderSource(shader: WebGLShader?,
source: String)\n fun stencilFunc(func: Int, ref: Int, mask: Int)\n fun stencilFuncSeparate(face: Int, func: Int, ref:
Int, mask: Int)\n fun stencilMask(mask: Int)\n fun stencilMaskSeparate(face: Int, mask: Int)\n fun
stencilOp(fail: Int, zfail: Int, zpass: Int)\n fun stencilOpSeparate(face: Int, fail: Int, zfail: Int, zpass: Int)\n fun
texImage2D(target: Int, level: Int, internalformat: Int, width: Int, height: Int, border: Int, format: Int, type: Int, pixels:
ArrayBufferView?)\n fun texImage2D(target: Int, level: Int, internalformat: Int, format: Int, type: Int, source:
TexImageSource?)\n fun texParameterf(target:
Int, pname: Int, param: Float)\n fun texParameteri(target: Int, pname: Int, param: Int)\n fun
texSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, width: Int, height: Int, format: Int, type: Int, pixels:
ArrayBufferView?)\n fun texSubImage2D(target: Int, level: Int, xoffset: Int, yoffset: Int, format: Int, type: Int,
source: TexImageSource?)\n fun uniform1f(location: WebGLUniformLocation?, x: Float)\n fun
uniform1fv(location: WebGLUniformLocation?, v: Float32Array)\n fun uniform1fv(location:
WebGLUniformLocation?, v: Array<Float>)\n fun uniform1i(location: WebGLUniformLocation?, x: Int)\n fun
uniform1iv(location: WebGLUniformLocation?, v: Int32Array)\n fun uniform1iv(location:
WebGLUniformLocation?, v: Array<Int>)\n fun uniform2f(location: WebGLUniformLocation?, x: Float, y:
Float)\n fun uniform2fv(location: WebGLUniformLocation?, v: Float32Array)\n fun uniform2fv(location:
WebGLUniformLocation?, v: Array<Float>)\n fun uniform2i(location:

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WebGLUniformLocation?, x: Int, y: Int)\n  fun uniform2iv(location: WebGLUniformLocation?, v: Int32Array)\n
fun uniform2iv(location: WebGLUniformLocation?, v: Array<Int>)\n  fun uniform3f(location:
WebGLUniformLocation?, x: Float, y: Float, z: Float)\n  fun uniform3fv(location: WebGLUniformLocation?, v:
Float32Array)\n  fun uniform3fv(location: WebGLUniformLocation?, v: Array<Float>)\n  fun
uniform3i(location: WebGLUniformLocation?, x: Int, y: Int, z: Int)\n  fun uniform3iv(location:
WebGLUniformLocation?, v: Int32Array)\n  fun uniform3iv(location: WebGLUniformLocation?, v: Array<Int>)\n
  fun uniform4f(location: WebGLUniformLocation?, x: Float, y: Float, z: Float, w: Float)\n  fun
uniform4fv(location: WebGLUniformLocation?, v: Float32Array)\n  fun uniform4fv(location:
WebGLUniformLocation?, v: Array<Float>)\n  fun uniform4i(location: WebGLUniformLocation?, x: Int, y: Int, z:
Int, w: Int)\n  fun uniform4iv(location: WebGLUniformLocation?, v: Int32Array)\n
  fun uniform4iv(location: WebGLUniformLocation?, v: Array<Int>)\n  fun uniformMatrix2fv(location:
WebGLUniformLocation?, transpose: Boolean, value: Float32Array)\n  fun uniformMatrix2fv(location:
WebGLUniformLocation?, transpose: Boolean, value: Array<Float>)\n  fun uniformMatrix3fv(location:
WebGLUniformLocation?, transpose: Boolean, value: Float32Array)\n  fun uniformMatrix3fv(location:
WebGLUniformLocation?, transpose: Boolean, value: Array<Float>)\n  fun uniformMatrix4fv(location:
WebGLUniformLocation?, transpose: Boolean, value: Float32Array)\n  fun uniformMatrix4fv(location:
WebGLUniformLocation?, transpose: Boolean, value: Array<Float>)\n  fun useProgram(program:
WebGLProgram?)\n  fun validateProgram(program: WebGLProgram?)\n  fun vertexAttrib1f(index: Int, x:
Float)\n  fun vertexAttrib1fv(index: Int, values: dynamic)\n  fun vertexAttrib2f(index: Int, x: Float, y: Float)\n
fun vertexAttrib2fv(index: Int, values: dynamic)\n  fun vertexAttrib3f(index:
Int, x: Float, y: Float, z: Float)\n  fun vertexAttrib3fv(index: Int, values: dynamic)\n  fun vertexAttrib4f(index:
Int, x: Float, y: Float, z: Float, w: Float)\n  fun vertexAttrib4fv(index: Int, values: dynamic)\n  fun
vertexAttribPointer(index: Int, size: Int, type: Int, normalized: Boolean, stride: Int, offset: Int)\n  fun viewport(x:
Int, y: Int, width: Int, height: Int)\n\n companion object {\n  val DEPTH_BUFFER_BIT: Int\n  val
STENCIL_BUFFER_BIT: Int\n  val COLOR_BUFFER_BIT: Int\n  val POINTS: Int\n  val LINES: Int\n
  val LINE_LOOP: Int\n  val LINE_STRIP: Int\n  val TRIANGLES: Int\n  val TRIANGLE_STRIP:
Int\n  val TRIANGLE_FAN: Int\n  val ZERO: Int\n  val ONE: Int\n  val SRC_COLOR: Int\n  val
ONE_MINUS_SRC_COLOR: Int\n  val SRC_ALPHA: Int\n  val ONE_MINUS_SRC_ALPHA: Int\n
  val DST_ALPHA: Int\n  val ONE_MINUS_DST_ALPHA: Int\n  val DST_COLOR: Int\n
  val ONE_MINUS_DST_COLOR: Int\n  val SRC_ALPHA_SATURATE: Int\n  val FUNC_ADD: Int\n
  val BLEND_EQUATION: Int\n  val BLEND_EQUATION_RGB: Int\n  val
BLEND_EQUATION_ALPHA: Int\n  val FUNC_SUBTRACT: Int\n  val FUNC_REVERSE_SUBTRACT:
Int\n  val BLEND_DST_RGB: Int\n  val BLEND_SRC_RGB: Int\n  val BLEND_DST_ALPHA: Int\n
  val BLEND_SRC_ALPHA: Int\n  val CONSTANT_COLOR: Int\n  val
ONE_MINUS_CONSTANT_COLOR: Int\n  val CONSTANT_ALPHA: Int\n  val
ONE_MINUS_CONSTANT_ALPHA: Int\n  val BLEND_COLOR: Int\n  val ARRAY_BUFFER: Int\n
  val ELEMENT_ARRAY_BUFFER: Int\n  val ARRAY_BUFFER_BINDING: Int\n  val
ELEMENT_ARRAY_BUFFER_BINDING: Int\n  val STREAM_DRAW: Int\n  val STATIC_DRAW: Int\n
  val DYNAMIC_DRAW: Int\n  val BUFFER_SIZE: Int\n  val BUFFER_USAGE: Int\n  val
CURRENT_VERTEX_ATTRIB: Int\n  val FRONT: Int\n  val BACK: Int\n  val
FRONT_AND_BACK: Int\n  val CULL_FACE: Int\n  val BLEND: Int\n  val DITHER: Int\n  val
STENCIL_TEST: Int\n  val DEPTH_TEST: Int\n  val SCISSOR_TEST: Int\n  val
POLYGON_OFFSET_FILL: Int\n  val SAMPLE_ALPHA_TO_COVERAGE: Int\n  val
SAMPLE_COVERAGE: Int\n  val NO_ERROR: Int\n  val INVALID_ENUM: Int\n  val
INVALID_VALUE: Int\n  val INVALID_OPERATION: Int\n  val OUT_OF_MEMORY: Int\n  val CW:
Int\n  val CCW: Int\n  val LINE_WIDTH: Int\n  val ALIASED_POINT_SIZE_RANGE: Int\n  val
ALIASED_LINE_WIDTH_RANGE: Int\n  val CULL_FACE_MODE: Int\n  val FRONT_FACE: Int\n
  val DEPTH_RANGE: Int\n  val DEPTH_WRITEMASK: Int\n  val DEPTH_CLEAR_VALUE: Int\n  val

```



DEPTH\_FUNC: Int\n     val STENCIL\_CLEAR\_VALUE: Int\n     val STENCIL\_FUNC: Int\n     val  
 STENCIL\_FAIL: Int\n     val STENCIL\_PASS\_DEPTH\_FAIL: Int\n     val STENCIL\_PASS\_DEPTH\_PASS:  
 Int\n  
    val STENCIL\_REF: Int\n     val STENCIL\_VALUE\_MASK: Int\n     val STENCIL\_WRITEMASK: Int\n  
    val STENCIL\_BACK\_FUNC: Int\n     val STENCIL\_BACK\_FAIL: Int\n     val  
 STENCIL\_BACK\_PASS\_DEPTH\_FAIL: Int\n     val STENCIL\_BACK\_PASS\_DEPTH\_PASS: Int\n     val  
 STENCIL\_BACK\_REF: Int\n     val STENCIL\_BACK\_VALUE\_MASK: Int\n     val  
 STENCIL\_BACK\_WRITEMASK: Int\n     val VIEWPORT: Int\n     val SCISSOR\_BOX: Int\n     val  
 COLOR\_CLEAR\_VALUE: Int\n     val COLOR\_WRITEMASK: Int\n     val UNPACK\_ALIGNMENT: Int\n  
    val PACK\_ALIGNMENT: Int\n     val MAX\_TEXTURE\_SIZE: Int\n     val MAX\_VIEWPORT\_DIMS: Int\n  
    val SUBPIXEL\_BITS: Int\n     val RED\_BITS: Int\n     val GREEN\_BITS: Int\n     val BLUE\_BITS: Int\n  
    val ALPHA\_BITS: Int\n     val DEPTH\_BITS: Int\n     val STENCIL\_BITS: Int\n     val  
 POLYGON\_OFFSET\_UNITS: Int\n     val POLYGON\_OFFSET\_FACTOR: Int\n     val  
 TEXTURE\_BINDING\_2D: Int\n     val SAMPLE\_BUFFERS: Int\n  
    val SAMPLES: Int\n     val SAMPLE\_COVERAGE\_VALUE: Int\n     val  
 SAMPLE\_COVERAGE\_INVERT: Int\n     val COMPRESSED\_TEXTURE\_FORMATS: Int\n     val  
 DONT\_CARE: Int\n     val FASTEST: Int\n     val NICEST: Int\n     val GENERATE\_MIPMAP\_HINT: Int\n  
    val BYTE: Int\n     val UNSIGNED\_BYTE: Int\n     val SHORT: Int\n     val UNSIGNED\_SHORT: Int\n  
    val INT: Int\n     val UNSIGNED\_INT: Int\n     val FLOAT: Int\n     val DEPTH\_COMPONENT: Int\n  
 val ALPHA: Int\n     val RGB: Int\n     val RGBA: Int\n     val LUMINANCE: Int\n     val  
 LUMINANCE\_ALPHA: Int\n     val UNSIGNED\_SHORT\_4\_4\_4\_4: Int\n     val  
 UNSIGNED\_SHORT\_5\_5\_5\_1: Int\n     val UNSIGNED\_SHORT\_5\_6\_5: Int\n     val  
 FRAGMENT\_SHADER: Int\n     val VERTEX\_SHADER: Int\n     val MAX\_VERTEX\_ATTRIBS: Int\n  
 val MAX\_VERTEX\_UNIFORM\_VECTORS: Int\n     val MAX\_VARYING\_VECTORS: Int\n     val  
 MAX\_COMBINED\_TEXTURE\_IMAGE\_UNITS: Int\n     val MAX\_VERTEX\_TEXTURE\_IMAGE\_UNITS:  
 Int\n     val MAX\_TEXTURE\_IMAGE\_UNITS: Int\n     val MAX\_FRAGMENT\_UNIFORM\_VECTORS:  
 Int\n     val SHADER\_TYPE: Int\n     val DELETE\_STATUS: Int\n     val LINK\_STATUS: Int\n     val  
 VALIDATE\_STATUS: Int\n     val ATTACHED\_SHADERS: Int\n     val ACTIVE\_UNIFORMS: Int\n     val  
 ACTIVE\_ATTRIBUTES: Int\n     val SHADING\_LANGUAGE\_VERSION: Int\n     val  
 CURRENT\_PROGRAM: Int\n     val NEVER: Int\n     val LESS: Int\n     val EQUAL: Int\n     val  
 LEQUAL: Int\n     val GREATER: Int\n     val NOTEQUAL: Int\n     val GEQUAL: Int\n     val ALWAYS:  
 Int\n     val KEEP: Int\n     val REPLACE: Int\n     val INCR: Int\n     val DECR: Int\n     val INVERT:  
 Int\n     val INCR\_WRAP: Int\n     val DECR\_WRAP: Int\n     val VENDOR: Int\n     val RENDERER: Int\n  
    val VERSION: Int\n     val NEAREST: Int\n     val LINEAR: Int\n     val  
 NEAREST\_MIPMAP\_NEAREST: Int\n     val LINEAR\_MIPMAP\_NEAREST:  
 Int\n     val NEAREST\_MIPMAP\_LINEAR: Int\n     val LINEAR\_MIPMAP\_LINEAR: Int\n     val  
 TEXTURE\_MAG\_FILTER: Int\n     val TEXTURE\_MIN\_FILTER: Int\n     val TEXTURE\_WRAP\_S: Int\n  
    val TEXTURE\_WRAP\_T: Int\n     val TEXTURE\_2D: Int\n     val TEXTURE: Int\n     val  
 TEXTURE\_CUBE\_MAP: Int\n     val TEXTURE\_BINDING\_CUBE\_MAP: Int\n     val  
 TEXTURE\_CUBE\_MAP\_POSITIVE\_X: Int\n     val TEXTURE\_CUBE\_MAP\_NEGATIVE\_X: Int\n     val  
 TEXTURE\_CUBE\_MAP\_POSITIVE\_Y: Int\n     val TEXTURE\_CUBE\_MAP\_NEGATIVE\_Y: Int\n     val  
 TEXTURE\_CUBE\_MAP\_POSITIVE\_Z: Int\n     val TEXTURE\_CUBE\_MAP\_NEGATIVE\_Z: Int\n     val  
 MAX\_CUBE\_MAP\_TEXTURE\_SIZE: Int\n     val TEXTURE0: Int\n     val TEXTURE1: Int\n     val  
 TEXTURE2: Int\n     val TEXTURE3: Int\n     val TEXTURE4: Int\n     val TEXTURE5: Int\n     val  
 TEXTURE6: Int\n     val TEXTURE7: Int\n     val TEXTURE8: Int\n     val TEXTURE9: Int\n     val  
 TEXTURE10: Int\n     val TEXTURE11:  
 Int\n     val TEXTURE12: Int\n     val TEXTURE13: Int\n     val TEXTURE14: Int\n     val TEXTURE15:  
 Int\n     val TEXTURE16: Int\n     val TEXTURE17: Int\n     val TEXTURE18: Int\n     val TEXTURE19:

```

Int\n    val TEXTURE20: Int\n    val TEXTURE21: Int\n    val TEXTURE22: Int\n    val TEXTURE23:
Int\n    val TEXTURE24: Int\n    val TEXTURE25: Int\n    val TEXTURE26: Int\n    val TEXTURE27:
Int\n    val TEXTURE28: Int\n    val TEXTURE29: Int\n    val TEXTURE30: Int\n    val TEXTURE31:
Int\n    val ACTIVE_TEXTURE: Int\n    val REPEAT: Int\n    val CLAMP_TO_EDGE: Int\n    val
MIRRORED_REPEAT: Int\n    val FLOAT_VEC2: Int\n    val FLOAT_VEC3: Int\n    val FLOAT_VEC4:
Int\n    val INT_VEC2: Int\n    val INT_VEC3: Int\n    val INT_VEC4: Int\n    val BOOL: Int\n    val
BOOL_VEC2: Int\n    val BOOL_VEC3: Int\n    val BOOL_VEC4: Int\n    val FLOAT_MAT2: Int\n
    val FLOAT_MAT3: Int\n    val FLOAT_MAT4: Int\n    val SAMPLER_2D: Int\n    val
SAMPLER_CUBE: Int\n    val VERTEX_ATTRIB_ARRAY_ENABLED: Int\n    val
VERTEX_ATTRIB_ARRAY_SIZE: Int\n    val VERTEX_ATTRIB_ARRAY_STRIDE: Int\n    val
VERTEX_ATTRIB_ARRAY_TYPE: Int\n    val VERTEX_ATTRIB_ARRAY_NORMALIZED: Int\n    val
VERTEX_ATTRIB_ARRAY_POINTER: Int\n    val VERTEX_ATTRIB_ARRAY_BUFFER_BINDING: Int\n
    val IMPLEMENTATION_COLOR_READ_TYPE: Int\n    val
IMPLEMENTATION_COLOR_READ_FORMAT: Int\n    val COMPILE_STATUS: Int\n    val
LOW_FLOAT: Int\n    val MEDIUM_FLOAT: Int\n    val HIGH_FLOAT: Int\n    val LOW_INT: Int\n
val MEDIUM_INT: Int\n    val HIGH_INT: Int\n    val FRAMEBUFFER: Int\n    val RENDERBUFFER:
Int\n    val RGBA4: Int\n    val RGB5_A1: Int\n    val RGB565: Int\n    val DEPTH_COMPONENT16:
Int\n    val STENCIL_INDEX: Int\n    val STENCIL_INDEX8: Int\n    val DEPTH_STENCIL:
Int\n    val RENDERBUFFER_WIDTH: Int\n    val RENDERBUFFER_HEIGHT: Int\n    val
RENDERBUFFER_INTERNAL_FORMAT: Int\n    val RENDERBUFFER_RED_SIZE: Int\n    val
RENDERBUFFER_GREEN_SIZE: Int\n    val RENDERBUFFER_BLUE_SIZE: Int\n    val
RENDERBUFFER_ALPHA_SIZE: Int\n    val RENDERBUFFER_DEPTH_SIZE: Int\n    val
RENDERBUFFER_STENCIL_SIZE: Int\n    val FRAMEBUFFER_ATTACHMENT_OBJECT_TYPE: Int\n
val FRAMEBUFFER_ATTACHMENT_OBJECT_NAME: Int\n    val
FRAMEBUFFER_ATTACHMENT_TEXTURE_LEVEL: Int\n    val
FRAMEBUFFER_ATTACHMENT_TEXTURE_CUBE_MAP_FACE: Int\n    val COLOR_ATTACHMENT0:
Int\n    val DEPTH_ATTACHMENT: Int\n    val STENCIL_ATTACHMENT: Int\n    val
DEPTH_STENCIL_ATTACHMENT: Int\n    val NONE: Int\n    val FRAMEBUFFER_COMPLETE: Int\n
val FRAMEBUFFER_INCOMPLETE_ATTACHMENT: Int\n    val
FRAMEBUFFER_INCOMPLETE_MISSING_ATTACHMENT: Int\n    val
FRAMEBUFFER_INCOMPLETE_DIMENSIONS: Int\n
    val FRAMEBUFFER_UNSUPPORTED: Int\n    val FRAMEBUFFER_BINDING: Int\n    val
RENDERBUFFER_BINDING: Int\n    val MAX_RENDERBUFFER_SIZE: Int\n    val
INVALID_FRAMEBUFFER_OPERATION: Int\n    val UNPACK_FLIP_Y_WEBGL: Int\n    val
UNPACK_PREMULTIPLY_ALPHA_WEBGL: Int\n    val CONTEXT_LOST_WEBGL: Int\n    val
UNPACK_COLORSPACE_CONVERSION_WEBGL: Int\n    val BROWSER_DEFAULT_WEBGL: Int\n
}\n}\n\n/**\n * Exposes the JavaScript
[WebGLRenderingContext](https://developer.mozilla.org/en/docs/Web/API/WebGLRenderingContext) to Kotlin\n
*\npublic external abstract class WebGLRenderingContext : WebGLRenderingContextBase, RenderingContext {\n
companion object {\n    val DEPTH_BUFFER_BIT: Int\n    val STENCIL_BUFFER_BIT: Int\n    val
COLOR_BUFFER_BIT: Int\n    val POINTS: Int\n    val LINES: Int\n    val LINE_LOOP: Int\n    val
LINE_STRIP: Int\n    val TRIANGLES: Int\n    val TRIANGLE_STRIP: Int\n    val TRIANGLE_FAN:
Int\n
    val ZERO: Int\n    val ONE: Int\n    val SRC_COLOR: Int\n    val ONE_MINUS_SRC_COLOR: Int\n
    val SRC_ALPHA: Int\n    val ONE_MINUS_SRC_ALPHA: Int\n    val DST_ALPHA: Int\n    val
ONE_MINUS_DST_ALPHA: Int\n    val DST_COLOR: Int\n    val ONE_MINUS_DST_COLOR: Int\n
val SRC_ALPHA_SATURATE: Int\n    val FUNC_ADD: Int\n    val BLEND_EQUATION: Int\n    val
BLEND_EQUATION_RGB: Int\n    val BLEND_EQUATION_ALPHA: Int\n    val FUNC_SUBTRACT:

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Int\n val FUNC\_REVERSE\_SUBTRACT: Int\n val BLEND\_DST\_RGB: Int\n val  
 BLEND\_SRC\_RGB: Int\n val BLEND\_DST\_ALPHA: Int\n val BLEND\_SRC\_ALPHA: Int\n val  
 CONSTANT\_COLOR: Int\n val ONE\_MINUS\_CONSTANT\_COLOR: Int\n val CONSTANT\_ALPHA:  
 Int\n val ONE\_MINUS\_CONSTANT\_ALPHA: Int\n val BLEND\_COLOR: Int\n val  
 ARRAY\_BUFFER: Int\n val ELEMENT\_ARRAY\_BUFFER: Int\n val ARRAY\_BUFFER\_BINDING:  
 Int\n val ELEMENT\_ARRAY\_BUFFER\_BINDING:  
 Int\n val STREAM\_DRAW: Int\n val STATIC\_DRAW: Int\n val DYNAMIC\_DRAW: Int\n val  
 BUFFER\_SIZE: Int\n val BUFFER\_USAGE: Int\n val CURRENT\_VERTEX\_ATTRIB: Int\n val  
 FRONT: Int\n val BACK: Int\n val FRONT\_AND\_BACK: Int\n val CULL\_FACE: Int\n val  
 BLEND: Int\n val DITHER: Int\n val STENCIL\_TEST: Int\n val DEPTH\_TEST: Int\n val  
 SCISSOR\_TEST: Int\n val POLYGON\_OFFSET\_FILL: Int\n val SAMPLE\_ALPHA\_TO\_COVERAGE:  
 Int\n val SAMPLE\_COVERAGE: Int\n val NO\_ERROR: Int\n val INVALID\_ENUM: Int\n val  
 INVALID\_VALUE: Int\n val INVALID\_OPERATION: Int\n val OUT\_OF\_MEMORY: Int\n val CW:  
 Int\n val CCW: Int\n val LINE\_WIDTH: Int\n val ALIASED\_POINT\_SIZE\_RANGE: Int\n val  
 ALIASED\_LINE\_WIDTH\_RANGE: Int\n val CULL\_FACE\_MODE: Int\n val FRONT\_FACE: Int\n  
 val DEPTH\_RANGE: Int\n val DEPTH\_WRITEMASK:  
 Int\n val DEPTH\_CLEAR\_VALUE: Int\n val DEPTH\_FUNC: Int\n val STENCIL\_CLEAR\_VALUE:  
 Int\n val STENCIL\_FUNC: Int\n val STENCIL\_FAIL: Int\n val STENCIL\_PASS\_DEPTH\_FAIL:  
 Int\n val STENCIL\_PASS\_DEPTH\_PASS: Int\n val STENCIL\_REF: Int\n val  
 STENCIL\_VALUE\_MASK: Int\n val STENCIL\_WRITEMASK: Int\n val STENCIL\_BACK\_FUNC:  
 Int\n val STENCIL\_BACK\_FAIL: Int\n val STENCIL\_BACK\_PASS\_DEPTH\_FAIL: Int\n val  
 STENCIL\_BACK\_PASS\_DEPTH\_PASS: Int\n val STENCIL\_BACK\_REF: Int\n val  
 STENCIL\_BACK\_VALUE\_MASK: Int\n val STENCIL\_BACK\_WRITEMASK: Int\n val VIEWPORT:  
 Int\n val SCISSOR\_BOX: Int\n val COLOR\_CLEAR\_VALUE: Int\n val COLOR\_WRITEMASK:  
 Int\n val UNPACK\_ALIGNMENT: Int\n val PACK\_ALIGNMENT: Int\n val  
 MAX\_TEXTURE\_SIZE: Int\n val MAX\_VIEWPORT\_DIMS: Int\n val SUBPIXEL\_BITS: Int\n val  
 RED\_BITS: Int\n val GREEN\_BITS:  
 Int\n val BLUE\_BITS: Int\n val ALPHA\_BITS: Int\n val DEPTH\_BITS: Int\n val  
 STENCIL\_BITS: Int\n val POLYGON\_OFFSET\_UNITS: Int\n val POLYGON\_OFFSET\_FACTOR: Int\n  
 val TEXTURE\_BINDING\_2D: Int\n val SAMPLE\_BUFFERS: Int\n val SAMPLES: Int\n val  
 SAMPLE\_COVERAGE\_VALUE: Int\n val SAMPLE\_COVERAGE\_INVERT: Int\n val  
 COMPRESSED\_TEXTURE\_FORMATS: Int\n val DONT\_CARE: Int\n val FASTEST: Int\n val  
 NICEST: Int\n val GENERATE\_MIPMAP\_HINT: Int\n val BYTE: Int\n val UNSIGNED\_BYTE:  
 Int\n val SHORT: Int\n val UNSIGNED\_SHORT: Int\n val INT: Int\n val UNSIGNED\_INT: Int\n  
 val FLOAT: Int\n val DEPTH\_COMPONENT: Int\n val ALPHA: Int\n val RGB: Int\n val  
 RGBA: Int\n val LUMINANCE: Int\n val LUMINANCE\_ALPHA: Int\n val  
 UNSIGNED\_SHORT\_4\_4\_4\_4: Int\n val UNSIGNED\_SHORT\_5\_5\_5\_1: Int\n val  
 UNSIGNED\_SHORT\_5\_6\_5:  
 Int\n val FRAGMENT\_SHADER: Int\n val VERTEX\_SHADER: Int\n val  
 MAX\_VERTEX\_ATTRIBS: Int\n val MAX\_VERTEX\_UNIFORM\_VECTORS: Int\n val  
 MAX\_VARYING\_VECTORS: Int\n val MAX\_COMBINED\_TEXTURE\_IMAGE\_UNITS: Int\n val  
 MAX\_VERTEX\_TEXTURE\_IMAGE\_UNITS: Int\n val MAX\_TEXTURE\_IMAGE\_UNITS: Int\n val  
 MAX\_FRAGMENT\_UNIFORM\_VECTORS: Int\n val SHADER\_TYPE: Int\n val DELETE\_STATUS:  
 Int\n val LINK\_STATUS: Int\n val VALIDATE\_STATUS: Int\n val ATTACHED\_SHADERS: Int\n  
 val ACTIVE\_UNIFORMS: Int\n val ACTIVE\_ATTRIBUTES: Int\n val  
 SHADING\_LANGUAGE\_VERSION: Int\n val CURRENT\_PROGRAM: Int\n val NEVER: Int\n val  
 LESS: Int\n val EQUAL: Int\n val LEQUAL: Int\n val GREATER: Int\n val NOTEQUAL: Int\n  
 val GEQUAL: Int\n val ALWAYS: Int\n val KEEP: Int\n val REPLACE: Int\n val INCR: Int\n

val DECR: Int\n
 val INVERT: Int\n val INCR\_WRAP: Int\n val DECR\_WRAP: Int\n val VENDOR: Int\n val  
 RENDERER: Int\n val VERSION: Int\n val NEAREST: Int\n val LINEAR: Int\n val  
 NEAREST\_MIPMAP\_NEAREST: Int\n val LINEAR\_MIPMAP\_NEAREST: Int\n val  
 NEAREST\_MIPMAP\_LINEAR: Int\n val LINEAR\_MIPMAP\_LINEAR: Int\n val  
 TEXTURE\_MAG\_FILTER: Int\n val TEXTURE\_MIN\_FILTER: Int\n val TEXTURE\_WRAP\_S: Int\n  
 val TEXTURE\_WRAP\_T: Int\n val TEXTURE\_2D: Int\n val TEXTURE: Int\n val  
 TEXTURE\_CUBE\_MAP: Int\n val TEXTURE\_BINDING\_CUBE\_MAP: Int\n val  
 TEXTURE\_CUBE\_MAP\_POSITIVE\_X: Int\n val TEXTURE\_CUBE\_MAP\_NEGATIVE\_X: Int\n val  
 TEXTURE\_CUBE\_MAP\_POSITIVE\_Y: Int\n val TEXTURE\_CUBE\_MAP\_NEGATIVE\_Y: Int\n val  
 TEXTURE\_CUBE\_MAP\_POSITIVE\_Z: Int\n val TEXTURE\_CUBE\_MAP\_NEGATIVE\_Z: Int\n val  
 MAX\_CUBE\_MAP\_TEXTURE\_SIZE: Int\n val TEXTURE0: Int\n val  
 TEXTURE1: Int\n val TEXTURE2: Int\n val TEXTURE3: Int\n val TEXTURE4: Int\n val  
 TEXTURE5: Int\n val TEXTURE6: Int\n val TEXTURE7: Int\n val TEXTURE8: Int\n val  
 TEXTURE9: Int\n val TEXTURE10: Int\n val TEXTURE11: Int\n val TEXTURE12: Int\n val  
 TEXTURE13: Int\n val TEXTURE14: Int\n val TEXTURE15: Int\n val TEXTURE16: Int\n val  
 TEXTURE17: Int\n val TEXTURE18: Int\n val TEXTURE19: Int\n val TEXTURE20: Int\n val  
 TEXTURE21: Int\n val TEXTURE22: Int\n val TEXTURE23: Int\n val TEXTURE24: Int\n val  
 TEXTURE25: Int\n val TEXTURE26: Int\n val TEXTURE27: Int\n val TEXTURE28: Int\n val  
 TEXTURE29: Int\n val TEXTURE30: Int\n val TEXTURE31: Int\n val ACTIVE\_TEXTURE: Int\n  
 val REPEAT: Int\n val CLAMP\_TO\_EDGE: Int\n val MIRRORED\_REPEAT: Int\n val  
 FLOAT\_VEC2: Int\n  
 val FLOAT\_VEC3: Int\n val FLOAT\_VEC4: Int\n val INT\_VEC2: Int\n val INT\_VEC3: Int\n  
 val INT\_VEC4: Int\n val BOOL: Int\n val BOOL\_VEC2: Int\n val BOOL\_VEC3: Int\n val  
 BOOL\_VEC4: Int\n val FLOAT\_MAT2: Int\n val FLOAT\_MAT3: Int\n val FLOAT\_MAT4: Int\n  
 val SAMPLER\_2D: Int\n val SAMPLER\_CUBE: Int\n val VERTEX\_ATTRIB\_ARRAY\_ENABLED:  
 Int\n val VERTEX\_ATTRIB\_ARRAY\_SIZE: Int\n val VERTEX\_ATTRIB\_ARRAY\_STRIDE: Int\n  
 val VERTEX\_ATTRIB\_ARRAY\_TYPE: Int\n val VERTEX\_ATTRIB\_ARRAY\_NORMALIZED: Int\n  
 val VERTEX\_ATTRIB\_ARRAY\_POINTER: Int\n val VERTEX\_ATTRIB\_ARRAY\_BUFFER\_BINDING:  
 Int\n val IMPLEMENTATION\_COLOR\_READ\_TYPE: Int\n val  
 IMPLEMENTATION\_COLOR\_READ\_FORMAT: Int\n val COMPILE\_STATUS: Int\n val  
 LOW\_FLOAT: Int\n val MEDIUM\_FLOAT: Int\n val HIGH\_FLOAT: Int\n val LOW\_INT: Int\n  
 val MEDIUM\_INT: Int\n  
 val HIGH\_INT: Int\n val FRAMEBUFFER: Int\n val RENDERBUFFER: Int\n val RGBA4: Int\n  
 val RGB5\_A1: Int\n val RGB565: Int\n val DEPTH\_COMPONENT16: Int\n val STENCIL\_INDEX:  
 Int\n val STENCIL\_INDEX8: Int\n val DEPTH\_STENCIL: Int\n val RENDERBUFFER\_WIDTH:  
 Int\n val RENDERBUFFER\_HEIGHT: Int\n val RENDERBUFFER\_INTERNAL\_FORMAT: Int\n  
 val RENDERBUFFER\_RED\_SIZE: Int\n val RENDERBUFFER\_GREEN\_SIZE: Int\n val  
 RENDERBUFFER\_BLUE\_SIZE: Int\n val RENDERBUFFER\_ALPHA\_SIZE: Int\n val  
 RENDERBUFFER\_DEPTH\_SIZE: Int\n val RENDERBUFFER\_STENCIL\_SIZE: Int\n val  
 FRAMEBUFFER\_ATTACHMENT\_OBJECT\_TYPE: Int\n val  
 FRAMEBUFFER\_ATTACHMENT\_OBJECT\_NAME: Int\n val  
 FRAMEBUFFER\_ATTACHMENT\_TEXTURE\_LEVEL: Int\n val  
 FRAMEBUFFER\_ATTACHMENT\_TEXTURE\_CUBE\_MAP\_FACE: Int\n val COLOR\_ATTACHMENT0:  
 Int\n val DEPTH\_ATTACHMENT: Int\n val STENCIL\_ATTACHMENT: Int\n  
 val DEPTH\_STENCIL\_ATTACHMENT: Int\n val NONE: Int\n val FRAMEBUFFER\_COMPLETE:  
 Int\n val FRAMEBUFFER\_INCOMPLETE\_ATTACHMENT: Int\n val  
 FRAMEBUFFER\_INCOMPLETE\_MISSING\_ATTACHMENT: Int\n val

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FRAMEBUFFER_INCOMPLETE_DIMENSIONS: Int\n    val FRAMEBUFFER_UNSUPPORTED: Int\n
val FRAMEBUFFER_BINDING: Int\n    val RENDERBUFFER_BINDING: Int\n    val
MAX_RENDERBUFFER_SIZE: Int\n    val INVALID_FRAMEBUFFER_OPERATION: Int\n    val
UNPACK_FLIP_Y_WEBGL: Int\n    val UNPACK_PREMULTIPLY_ALPHA_WEBGL: Int\n    val
CONTEXT_LOST_WEBGL: Int\n    val UNPACK_COLORSPACE_CONVERSION_WEBGL: Int\n    val
BROWSER_DEFAULT_WEBGL: Int\n    }\n}\n\n/**\n * Exposes the JavaScript
[WebGLContextEvent](https://developer.mozilla.org/en/docs/Web/API/WebGLContextEvent) to Kotlin\n
*/\npublic external open class WebGLContextEvent(type: String, eventInit: WebGLContextEventInit =
definedExternally) : Event {\n    open val statusMessage: String\n\n    companion
object {\n        val NONE: Short\n        val CAPTURING_PHASE: Short\n        val AT_TARGET: Short\n        val
BUBBLING_PHASE: Short\n    }\n}\n\npublic external interface WebGLContextEventInit : EventInit {\n    var
statusMessage: String? /* = "" */\n        get() = definedExternally\n        set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun
WebGLContextEventInit(statusMessage: String? = "", bubbles: Boolean? = false, cancelable: Boolean? = false,
composed: Boolean? = false): WebGLContextEventInit {\n    val o = js("{}")\n    o["statusMessage"] =
statusMessage\n    o["bubbles"] = bubbles\n    o["cancelable"] = cancelable\n    o["composed"] = composed\n
return o\n}\n\n/**\n * Exposes the JavaScript
[ArrayBuffer](https://developer.mozilla.org/en/docs/Web/API/ArrayBuffer) to Kotlin\n
*/\npublic external open
class ArrayBuffer(length: Int) : BufferDataSource {\n    open
val byteLength: Int\n    fun slice(begin: Int, end: Int = definedExternally): ArrayBuffer\n\n    companion object {\n
fun isView(value: Any?): Boolean\n    }\n}\n\n/**\n * Exposes the JavaScript
[ArrayBufferView](https://developer.mozilla.org/en/docs/Web/API/ArrayBufferView) to Kotlin\n
*/\npublic
external interface ArrayBufferView : BufferDataSource {\n    val buffer: ArrayBuffer\n    val byteOffset: Int\n    val
byteLength: Int\n}\n\n/**\n * Exposes the JavaScript
[Int8Array](https://developer.mozilla.org/en/docs/Web/API/Int8Array) to Kotlin\n
*/\npublic external open class
Int8Array : ArrayBufferView {\n    constructor(length: Int)\n    constructor(array: Int8Array)\n    constructor(array:
Array<Byte>)\n    constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int =
definedExternally)\n    open val length: Int\n    override val buffer: ArrayBuffer\n    override val byteOffset: Int\n
override val byteLength: Int\n    fun set(array: Int8Array, offset:
Int = definedExternally)\n    fun set(array: Array<Byte>, offset: Int = definedExternally)\n    fun subarray(start: Int,
end: Int): Int8Array\n\n    companion object {\n        val BYTES_PER_ELEMENT: Int\n
}\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int8Array.get(index: Int):
Byte = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int8Array.set(index: Int,
value: Byte) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript
[Uint8Array](https://developer.mozilla.org/en/docs/Web/API/Uint8Array) to Kotlin\n
*/\npublic external open class
Uint8Array : ArrayBufferView {\n    constructor(length: Int)\n    constructor(array: Uint8Array)\n
constructor(array: Array<Byte>)\n    constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length:
Int = definedExternally)\n    open val length: Int\n    override
val buffer: ArrayBuffer\n    override val byteOffset: Int\n    override val byteLength: Int\n    fun set(array:
Uint8Array, offset: Int = definedExternally)\n    fun set(array: Array<Byte>, offset: Int = definedExternally)\n    fun
subarray(start: Int, end: Int): Uint8Array\n\n    companion object {\n        val BYTES_PER_ELEMENT: Int\n
}\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint8Array.get(index: Int):
Byte = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint8Array.set(index: Int,

```

```

value: Byte) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript
[Uint8ClampedArray](https://developer.mozilla.org/en/docs/Web/API/Uint8ClampedArray) to Kotlin\n\n*\npublic
external open class Uint8ClampedArray : ArrayBufferView {\n  constructor(length: Int)\n  constructor(array:
Uint8ClampedArray)\n  constructor(array:
Array<Byte>)\n  constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int =
definedExternally)\n  open val length: Int\n  override val buffer: ArrayBuffer\n  override val byteOffset: Int\n
override val byteLength: Int\n  fun set(array: Uint8ClampedArray, offset: Int = definedExternally)\n  fun
set(array: Array<Byte>, offset: Int = definedExternally)\n  fun subarray(start: Int, end: Int):
Uint8ClampedArray\n\n  companion object {\n    val BYTES_PER_ELEMENT: Int\n
}\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun
Uint8ClampedArray.get(index: Int): Byte = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun
Uint8ClampedArray.set(index: Int, value: Byte) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript
[Int16Array](https://developer.mozilla.org/en/docs/Web/API/Int16Array)
to Kotlin\n\n*\npublic external open class Int16Array : ArrayBufferView {\n  constructor(length: Int)\n
constructor(array: Int16Array)\n  constructor(array: Array<Short>)\n  constructor(buffer: ArrayBuffer,
byteOffset: Int = definedExternally, length: Int = definedExternally)\n  open val length: Int\n  override val buffer:
ArrayBuffer\n  override val byteOffset: Int\n  override val byteLength: Int\n  fun set(array: Int16Array, offset:
Int = definedExternally)\n  fun set(array: Array<Short>, offset: Int = definedExternally)\n  fun subarray(start: Int,
end: Int): Int16Array\n\n  companion object {\n    val BYTES_PER_ELEMENT: Int\n
}\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int16Array.get(index: Int):
Short = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int16Array.set(index: Int,
value:
Short) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript
[Uint16Array](https://developer.mozilla.org/en/docs/Web/API/Uint16Array) to Kotlin\n\n*\npublic external open
class Uint16Array : ArrayBufferView {\n  constructor(length: Int)\n  constructor(array: Uint16Array)\n
constructor(array: Array<Short>)\n  constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length:
Int = definedExternally)\n  open val length: Int\n  override val buffer: ArrayBuffer\n  override val byteOffset:
Int\n  override val byteLength: Int\n  fun set(array: Uint16Array, offset: Int = definedExternally)\n  fun set(array:
Array<Short>, offset: Int = definedExternally)\n  fun subarray(start: Int, end: Int): Uint16Array\n\n  companion
object {\n    val BYTES_PER_ELEMENT: Int\n
}\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint16Array.get(index: Int):
Short = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Uint16Array.set(index: Int,
value: Short) { asDynamic()[index] = value }\n\n/**\n * Exposes the JavaScript
[Int32Array](https://developer.mozilla.org/en/docs/Web/API/Int32Array) to Kotlin\n\n*\npublic external open class
Int32Array : ArrayBufferView {\n  constructor(length: Int)\n  constructor(array: Int32Array)\n
constructor(array: Array<Int>)\n  constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int
= definedExternally)\n  open val length: Int\n  override val buffer: ArrayBuffer\n  override val byteOffset: Int\n
override val byteLength: Int\n  fun set(array: Int32Array, offset: Int = definedExternally)\n  fun set(array:
Array<Int>, offset: Int = definedExternally)\n  fun subarray(start: Int, end: Int): Int32Array\n\n  companion object
{\n    val BYTES_PER_ELEMENT: Int\n
}\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int32Array.get(index: Int):
Int = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Int32Array.set(index: Int,

```

```

value: Int) { asDynamic()[index] = value } \n\n/** \n * Exposes the JavaScript
[Uint32Array](https://developer.mozilla.org/en/docs/Web/API/Uint32Array) to Kotlin \n * \npublic external open
class Uint32Array : ArrayBufferView { \n  constructor(length: Int) \n  constructor(array: Uint32Array) \n
constructor(array: Array<Int>) \n  constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length: Int
= definedExternally) \n  open val length: Int \n  override val buffer: ArrayBuffer \n  override val byteOffset: Int \n
override val byteLength: Int \n  fun set(array: Uint32Array, offset: Int = definedExternally) \n  fun set(array:
Array<Int>, offset: Int = definedExternally) \n  fun subarray(start:
Int, end: Int): Uint32Array \n\n  companion object { \n    val BYTES_PER_ELEMENT: Int \n
} \n} \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n@kotlin.internal.InlineOnly \npublic inline operator fun Uint32Array.get(index: Int):
Int = asDynamic()[index] \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n@kotlin.internal.InlineOnly \npublic inline operator fun Uint32Array.set(index: Int,
value: Int) { asDynamic()[index] = value } \n\n/** \n * Exposes the JavaScript
[Float32Array](https://developer.mozilla.org/en/docs/Web/API/Float32Array) to Kotlin \n * \npublic external open
class Float32Array : ArrayBufferView { \n  constructor(length: Int) \n  constructor(array: Float32Array) \n
constructor(array: Array<Float>) \n  constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length:
Int = definedExternally) \n  open val length: Int \n  override val buffer: ArrayBuffer \n  override val byteOffset:
Int \n  override val byteLength: Int \n  fun
set(array: Float32Array, offset: Int = definedExternally) \n  fun set(array: Array<Float>, offset: Int =
definedExternally) \n  fun subarray(start: Int, end: Int): Float32Array \n\n  companion object { \n    val
BYTES_PER_ELEMENT: Int \n  } \n} \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n@kotlin.internal.InlineOnly \npublic inline operator fun Float32Array.get(index: Int):
Float = asDynamic()[index] \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n@kotlin.internal.InlineOnly \npublic inline operator fun Float32Array.set(index: Int,
value: Float) { asDynamic()[index] = value } \n\n/** \n * Exposes the JavaScript
[Float64Array](https://developer.mozilla.org/en/docs/Web/API/Float64Array) to Kotlin \n * \npublic external open
class Float64Array : ArrayBufferView { \n  constructor(length: Int) \n  constructor(array: Float64Array) \n
constructor(array: Array<Double>) \n  constructor(buffer: ArrayBuffer, byteOffset: Int = definedExternally, length:
Int = definedExternally) \n
open val length: Int \n  override val buffer: ArrayBuffer \n  override val byteOffset: Int \n  override val
byteLength: Int \n  fun set(array: Float64Array, offset: Int = definedExternally) \n  fun set(array: Array<Double>,
offset: Int = definedExternally) \n  fun subarray(start: Int, end: Int): Float64Array \n\n  companion object { \n
val BYTES_PER_ELEMENT: Int \n  } \n} \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n@kotlin.internal.InlineOnly \npublic inline operator fun Float64Array.get(index: Int):
Double = asDynamic()[index] \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n@kotlin.internal.InlineOnly \npublic inline operator fun Float64Array.set(index: Int,
value: Double) { asDynamic()[index] = value } \n\n/** \n * Exposes the JavaScript
[DataView](https://developer.mozilla.org/en/docs/Web/API/DataView) to Kotlin \n * \npublic external open class
DataView(buffer: ArrayBuffer, byteOffset: Int = definedExternally, byteLength:
Int = definedExternally) : ArrayBufferView { \n  override val buffer: ArrayBuffer \n  override val byteOffset: Int \n
override val byteLength: Int \n  fun getInt8(byteOffset: Int): Byte \n  fun getUint8(byteOffset: Int): Byte \n  fun
getInt16(byteOffset: Int, littleEndian: Boolean = definedExternally): Short \n  fun getUint16(byteOffset: Int,
littleEndian: Boolean = definedExternally): Short \n  fun getInt32(byteOffset: Int, littleEndian: Boolean =
definedExternally): Int \n  fun getUint32(byteOffset: Int, littleEndian: Boolean = definedExternally): Int \n  fun
getFloat32(byteOffset: Int, littleEndian: Boolean = definedExternally): Float \n  fun getFloat64(byteOffset: Int,
littleEndian: Boolean = definedExternally): Double \n  fun setInt8(byteOffset: Int, value: Byte) \n  fun
setUint8(byteOffset: Int, value: Byte) \n  fun setInt16(byteOffset: Int, value: Short, littleEndian: Boolean =
definedExternally) \n  fun setUint16(byteOffset: Int, value: Short, littleEndian: Boolean

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= definedExternally)\n fun setInt32(byteOffset: Int, value: Int, littleEndian: Boolean = definedExternally)\n fun
setUInt32(byteOffset: Int, value: Int, littleEndian: Boolean = definedExternally)\n fun setFloat32(byteOffset: Int,
value: Float, littleEndian: Boolean = definedExternally)\n fun setFloat64(byteOffset: Int, value: Double,
littleEndian: Boolean = definedExternally)\n}\n\npublic external interface BufferDataSource\n\npublic external
interface TexImageSource", "/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See
github.com/kotlin/dukat for details\n\npackage org.w3c.dom.clipboard\n\nimport kotlin.js.*\nimport
org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\npublic external interface
ClipboardEventInit : EventInit {\n
    var clipboardData: DataTransfer? /* = null */\n        get() = definedExternally\n        set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun ClipboardEventInit(clipboardData:
DataTransfer? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
ClipboardEventInit {\n    val o = js("{}")\n    o["clipboardData"] = clipboardData\n    o["bubbles"] = bubbles\n
    o["cancelable"] = cancelable\n    o["composed"] = composed\n    return o\n}\n\n/**\n * Exposes the JavaScript
[ClipboardEvent](https://developer.mozilla.org/en/docs/Web/API/ClipboardEvent) to Kotlin\n */\n\npublic external
open class ClipboardEvent(type: String, eventInitDict: ClipboardEventInit = definedExternally) : Event {\n    open
val clipboardData: DataTransfer?\n\n    companion object {\n        val NONE: Short\n        val
CAPTURING_PHASE: Short\n        val AT_TARGET: Short\n        val
BUBBLING_PHASE: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[Clipboard](https://developer.mozilla.org/en/docs/Web/API/Clipboard) to Kotlin\n */\n\npublic external abstract class
Clipboard : EventTarget {\n    fun read(): Promise<DataTransfer>\n    fun readText(): Promise<String>\n    fun
write(data: DataTransfer): Promise<Unit>\n    fun writeText(data: String): Promise<Unit>\n}\n\n\npublic external
interface ClipboardPermissionDescriptor {\n    var allowWithoutGesture: Boolean? /* = false */\n        get() =
definedExternally\n        set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun
ClipboardPermissionDescriptor(allowWithoutGesture: Boolean? = false): ClipboardPermissionDescriptor {\n    val
o = js("{}")\n    o["allowWithoutGesture"] = allowWithoutGesture\n    return o\n}", "/*\n * Copyright 2010-
2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source
code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE:
THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage
org.w3c.dom.css\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\n\npublic external
abstract class MediaList : ItemArrayLike<String> {\n    open var mediaText: String\n    fun
appendMedium(medium: String)\n    fun deleteMedium(medium: String)\n    override fun item(index: Int):
String?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline operator fun MediaList.get(index: Int):
String? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[StyleSheet](https://developer.mozilla.org/en/docs/Web/API/StyleSheet) to Kotlin\n */\n\npublic external abstract
class StyleSheet {\n    open val type: String\n    open val href: String?\n    open val ownerNode:
UnionElementOrProcessingInstruction?\n    open val parentStyleSheet:
StyleSheet?\n    open val title: String?\n    open val media: MediaList\n    open var disabled: Boolean\n}\n\n\n/**\n *
Exposes the JavaScript [CSSStyleSheet](https://developer.mozilla.org/en/docs/Web/API/CSSStyleSheet) to Kotlin\n
*/\n\npublic external abstract class CSSStyleSheet : StyleSheet {\n    open val ownerRule: CSSRule?\n    open val
cssRules: CSSRuleList\n    fun insertRule(rule: String, index: Int): Int\n    fun deleteRule(index: Int)\n}\n\n\n/**\n *
Exposes the JavaScript [StyleSheetList](https://developer.mozilla.org/en/docs/Web/API/StyleSheetList) to Kotlin\n
*/\n\npublic external abstract class StyleSheetList : ItemArrayLike<StyleSheet> {\n    override fun item(index: Int):
StyleSheet?\n}\n\n@Suppress("INVISIBLE_REFERENCE",

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\@kotlin.internal.InlineOnly\npublic inline operator fun StyleSheetList.get(index: Int):
StyleSheet? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[LinkStyle](https://developer.mozilla.org/en/docs/Web/API/LinkStyle)
to Kotlin\n\npublic external interface LinkStyle {\n    val sheet: StyleSheet?\n    get() =
definedExternally\n}\n\n/**\n * Exposes the JavaScript
[CSSRuleList](https://developer.mozilla.org/en/docs/Web/API/CSSRuleList) to Kotlin\n\npublic external abstract
class CSSRuleList : ItemArrayLike<CSSRule> {\n    override fun item(index: Int):
CSSRule?\n}\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun CSSRuleList.get(index: Int):
CSSRule? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[CSSRule](https://developer.mozilla.org/en/docs/Web/API/CSSRule) to Kotlin\n\npublic external abstract class
CSSRule {\n    open val type: Short\n    open var cssText: String\n    open val parentRule: CSSRule?\n    open val
parentStyleSheet: CSSStyleSheet?\n\n    companion object {\n        val STYLE_RULE: Short\n        val
CHARSET_RULE: Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n        val
FONT_FACE_RULE:
Short\n        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val NAMESPACE_RULE: Short\n
}\n}\n\n/**\n * Exposes the JavaScript
[CSSStyleRule](https://developer.mozilla.org/en/docs/Web/API/CSSStyleRule) to Kotlin\n\npublic external
abstract class CSSStyleRule : CSSRule {\n    open var selectorText: String\n    open val style:
CSSStyleDeclaration\n\n    companion object {\n        val STYLE_RULE: Short\n        val CHARSET_RULE:
Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n        val FONT_FACE_RULE: Short\n
        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val NAMESPACE_RULE: Short\n
}\n}\n\npublic external abstract class CSSImportRule : CSSRule {\n    open val href: String\n    open val media:
MediaList\n    open val styleSheet: CSSStyleSheet\n\n    companion object {\n        val STYLE_RULE: Short\n
        val CHARSET_RULE: Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n        val
FONT_FACE_RULE: Short\n        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val
NAMESPACE_RULE: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[CSSGroupingRule](https://developer.mozilla.org/en/docs/Web/API/CSSGroupingRule) to Kotlin\n\npublic
external abstract class CSSGroupingRule : CSSRule {\n    open val cssRules: CSSRuleList\n    fun insertRule(rule:
String, index: Int): Int\n    fun deleteRule(index: Int)\n\n    companion object {\n        val STYLE_RULE: Short\n
        val CHARSET_RULE: Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n        val
FONT_FACE_RULE: Short\n        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val
NAMESPACE_RULE: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[CSSMediaRule](https://developer.mozilla.org/en/docs/Web/API/CSSMediaRule) to Kotlin\n\npublic external
abstract class CSSMediaRule : CSSGroupingRule {\n    open val media: MediaList\n\n    companion object {\n
        val STYLE_RULE:
Short\n        val CHARSET_RULE: Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n
        val FONT_FACE_RULE: Short\n        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val
NAMESPACE_RULE: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[CSSPageRule](https://developer.mozilla.org/en/docs/Web/API/CSSPageRule) to Kotlin\n\npublic external
abstract class CSSPageRule : CSSGroupingRule {\n    open var selectorText: String\n    open val style:
CSSStyleDeclaration\n\n    companion object {\n        val STYLE_RULE: Short\n        val CHARSET_RULE:
Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n        val FONT_FACE_RULE: Short\n
        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val NAMESPACE_RULE: Short\n
}\n}\n\npublic external abstract class CSSMarginRule : CSSRule {\n    open val name: String\n    open val style:
CSSStyleDeclaration\n\n    companion object {\n        val STYLE_RULE: Short\n
        val CHARSET_RULE: Short\n        val IMPORT_RULE: Short\n        val MEDIA_RULE: Short\n        val
FONT_FACE_RULE: Short\n        val PAGE_RULE: Short\n        val MARGIN_RULE: Short\n        val

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NAMESPACE\_RULE: Short\n } \n\n/\*\*\n \* Exposes the JavaScript  
 [CSSNamespaceRule](https://developer.mozilla.org/en/docs/Web/API/CSSNamespaceRule) to Kotlin\n \*\npublic  
 external abstract class CSSNamespaceRule : CSSRule {\n open val namespaceURI: String\n open val prefix:  
 String\n\n companion object {\n val STYLE\_RULE: Short\n val CHARSET\_RULE: Short\n val  
 IMPORT\_RULE: Short\n val MEDIA\_RULE: Short\n val FONT\_FACE\_RULE: Short\n val  
 PAGE\_RULE: Short\n val MARGIN\_RULE: Short\n val NAMESPACE\_RULE: Short\n } \n\n\n/\*\*\n \*  
 Exposes the JavaScript  
 [CSSStyleDeclaration](https://developer.mozilla.org/en/docs/Web/API/CSSStyleDeclaration) to Kotlin\n \*\npublic  
 external abstract class CSSStyleDeclaration : ItemArrayLike<String> {\n  
 open var cssText: String\n open val parentRule: CSSRule?\n open var cssFloat: String\n open var  
 alignContent: String\n open var alignItems: String\n open var alignSelf: String\n open var animation: String\n  
 open var animationDelay: String\n open var animationDirection: String\n open var animationDuration: String\n  
 open var animationFillMode: String\n open var animationIterationCount: String\n open var animationName:  
 String\n open var animationPlayState: String\n open var animationTimingFunction: String\n open var  
 backfaceVisibility: String\n open var background: String\n open var backgroundAttachment: String\n open var  
 backgroundClip: String\n open var backgroundColor: String\n open var backgroundImage: String\n open var  
 backgroundOrigin: String\n open var backgroundPosition: String\n open var backgroundRepeat: String\n open  
 var backgroundSize: String\n open var border: String\n open var borderBottom: String\n  
 open var borderBottomColor: String\n open var borderBottomLeftRadius: String\n open var  
 borderBottomRightRadius: String\n open var borderBottomStyle: String\n open var borderBottomWidth:  
 String\n open var borderCollapse: String\n open var borderColor: String\n open var borderImage: String\n  
 open var borderImageOutset: String\n open var borderImageRepeat: String\n open var borderImageSlice:  
 String\n open var borderImageSource: String\n open var borderImageWidth: String\n open var borderLeft:  
 String\n open var borderLeftColor: String\n open var borderLeftStyle: String\n open var borderLeftWidth:  
 String\n open var borderRadius: String\n open var borderRight: String\n open var borderRightColor: String\n  
 open var borderRightStyle: String\n open var borderRightWidth: String\n open var borderSpacing: String\n  
 open var borderStyle: String\n open var borderTop: String\n open var borderTopColor: String\n open var  
 borderTopLeftRadius: String\n open var borderTopRightRadius: String\n open var borderTopStyle: String\n  
 open var borderTopWidth: String\n open var borderWidth: String\n open var bottom: String\n open var  
 boxDecorationBreak: String\n open var boxShadow: String\n open var boxSizing: String\n open var  
 breakAfter: String\n open var breakBefore: String\n open var breakInside: String\n open var captionSide:  
 String\n open var clear: String\n open var clip: String\n open var color: String\n open var columnCount:  
 String\n open var columnFill: String\n open var columnGap: String\n open var columnRule: String\n open  
 var columnRuleColor: String\n open var columnRuleStyle: String\n open var columnRuleWidth: String\n open  
 var columnSpan: String\n open var columnWidth: String\n open var columns: String\n open var content:  
 String\n open var counterIncrement: String\n open var counterReset: String\n open var cursor:  
 String\n open var direction: String\n open var display: String\n open var emptyCells: String\n open var  
 filter: String\n open var flex: String\n open var flexBasis: String\n open var flexDirection: String\n open var  
 flexFlow: String\n open var flexGrow: String\n open var flexShrink: String\n open var flexWrap: String\n  
 open var font: String\n open var fontFamily: String\n open var fontFeatureSettings: String\n open var  
 fontKerning: String\n open var fontLanguageOverride: String\n open var fontSize: String\n open var  
 fontSizeAdjust: String\n open var fontStretch: String\n open var fontStyle: String\n open var fontSynthesis:  
 String\n open var fontVariant: String\n open var fontVariantAlternates: String\n open var fontVariantCaps:  
 String\n open var fontVariantEastAsian: String\n open var fontVariantLigatures: String\n open var  
 fontVariantNumeric: String\n open var fontVariantPosition: String\n open var  
 fontWeight: String\n open var hangingPunctuation: String\n open var height: String\n open var hyphens:  
 String\n open var imageOrientation: String\n open var imageRendering: String\n open var imageResolution:  
 String\n open var imeMode: String\n open var justifyContent: String\n open var left: String\n open var

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letterSpacing: String\n  open var lineBreak: String\n  open var lineHeight: String\n  open var listStyle: String\n
open var listStyleImage: String\n  open var listStylePosition: String\n  open var listStyleType: String\n  open var
margin: String\n  open var marginBottom: String\n  open var marginLeft: String\n  open var marginRight:
String\n  open var marginTop: String\n  open var mark: String\n  open var markAfter: String\n  open var
markBefore: String\n  open var marks: String\n  open var marqueeDirection: String\n  open var
marqueePlayCount: String\n  open var marqueeSpeed: String\n  open var marqueeStyle:
String\n  open var mask: String\n  open var maskType: String\n  open var maxHeight: String\n  open var
maxWidth: String\n  open var minHeight: String\n  open var minWidth: String\n  open var navDown: String\n
open var navIndex: String\n  open var navLeft: String\n  open var navRight: String\n  open var navUp: String\n
open var objectFit: String\n  open var objectPosition: String\n  open var opacity: String\n  open var order:
String\n  open var orphans: String\n  open var outline: String\n  open var outlineColor: String\n  open var
outlineOffset: String\n  open var outlineStyle: String\n  open var outlineWidth: String\n  open var
overflowWrap: String\n  open var overflowX: String\n  open var overflowY: String\n  open var padding:
String\n  open var paddingBottom: String\n  open var paddingLeft: String\n  open var paddingRight: String\n
open var paddingTop: String\n  open var pageBreakAfter: String\n  open var pageBreakBefore:
String\n  open var pageBreakInside: String\n  open var perspective: String\n  open var perspectiveOrigin:
String\n  open var phonemes: String\n  open var position: String\n  open var quotes: String\n  open var resize:
String\n  open var rest: String\n  open var restAfter: String\n  open var restBefore: String\n  open var right:
String\n  open var tabSize: String\n  open var tableLayout: String\n  open var textAlign: String\n  open var
textAlignLast: String\n  open var textCombineUpright: String\n  open var textDecoration: String\n  open var
textDecorationColor: String\n  open var textDecorationLine: String\n  open var textDecorationStyle: String\n
open var textIndent: String\n  open var textJustify: String\n  open var textOrientation: String\n  open var
textOverflow: String\n  open var textShadow: String\n  open var textTransform: String\n  open var
textUnderlinePosition: String\n  open var top: String\n  open var transform:
String\n  open var transformOrigin: String\n  open var transformStyle: String\n  open var transition: String\n
open var transitionDelay: String\n  open var transitionDuration: String\n  open var transitionProperty: String\n
open var transitionTimingFunction: String\n  open var unicodeBidi: String\n  open var verticalAlign: String\n
open var visibility: String\n  open var voiceBalance: String\n  open var voiceDuration: String\n  open var
voicePitch: String\n  open var voicePitchRange: String\n  open var voiceRate: String\n  open var voiceStress:
String\n  open var voiceVolume: String\n  open var whiteSpace: String\n  open var widows: String\n  open var
width: String\n  open var wordBreak: String\n  open var wordSpacing: String\n  open var wordWrap: String\n
open var writingMode: String\n  open var zIndex: String\n  open var _dashed_attribute: String\n  open var
_camel_cased_attribute: String\n  open var _webkit_cased_attribute:
String\n  fun getPropertyValue(property: String): String\n  fun getPropertyPriority(property: String): String\n
fun setProperty(property: String, value: String, priority: String = definedExternally)\n  fun
setProperty(property: String, value: String)\n  fun setPropertyPriority(property: String, priority: String)\n
fun removeProperty(property: String): String\n  override fun item(index: Int):
String\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n\n@kotlin.internal.InlineOnly\n\npublic inline operator fun
CSSStyleDeclaration.get(index: Int): String? = asDynamic()[index]\n\n\npublic external interface
ElementCSSInlineStyle {\n  val style: CSSStyleDeclaration\n}\n\n\n/**\n * Exposes the JavaScript
[CSS](https://developer.mozilla.org/en/docs/Web/API/CSS) to Kotlin\n *\n\npublic external abstract class CSS {\n
companion object {\n  fun escape(ident: String): String\n  }\n}\n\n\npublic external interface
UnionElementOrProcessingInstruction\", \"/*\n * Copyright
2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n\n\n// NOTE: THIS FILE IS
AUTO-GENERATED, DO NOT EDIT!\n\n// See github.com/kotlin/dukat for details\n\n\npackage
org.w3c.dom.encryptedmedia\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport

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org.w3c.dom.events.*\n/**\n * Exposes the JavaScript
[MediaKeySystemConfiguration](https://developer.mozilla.org/en/docs/Web/API/MediaKeySystemConfiguration)
to Kotlin\n *^npublic external interface MediaKeySystemConfiguration {\n  var label: String? /* = \"\" *\n  get() = definedExternally\n  set(value) = definedExternally\n  var initDataTypes: Array<String>? /* = arrayOf()\n  *\n  get() = definedExternally\n  set(value) = definedExternally\n  var audioCapabilities:
Array<MediaKeySystemMediaCapability>? /* = arrayOf() *\n  get() = definedExternally\n
  set(value) = definedExternally\n  var videoCapabilities: Array<MediaKeySystemMediaCapability>? /* =
arrayOf() *\n  get() = definedExternally\n  set(value) = definedExternally\n  var distinctiveIdentifier:
MediaKeysRequirement? /* = MediaKeysRequirement.OPTIONAL *\n  get() = definedExternally\n
  set(value) = definedExternally\n  var persistentState: MediaKeysRequirement? /* =
MediaKeysRequirement.OPTIONAL *\n  get() = definedExternally\n  set(value) = definedExternally\n
var sessionTypes: Array<String>?\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaKeySystemConfiguration(label:
String? = \"\", initDataTypes: Array<String>? = arrayOf(), audioCapabilities:
Array<MediaKeySystemMediaCapability>? = arrayOf(), videoCapabilities:
Array<MediaKeySystemMediaCapability>? = arrayOf(),
distinctiveIdentifier: MediaKeysRequirement? = MediaKeysRequirement.OPTIONAL, persistentState:
MediaKeysRequirement? = MediaKeysRequirement.OPTIONAL, sessionTypes: Array<String>? = undefined):
MediaKeySystemConfiguration {\n  val o = js(\"({})\")\n  o[\"label\"] = label\n  o[\"initDataTypes\"] =
initDataTypes\n  o[\"audioCapabilities\"] = audioCapabilities\n  o[\"videoCapabilities\"] = videoCapabilities\n
o[\"distinctiveIdentifier\"] = distinctiveIdentifier\n  o[\"persistentState\"] = persistentState\n  o[\"sessionTypes\"]
= sessionTypes\n  return o\n}\n\npublic external interface MediaKeySystemMediaCapability {\n  var
contentType: String? /* = \"\" *\n  get() = definedExternally\n  set(value) = definedExternally\n  var
robustness: String? /* = \"\" *\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun
MediaKeySystemMediaCapability(contentType:
String? = \"\", robustness: String? = \"\"): MediaKeySystemMediaCapability {\n  val o = js(\"({})\")\n
o[\"contentType\"] = contentType\n  o[\"robustness\"] = robustness\n  return o\n}\n\n/**\n * Exposes the
JavaScript [MediaKeySystemAccess](https://developer.mozilla.org/en/docs/Web/API/MediaKeySystemAccess) to
Kotlin\n *^npublic external abstract class MediaKeySystemAccess {\n  open val keySystem: String\n  fun
getConfiguration(): MediaKeySystemConfiguration\n  fun createMediaKeys(): Promise<MediaKeys>\n}\n\n/**\n * Exposes the JavaScript [MediaKeys](https://developer.mozilla.org/en/docs/Web/API/MediaKeys) to Kotlin\n
*\npublic external abstract class MediaKeys {\n  fun createSession(sessionType: MediaKeySessionType =
definedExternally): MediaKeySession\n  fun setServerCertificate(serverCertificate: dynamic):
Promise<Boolean>\n}\n\n/**\n * Exposes the JavaScript
[MediaKeySession](https://developer.mozilla.org/en/docs/Web/API/MediaKeySession)
to Kotlin\n *^npublic external abstract class MediaKeySession : EventTarget {\n  open val sessionId: String\n
open val expiration: Double\n  open val closed: Promise<Unit>\n  open val keyStatuses: MediaKeyStatusMap\n
open var onkeystatuseschange: ((Event) -> dynamic)?\n  open var onmessage: ((MessageEvent) -> dynamic)?\n
fun generateRequest(initDataType: String, initData: dynamic): Promise<Unit>\n  fun load(sessionId: String):
Promise<Boolean>\n  fun update(response: dynamic): Promise<Unit>\n  fun close(): Promise<Unit>\n  fun
remove(): Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript
[MediaKeyStatusMap](https://developer.mozilla.org/en/docs/Web/API/MediaKeyStatusMap) to Kotlin\n *^npublic
external abstract class MediaKeyStatusMap {\n  open val size: Int\n  fun has(keyId: dynamic): Boolean\n  fun
get(keyId: dynamic): Any?\n}\n\n/**\n * Exposes the JavaScript
[MediaKeyMessageEvent](https://developer.mozilla.org/en/docs/Web/API/MediaKeyMessageEvent)

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to Kotlin\n *\npublic external open class MediaKeyMessageEvent(type: String, eventInitDict:
MediaKeyMessageEventInit) : Event {\n  open val messageType: MediaKeyMessageType\n  open val message:
ArrayBuffer\n\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n    val
AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\n}\n\npublic external interface
MediaKeyMessageEventInit : EventInit {\n  var messageType: MediaKeyMessageType?\n  var message:
ArrayBuffer?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun
MediaKeyMessageEventInit(messageType: MediaKeyMessageType?, message: ArrayBuffer?, bubbles: Boolean? =
false, cancelable: Boolean? = false, composed: Boolean? = false): MediaKeyMessageEventInit {\n  val o =
js("{}")\n  o["messageType"] = messageType\n  o["message"] = message\n  o["bubbles"] = bubbles\n
o["cancelable"] = cancelable\n  o["composed"]
= composed\n  return o\n}\n\npublic external open class MediaEncryptedEvent(type: String, eventInitDict:
MediaEncryptedEventInit = definedExternally) : Event {\n  open val initDataType: String\n  open val initData:
ArrayBuffer?\n\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n    val
AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\n}\n\npublic external interface
MediaEncryptedEventInit : EventInit {\n  var initDataType: String? /* = "" */\n  get() = definedExternally\n
set(value) = definedExternally\n  var initData: ArrayBuffer? /* = null */\n  get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun
MediaEncryptedEventInit(initDataType: String? = "", initData: ArrayBuffer? = null, bubbles: Boolean? = false,
cancelable: Boolean? = false, composed: Boolean? = false): MediaEncryptedEventInit
{\n  val o = js("{}")\n  o["initDataType"] = initData\n  o["initData"] = initData\n  o["bubbles"] =
bubbles\n  o["cancelable"] = cancelable\n  o["composed"] = composed\n  return o\n}\n\n/* please, don't
implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\npublic external
interface MediaKeysRequirement {\n  companion object\n}\n\npublic inline val
MediaKeysRequirement.Companion.REQUIRED: MediaKeysRequirement get() =
"required".asDynamic().unsafeCast<MediaKeysRequirement>()\n\npublic inline val
MediaKeysRequirement.Companion.OPTIONAL: MediaKeysRequirement get() =
"optional".asDynamic().unsafeCast<MediaKeysRequirement>()\n\npublic inline val
MediaKeysRequirement.Companion.NOT_ALLOWED: MediaKeysRequirement get() = "not-
allowed".asDynamic().unsafeCast<MediaKeysRequirement>()\n\n/* please, don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\npublic
external interface MediaKeySessionType {\n  companion object\n}\n\npublic inline val
MediaKeySessionType.Companion.TEMPORARY: MediaKeySessionType get() =
"temporary".asDynamic().unsafeCast<MediaKeySessionType>()\n\npublic inline val
MediaKeySessionType.Companion.PERSISTENT_LICENSE: MediaKeySessionType get() = "persistent-
license".asDynamic().unsafeCast<MediaKeySessionType>()\n\n/* please, don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\npublic external
interface MediaKeyStatus {\n  companion object\n}\n\npublic inline val MediaKeyStatus.Companion.USABLE:
MediaKeyStatus get() = "usable".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val
MediaKeyStatus.Companion.EXPIRED: MediaKeyStatus get() =
"expired".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val
MediaKeyStatus.Companion.RELEASED: MediaKeyStatus get() =
"released".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val
MediaKeyStatus.Companion.OUTPUT_RESTRICTED:
MediaKeyStatus get() = "output-restricted".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val
MediaKeyStatus.Companion.OUTPUT_DOWNSCALED: MediaKeyStatus get() = "output-

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downscaled\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val
MediaKeyStatus.Companion.STATUS_PENDING: MediaKeyStatus get() = \"status-
pending\".asDynamic().unsafeCast<MediaKeyStatus>()\n\npublic inline val
MediaKeyStatus.Companion.INTERNAL_ERROR: MediaKeyStatus get() = \"internal-
error\".asDynamic().unsafeCast<MediaKeyStatus>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface MediaKeyMessageType {\n    companion object\n}\n\npublic inline val
MediaKeyMessageType.Companion.LICENSE_REQUEST: MediaKeyMessageType get() = \"license-
request\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\npublic inline val
MediaKeyMessageType.Companion.LICENSE_RENEWAL: MediaKeyMessageType
get() = \"license-renewal\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\npublic inline val
MediaKeyMessageType.Companion.LICENSE_RELEASE: MediaKeyMessageType get() = \"license-
release\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\npublic inline val
MediaKeyMessageType.Companion.INDIVIDUALIZATION_REQUEST: MediaKeyMessageType get() =
\"individualization-request\".asDynamic().unsafeCast<MediaKeyMessageType>()\n\n/*\n * Copyright 2010-2021
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n\n// NOTE: THIS FILE IS AUTO-
GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage
org.w3c.dom.events\n\nimport kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\n\n/**\n * Exposes
the JavaScript [UIEvent](https://developer.mozilla.org/en/docs/Web/API/UIEvent) to Kotlin\n *\n\npublic external
open class UIEvent(type: String,
    eventInitDict: UIEventInit = definedExternally) : Event {\n    open val view: Window?\n    open val detail: Int\n\n    companion object {\n        val NONE: Short\n        val CAPTURING_PHASE: Short\n        val AT_TARGET:
Short\n        val BUBBLING_PHASE: Short\n    }\n\n\npublic external interface UIEventInit : EventInit {\n    var
view: Window? /* = null */\n        get() = definedExternally\n        set(value) = definedExternally\n    var detail: Int?
/* = 0 */\n        get() = definedExternally\n        set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\n\npublic inline fun UIEventInit(view: Window? = null,
detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): UIEventInit
{\n    val o = js(\"{\}\")\n    o[\"view\"] = view\n    o[\"detail\"] = detail\n    o[\"bubbles\"] = bubbles\n
o[\"cancelable\"] = cancelable\n    o[\"composed\"] = composed\n    return
o\n}\n\n\n/**\n * Exposes the JavaScript [FocusEvent](https://developer.mozilla.org/en/docs/Web/API/FocusEvent)
to Kotlin\n *\n\npublic external open class FocusEvent(type: String, eventInitDict: FocusEventInit =
definedExternally) : UIEvent {\n    open val relatedTarget: EventTarget?\n\n    companion object {\n        val
NONE: Short\n        val CAPTURING_PHASE: Short\n        val AT_TARGET: Short\n        val
BUBBLING_PHASE: Short\n    }\n\n\npublic external interface FocusEventInit : UIEventInit {\n    var
relatedTarget: EventTarget? /* = null */\n        get() = definedExternally\n        set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\n\npublic inline fun FocusEventInit(relatedTarget:
EventTarget? = null, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? =
false, composed: Boolean? = false): FocusEventInit {\n    val o = js(\"{\}\")\n    o[\"relatedTarget\"] =
relatedTarget\n
o[\"view\"] = view\n    o[\"detail\"] = detail\n    o[\"bubbles\"] = bubbles\n    o[\"cancelable\"] = cancelable\n
o[\"composed\"] = composed\n    return o\n}\n\n\n/**\n * Exposes the JavaScript
[MouseEvent](https://developer.mozilla.org/en/docs/Web/API/MouseEvent) to Kotlin\n *\n\npublic external open
class MouseEvent(type: String, eventInitDict: MouseEventInit = definedExternally) : UIEvent,
UnionElementOrMouseEvent {\n    open val screenX: Int\n    open val screenY: Int\n    open val clientX: Int\n
open val clientY: Int\n    open val ctrlKey: Boolean\n    open val shiftKey: Boolean\n    open val altKey: Boolean\n

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open val metaKey: Boolean\n open val button: Short\n open val buttons: Short\n open val relatedTarget:
EventTarget?\n open val region: String?\n open val pageX: Double\n open val pageY: Double\n open val x:
Double\n open val y: Double\n open val offsetX: Double\n open val offsetY: Double\n fun
getModifierState(keyArg: String):
Boolean\n\n companion object {\n val NONE: Short\n val CAPTURING_PHASE: Short\n val
AT_TARGET: Short\n val BUBBLING_PHASE: Short\n }\n\n\npublic external interface MouseEventInit :
EventModifierInit {\n var screenX: Int? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n var screenY: Int? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n var clientX: Int? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n var clientY: Int? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n var button: Short? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n var buttons: Short? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n var relatedTarget: EventTarget? /* = null */\n get() = definedExternally\n set(value)
= definedExternally\n
var region: String? /* = null */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun MouseEventInit(screenX: Int? = 0,
screenY: Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget:
EventTarget? = null, region: String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean?
= false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false,
modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false,
modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false,
modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0,
bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean?
= false): MouseEventInit {\n val o = js(\"({})\")\n o[\"screenX\"] = screenX\n o[\"screenY\"] = screenY\n
o[\"clientX\"] = clientX\n o[\"clientY\"] = clientY\n o[\"button\"] = button\n o[\"buttons\"] = buttons\n
o[\"relatedTarget\"] = relatedTarget\n o[\"region\"] = region\n o[\"ctrlKey\"] = ctrlKey\n o[\"shiftKey\"] =
shiftKey\n o[\"altKey\"] = altKey\n o[\"metaKey\"] = metaKey\n o[\"modifierAltGraph\"] =
modifierAltGraph\n o[\"modifierCapsLock\"] = modifierCapsLock\n o[\"modifierFn\"] = modifierFn\n
o[\"modifierFnLock\"] = modifierFnLock\n o[\"modifierHyper\"] = modifierHyper\n o[\"modifierNumLock\"] =
modifierNumLock\n o[\"modifierScrollLock\"] = modifierScrollLock\n o[\"modifierSuper\"] = modifierSuper\n
o[\"modifierSymbol\"] = modifierSymbol\n o[\"modifierSymbolLock\"] = modifierSymbolLock\n o[\"view\"] =
view\n o[\"detail\"] = detail\n o[\"bubbles\"] = bubbles\n o[\"cancelable\"] = cancelable\n
o[\"composed\"] = composed\n return o}\n\n\npublic external interface EventModifierInit : UIEventInit {\n var
ctrlKey: Boolean? /* = false */\n get() = definedExternally\n set(value) = definedExternally\n var
shiftKey: Boolean? /* = false */\n get() = definedExternally\n set(value) = definedExternally\n var
altKey: Boolean? /* = false */\n get() = definedExternally\n set(value) = definedExternally\n var
metaKey: Boolean? /* = false */\n get() = definedExternally\n set(value) = definedExternally\n var
modifierAltGraph: Boolean? /* = false */\n get() = definedExternally\n set(value) = definedExternally\n
var modifierCapsLock: Boolean? /* = false */\n get() = definedExternally\n set(value) =
definedExternally\n var modifierFn: Boolean? /* = false */\n get() = definedExternally\n set(value) =
definedExternally\n var modifierFnLock: Boolean? /* = false */\n get()
= definedExternally\n set(value) = definedExternally\n var modifierHyper: Boolean? /* = false */\n get()
= definedExternally\n set(value) = definedExternally\n var modifierNumLock: Boolean? /* = false */\n
get() = definedExternally\n set(value) = definedExternally\n var modifierScrollLock: Boolean? /* = false */\n
get() = definedExternally\n set(value) = definedExternally\n var modifierSuper: Boolean? /* = false */\n
get() = definedExternally\n set(value) = definedExternally\n var modifierSymbol: Boolean? /* = false */\n
get() = definedExternally\n set(value) = definedExternally\n var modifierSymbolLock: Boolean? /* = false

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*\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun EventModifierInit(ctrlKey: Boolean? =
false, shiftKey: Boolean? = false, altKey:
Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? =
false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false,
modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false,
modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0,
bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): EventModifierInit {\n    val o
= js(\\"({})\")\n    o[\"ctrlKey\"] = ctrlKey\n    o[\"shiftKey\"] = shiftKey\n    o[\"altKey\"] = altKey\n
o[\"metaKey\"] = metaKey\n    o[\"modifierAltGraph\"] = modifierAltGraph\n    o[\"modifierCapsLock\"] =
modifierCapsLock\n    o[\"modifierFn\"] = modifierFn\n    o[\"modifierFnLock\"] = modifierFnLock\n
o[\"modifierHyper\"] = modifierHyper\n    o[\"modifierNumLock\"] = modifierNumLock\n
o[\"modifierScrollLock\"] = modifierScrollLock\n
o[\"modifierSuper\"] = modifierSuper\n    o[\"modifierSymbol\"] = modifierSymbol\n
o[\"modifierSymbolLock\"] = modifierSymbolLock\n    o[\"view\"] = view\n    o[\"detail\"] = detail\n
o[\"bubbles\"] = bubbles\n    o[\"cancelable\"] = cancelable\n    o[\"composed\"] = composed\n    return
o\n}\n\n/**\n * Exposes the JavaScript [WheelEvent](https://developer.mozilla.org/en/docs/Web/API/WheelEvent)
to Kotlin\n *\npublic external open class WheelEvent(type: String, eventInitDict: WheelEventInit =
definedExternally) : MouseEvent {\n    open val deltaX: Double\n    open val deltaY: Double\n    open val deltaZ:
Double\n    open val deltaMode: Int\n\n    companion object {\n        val DOM_DELTA_PIXEL: Int\n        val
DOM_DELTA_LINE: Int\n        val DOM_DELTA_PAGE: Int\n        val NONE: Short\n        val
CAPTURING_PHASE: Short\n        val AT_TARGET: Short\n        val BUBBLING_PHASE: Short\n
    }\n\n    public external interface WheelEventInit : MouseEventInit {\n        var deltaX:
Double? /* = 0.0 *\n        get() = definedExternally\n        set(value) = definedExternally\n        var deltaY: Double? /*
= 0.0 *\n        get() = definedExternally\n        set(value) = definedExternally\n        var deltaZ: Double? /* = 0.0 *\n
        get() = definedExternally\n        set(value) = definedExternally\n        var deltaMode: Int? /* = 0 *\n        get() =
definedExternally\n        set(value) = definedExternally\n    }\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun WheelEventInit(deltaX: Double? = 0.0,
deltaY: Double? = 0.0, deltaZ: Double? = 0.0, deltaMode: Int? = 0, screenX: Int? = 0, screenY: Int? = 0, clientX:
Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget: EventTarget? = null, region:
String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean?
= false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false,
modifierFn: Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false,
modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper: Boolean? = false,
modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? = null, detail: Int? = 0,
bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): WheelEventInit {\n    val o =
js(\\"({})\")\n    o[\"deltaX\"] = deltaX\n    o[\"deltaY\"] = deltaY\n    o[\"deltaZ\"] = deltaZ\n    o[\"deltaMode\"] =
deltaMode\n    o[\"screenX\"] = screenX\n    o[\"screenY\"] = screenY\n    o[\"clientX\"] = clientX\n    o[\"clientY\"]
= clientY\n    o[\"button\"] = button\n    o[\"buttons\"] = buttons\n    o[\"relatedTarget\"] = relatedTarget\n
o[\"region\"] = region\n    o[\"ctrlKey\"] = ctrlKey\n    o[\"shiftKey\"] = shiftKey\n    o[\"altKey\"] = altKey\n
o[\"metaKey\"] = metaKey\n    o[\"modifierAltGraph\"] = modifierAltGraph\n    o[\"modifierCapsLock\"]
= modifierCapsLock\n    o[\"modifierFn\"] = modifierFn\n    o[\"modifierFnLock\"] = modifierFnLock\n
o[\"modifierHyper\"] = modifierHyper\n    o[\"modifierNumLock\"] = modifierNumLock\n
o[\"modifierScrollLock\"] = modifierScrollLock\n    o[\"modifierSuper\"] = modifierSuper\n
o[\"modifierSymbol\"] = modifierSymbol\n    o[\"modifierSymbolLock\"] = modifierSymbolLock\n    o[\"view\"] =
view\n    o[\"detail\"] = detail\n    o[\"bubbles\"] = bubbles\n    o[\"cancelable\"] = cancelable\n    o[\"composed\"] =
composed\n    return o\n}\n\n/**\n * Exposes the JavaScript

```



```

[InputEvent](https://developer.mozilla.org/en/docs/Web/API/InputEvent) to Kotlin\n *^\\npublic external open class
InputEvent(type: String, eventInitDict: InputEventInit = definedExternally) : UIEvent {\n  open val data: String\n
open val isComposing: Boolean\n\n  companion object {\n    val NONE: Short\n    val
CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n
  }\n}\n\npublic external interface InputEventInit : UIEventInit {\n  var data: String? /* = \\\" */\n  get() =
definedExternally\n  set(value) = definedExternally\n  var isComposing: Boolean? /* = false */\n  get() =
definedExternally\n  set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun InputEventInit(data: String? = \\\"\",
isComposing: Boolean? = false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable:
Boolean? = false, composed: Boolean? = false): InputEventInit {\n  val o = js(\"({})\")\n  o[\"data\"] = data\n
o[\"isComposing\"] = isComposing\n  o[\"view\"] = view\n  o[\"detail\"] = detail\n  o[\"bubbles\"] = bubbles\n
o[\"cancelable\"] = cancelable\n  o[\"composed\"] = composed\n  return o\n}\n\n/**\n * Exposes the JavaScript
[KeyboardEvent](https://developer.mozilla.org/en/docs/Web/API/KeyboardEvent) to Kotlin\n
*^\\npublic external open class KeyboardEvent(type: String, eventInitDict: KeyboardEventInit = definedExternally) :
UIEvent {\n  open val key: String\n  open val code: String\n  open val location: Int\n  open val ctrlKey:
Boolean\n  open val shiftKey: Boolean\n  open val altKey: Boolean\n  open val metaKey: Boolean\n  open val
repeat: Boolean\n  open val isComposing: Boolean\n  open val charCode: Int\n  open val keyCode: Int\n  open
val which: Int\n  fun getModifierState(keyArg: String): Boolean\n\n  companion object {\n    val
DOM_KEY_LOCATION_STANDARD: Int\n    val DOM_KEY_LOCATION_LEFT: Int\n    val
DOM_KEY_LOCATION_RIGHT: Int\n    val DOM_KEY_LOCATION_NUMPAD: Int\n    val NONE:
Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE:
Short\n  }\n}\n\npublic external interface KeyboardEventInit : EventModifierInit {\n  var key: String? /* = \\\" */
*^\\n  get() = definedExternally\n
set(value) = definedExternally\n  var code: String? /* = \\\" */\n  get() = definedExternally\n
set(value) = definedExternally\n  var location: Int? /* = 0 */\n  get() = definedExternally\n  set(value) =
definedExternally\n  var repeat: Boolean? /* = false */\n  get() = definedExternally\n  set(value) =
definedExternally\n  var isComposing: Boolean? /* = false */\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun KeyboardEventInit(key: String? = \\\"\",
code: String? = \\\"\", location: Int? = 0, repeat: Boolean? = false, isComposing: Boolean? = false, ctrlKey: Boolean?
= false, shiftKey: Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph:
Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? =
false, modifierHyper:
Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false, modifierSuper:
Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view: Window? =
null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
KeyboardEventInit {\n  val o = js(\"({})\")\n  o[\"key\"] = key\n  o[\"code\"] = code\n  o[\"location\"] =
location\n  o[\"repeat\"] = repeat\n  o[\"isComposing\"] = isComposing\n  o[\"ctrlKey\"] = ctrlKey\n
o[\"shiftKey\"] = shiftKey\n  o[\"altKey\"] = altKey\n  o[\"metaKey\"] = metaKey\n  o[\"modifierAltGraph\"] =
modifierAltGraph\n  o[\"modifierCapsLock\"] = modifierCapsLock\n  o[\"modifierFn\"] = modifierFn\n
o[\"modifierFnLock\"] = modifierFnLock\n  o[\"modifierHyper\"] = modifierHyper\n  o[\"modifierNumLock\"] =
modifierNumLock\n  o[\"modifierScrollLock\"] = modifierScrollLock\n  o[\"modifierSuper\"] = modifierSuper\n
o[\"modifierSymbol\"]
= modifierSymbol\n  o[\"modifierSymbolLock\"] = modifierSymbolLock\n  o[\"view\"] = view\n  o[\"detail\"]
= detail\n  o[\"bubbles\"] = bubbles\n  o[\"cancelable\"] = cancelable\n  o[\"composed\"] = composed\n  return
o\n}\n\n/**\n * Exposes the JavaScript
[CompositionEvent](https://developer.mozilla.org/en/docs/Web/API/CompositionEvent) to Kotlin\n *^\\npublic
external open class CompositionEvent(type: String, eventInitDict: CompositionEventInit = definedExternally) :

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UIEvent {\n  open val data: String\n\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\n\n\npublic external interface CompositionEventInit : UIEventInit {\n  var data: String? /* = "" */\n  get() = definedExternally\n  set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun CompositionEventInit(data: String? = "", view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): CompositionEventInit {\n  val o = js("{}")\n  o["data"] = data\n  o["view"] = view\n  o["detail"] = detail\n  o["bubbles"] = bubbles\n  o["cancelable"] = cancelable\n  o["composed"] = composed\n  return o\n}\n\n/**\n * Exposes the JavaScript [Event](https://developer.mozilla.org/en/docs/Web/API/Event) to Kotlin\n */\n\npublic external open class Event(type: String, eventInitDict: EventInit = definedExternally) {\n  open val type: String\n  open val target: EventTarget?\n  open val currentTarget: EventTarget?\n  open val eventPhase: Short\n  open val bubbles: Boolean\n  open val cancelable: Boolean\n  open val defaultPrevented: Boolean\n  open val composed: Boolean\n  open val isTrusted: Boolean\n  open val timeStamp: Number\n  fun composedPath(): Array<EventTarget>\n  fun stopPropagation()\n  fun stopImmediatePropagation()\n  fun preventDefault()\n  fun initEvent(type: String, bubbles: Boolean, cancelable: Boolean)\n\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\n}\n\n/**\n * Exposes the JavaScript [EventTarget](https://developer.mozilla.org/en/docs/Web/API/EventTarget) to Kotlin\n */\n\npublic external abstract class EventTarget {\n  fun addEventListener(type: String, callback: EventListener?, options: dynamic = definedExternally)\n  fun addEventListener(type: String, callback: ((Event) -> Unit)?, options: dynamic = definedExternally)\n  fun removeEventListener(type: String, callback: EventListener?, options: dynamic = definedExternally)\n  fun removeEventListener(type: String, callback: ((Event) -> Unit)?, options: dynamic = definedExternally)\n  fun dispatchEvent(event: Event): Boolean\n}\n\n/**\n * Exposes the JavaScript [EventListener](https://developer.mozilla.org/en/docs/Web/API/EventListener) to Kotlin\n */\n\npublic external interface EventListener {\n  fun handleEvent(event: Event)\n}\n\n/* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom\n\nimport kotlin.js\nimport org.khronos.webgl\nimport org.w3c.dom.clipboard\nimport org.w3c.dom.css\nimport org.w3c.dom.encryptedmedia\nimport org.w3c.dom.events\nimport org.w3c.dom.mediacapture\nimport org.w3c.dom.mediasource\nimport org.w3c.dom.pointerevents\nimport org.w3c.dom.svg\nimport org.w3c.fetch\nimport org.w3c.files\nimport org.w3c.performance\nimport org.w3c.workers\nimport org.w3c.xhr\n\npublic external abstract class HTMLAllCollection {\n  open val length: Int\n  fun item(nameOrIndex: String = definedExternally): UnionElementOrHTMLCollection?\n  fun namedItem(name: String): UnionElementOrHTMLCollection?\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLAllCollection.get(index: Int): Element? = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLAllCollection.get(name: String): UnionElementOrHTMLCollection? = asDynamic()[name]\n\n/**\n * Exposes the JavaScript [HTMLFormControlsCollection](https://developer.mozilla.org/en/docs/Web/API/HTMLFormControlsCollection) to Kotlin\n */\n\npublic external abstract class HTMLFormControlsCollection : HTMLCollection\n\n/**\n * Exposes the JavaScript [RadioNodeList](https://developer.mozilla.org/en/docs/Web/API/RadioNodeList) to Kotlin\n */\n\npublic external abstract class RadioNodeList : NodeList, UnionElementOrRadioNodeList {\n  open var value: String\n}\n\n/**\n * Exposes the JavaScript [HTMLOptionsCollection](https://developer.mozilla.org/en/docs/Web/API/HTMLOptionsCollection) to Kotlin\n */

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*\npublic external abstract class HTMLOptionsCollection : HTMLCollection {\n  override var length: Int\n  open var selectedIndex: Int\n  fun add(element: UnionHTMLOptGroupElementOrHTMLOptionElement, before: dynamic = definedExternally)\n  fun remove(index: Int)\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLOptionsCollection.set(index: Int, option: HTMLOptionElement?) { asDynamic()[index] = option }\n\n/**\n * Exposes the JavaScript [HTMLElement](https://developer.mozilla.org/en/docs/Web/API/HTMLElement) to Kotlin\n */\npublic external abstract class HTMLElement : Element, GlobalEventHandlers, DocumentAndElementEventHandlers, ElementContentEditable, ElementCSSInlineStyle {\n  open var title: String\n  open var lang: String\n  open var translate: Boolean\n  open var dir: String\n  open val dataset: DOMStringMap\n  open var hidden: Boolean\n  open var tabIndex: Int\n  open var accessKey: String\n  open val accessKeyLabel: String\n  open var draggable: Boolean\n  open val dropzone: DOMTokenList\n  open var contextMenu: HTMLMenuElement?\n  open var spellcheck: Boolean\n  open var innerText: String\n  open val offsetParent: Element?\n  open val offsetTop: Int\n  open val offsetLeft: Int\n  open val offsetWidth: Int\n  open val offsetHeight: Int\n  fun click()\n  fun focus()\n  fun blur()\n  fun forceSpellCheck()\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\n/**\n * Exposes the JavaScript [HTMLUnknownElement](https://developer.mozilla.org/en/docs/Web/API/HTMLUnknownElement) to Kotlin\n */\npublic external abstract class HTMLUnknownElement : HTMLElement {\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\n/**\n * Exposes the JavaScript [DOMStringMap](https://developer.mozilla.org/en/docs/Web/API/DOMStringMap) to Kotlin\n */\npublic external abstract class DOMStringMap\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMStringMap.get(name: String): String? = asDynamic()[name]\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMStringMap.set(name: String, value: String) { asDynamic()[name] = value }\n\n/**\n * Exposes the JavaScript [HTMLHtmlElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHtmlElement) to Kotlin\n */\npublic external abstract class HTMLHtmlElement : HTMLElement {\n  open var version: String\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n  }\n}

```

DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val

DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }n}n/n/\*\*\n \* Exposes the JavaScript [HTMLHeadElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHeadElement) to Kotlin\n \*/\npublic external abstract class HTMLHeadElement : HTMLElement {\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val

DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val

DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }n}n/n/\*\*\n \* Exposes the JavaScript [HTMLTitleElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTitleElement) to Kotlin\n \*/\npublic external abstract class HTMLTitleElement : HTMLElement {\n open var text: String\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val

DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val

DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }n}n/n/\*\*\n \* Exposes the JavaScript [HTMLBaseElement](https://developer.mozilla.org/en/docs/Web/API/HTMLBaseElement) to Kotlin\n \*/\npublic external abstract class HTMLBaseElement : HTMLElement {\n open var href: String\n open var target: String\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val

DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val

DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }n}n/n/\*\*\n \* Exposes the JavaScript [HTMLLinkElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLinkElement) to Kotlin\n \*/\npublic external abstract class HTMLLinkElement : HTMLElement, LinkStyle {\n open var href: String\n open var crossOrigin: String?\n open var rel: String\n open var `as`: RequestDestination\n open val relList: DOMTokenList\n open var media: String\n open var nonce: String\n open var hreflang: String\n open var type: String\n open val sizes: DOMTokenList\n open var referrerPolicy: String\n open var charset: String\n open var rev: String\n open var target: String\n open var scope: String\n open var workerType: WorkerType\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val



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ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLParagraphElement](https://developer.mozilla.org/en/docs/Web/API/HTMLParagraphElement) to Kotlin \n
* \n public external abstract class HTMLParagraphElement
: HTMLElement { \n    open var align: String \n \n    companion object { \n    val ELEMENT_NODE: Short\n
val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n
val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLHRElement](https://developer.mozilla.org/en/docs/Web/API/HTMLHRElement) to Kotlin \n * \n public
external abstract class HTMLHRElement
: HTMLElement { \n    open var align: String \n    open var color: String \n    open var noShade: Boolean \n    open var
size: String \n    open var width: String \n \n    companion object { \n    val ELEMENT_NODE: Short\n
val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n
val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLPreElement](https://developer.mozilla.org/en/docs/Web/API/HTMLPreElement)
to Kotlin \n * \n public external abstract class HTMLPreElement : HTMLElement { \n    open var width: Int \n \n
companion object { \n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n
val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:
Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n
val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLQuoteElement](https://developer.mozilla.org/en/docs/Web/API/HTMLQuoteElement)
to Kotlin \n * \n public external abstract class HTMLQuoteElement : HTMLElement { \n    open var cite: String \n \n
companion object { \n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n
val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:

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Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLLOListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLOListElement)
to Kotlin\n */\n\npublic external abstract class HTMLLOListElement : HTMLElement {\n    open var reversed:
Boolean\n    open var start: Int\n    open var type: String\n    open var compact: Boolean\n\n    companion object {\n
    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLLListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLListElement) to Kotlin\n */\n\npublic
external abstract class HTMLLListElement : HTMLElement {\n    open var compact: Boolean\n    open var type:
String\n\n    companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n
    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:
Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY:
Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [HTMLLIElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLIElement) to Kotlin\n
*/\n\npublic external abstract class HTMLLIElement : HTMLElement {\n    open var value: Int\n    open var type:
String\n\n    companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n
    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:
Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLDLListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDLListElement) to Kotlin\n */\n\npublic
external abstract class HTMLDLListElement : HTMLElement {\n    open var compact: Boolean\n\n    companion
object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE:
Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val
ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val

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DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS:
Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLDivElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDivElement) to Kotlin \n * \n public
external abstract class HTMLDivElement : HTMLElement { \n    open var align: String \n \n    companion object { \n
    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS:
Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLAnchorElement](https://developer.mozilla.org/en/docs/Web/API/HTMLAnchorElement) to Kotlin \n
* \n public external abstract class HTMLAnchorElement : HTMLElement, HTMLHyperlinkElementUtils { \n    open
var target: String \n    open var download: String \n    open var ping: String \n    open var rel: String \n    open val
relList: DOMTokenList \n    open var hreflang: String \n    open var type: String \n    open var text: String \n    open
var referrerPolicy: String \n    open var coords: String \n    open var charset: String \n    open var name: String \n
    open var rev: String \n    open var shape: String \n \n    companion object { \n    val ELEMENT_NODE: Short\n
    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n
    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLDataElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDataElement) to Kotlin \n * \n public
external abstract class HTMLDataElement : HTMLElement { \n    open var value: String \n \n    companion object { \n
    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n
    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLTimeElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTimeElement) to Kotlin \n * \n public
external abstract class HTMLTimeElement : HTMLElement { \n    open var dateTime: String \n \n    companion
object { \n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE:
Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n
    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val

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DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val

DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n } \n} \n \n /\*\* \n \* Exposes the JavaScript [HTMLSpanElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSpanElement) to Kotlin\n \* \n public external abstract class HTMLSpanElement : HTMLInputElement {\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n } \n} \n \n /\*\* \n \* Exposes the JavaScript [HTMLBRElement](https://developer.mozilla.org/en/docs/Web/API/HTMLBRElement) to Kotlin\n \* \n public external abstract class HTMLBRElement : HTMLInputElement {\n open var clear: String\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n } \n} \n \n /\*\* \n \* Exposes the JavaScript [HTMLHyperlinkElementUtils](https://developer.mozilla.org/en/docs/Web/API/HTMLHyperlinkElementUtils) to Kotlin\n \* \n public external interface HTMLHyperlinkElementUtils {\n var href: String\n val origin: String\n var protocol: String\n var username: String\n var password: String\n var host: String\n var hostname: String\n var port: String\n var pathname: String\n var search: String\n var hash: String\n } \n \n /\*\* \n \* Exposes the JavaScript [HTMLModElement](https://developer.mozilla.org/en/docs/Web/API/HTMLModElement) to Kotlin\n \* \n public external abstract class HTMLModElement : HTMLInputElement {\n open var cite: String\n open var dateTime: String\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n } \n} \n \n /\*\* \n \* Exposes the JavaScript [HTMLPictureElement](https://developer.mozilla.org/en/docs/Web/API/HTMLPictureElement) to Kotlin\n \* \n public external abstract class HTMLPictureElement : HTMLInputElement {\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val

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DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC:
Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLSourceElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSourceElement) to Kotlin\n
*\npublic external abstract class HTMLSourceElement : HTMLElement {\n    open var src: String\n    open var
type: String\n    open var srcset: String\n    open var sizes: String\n    open var media: String\n\n    companion object
{\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n
val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING:
Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n        val
DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLImageElement](https://developer.mozilla.org/en/docs/Web/API/HTMLImageElement) to Kotlin\n
*\npublic external abstract class HTMLImageElement : HTMLElement, HTMLORSVGImageElement,
TexImageSource {\n    open var alt: String\n    open var src: String\n    open var srcset: String\n    open var sizes:
String\n    open var crossOrigin: String?\n    open var useMap: String\n    open var isMap: Boolean\n    open var
width: Int\n    open var height: Int\n    open val naturalWidth: Int\n    open val naturalHeight: Int\n    open val
complete: Boolean\n    open val currentSrc: String\n    open var referrerPolicy: String\n    open var name: String\n
open var lowsrc: String\n    open var align: String\n    open var hspace: Int\n    open var vspace: Int\n    open var
longDesc: String\n
    open var border: String\n    open val x: Int\n    open val y: Int\n\n    companion object {\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE:
Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLIFrameElement](https://developer.mozilla.org/en/docs/Web/API/HTMLIFrameElement) to Kotlin\n
*\npublic external
abstract class HTMLIFrameElement : HTMLElement {\n    open var src: String\n    open var srcdoc: String\n
open var name: String\n    open val sandbox: DOMTokenList\n    open var allowFullscreen: Boolean\n    open var
allowUserMedia: Boolean\n    open var width: String\n    open var height: String\n    open var referrerPolicy:
String\n    open val contentDocument: Document?\n    open val contentWindow: Window?\n    open var align:
String\n    open var scrolling: String\n    open var frameborder: String\n    open var longDesc: String\n    open var
marginHeight: String\n    open var marginWidth: String\n    fun getSVGDocument(): Document?\n\n    companion
object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE:
Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:

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Short\n    val DOCUMENT_NODE: Short\n
        val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val
NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val
DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n
val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY:
Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [HTMLEmbedElement](https://developer.mozilla.org/en/docs/Web/API/HTMLEmbedElement) to
Kotlin\n */\npublic external abstract class HTMLEmbedElement : HTMLElement {\n    open var src: String\n
open var type: String\n    open var width: String\n    open var height: String\n    open var align: String\n    open var
name: String\n    fun getSVGDocument(): Document?\n\n    companion object {\n        val ELEMENT_NODE:
Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE:
Short\n
        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLObjectElement](https://developer.mozilla.org/en/docs/Web/API/HTMLObjectElement) to Kotlin\n
*/\npublic external abstract class HTMLObjectElement : HTMLElement {\n    open var data: String\n    open var
type: String\n    open var typeMustMatch: Boolean\n    open var name: String\n    open var useMap: String\n    open
val form: HTMLFormElement?\n
    open var width: String\n    open var height: String\n    open val contentDocument: Document?\n    open val
contentWindow: Window?\n    open val willValidate: Boolean\n    open val validity: ValidityState\n    open val
validationMessage: String\n    open var align: String\n    open var archive: String\n    open var code: String\n    open
var declare: Boolean\n    open var hspace: Int\n    open var standby: String\n    open var vspace: Int\n    open var
codeBase: String\n    open var codeType: String\n    open var border: String\n    fun getSVGDocument():
Document?\n    fun checkValidity(): Boolean\n    fun reportValidity(): Boolean\n    fun setCustomValidity(error:
String)\n\n    companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n
        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n
        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLParamElement](https://developer.mozilla.org/en/docs/Web/API/HTMLParamElement) to Kotlin\n
*/\npublic external abstract class HTMLParamElement : HTMLElement {\n    open var name: String\n    open var
value: String\n    open var type: String\n    open var valueType: String\n\n    companion object {\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n
        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val

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DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLVideoElement](https://developer.mozilla.org/en/docs/Web/API/HTMLVideoElement) to Kotlin \n * \n public
external abstract class HTMLVideoElement : HTMLMediaElement, CanvasImageSource, TexImageSource { \n
open var width: Int \n    open var height: Int \n    open val videoWidth: Int \n    open val videoHeight: Int \n    open var
poster: String \n    open var playsInline: Boolean \n \n    companion
object { \n    val NETWORK_EMPTY: Short\n    val NETWORK_IDLE: Short\n    val
NETWORK_LOADING: Short\n    val NETWORK_NO_SOURCE: Short\n    val HAVE_NOTHING: Short\n
    val HAVE_METADATA: Short\n    val HAVE_CURRENT_DATA: Short\n    val
HAVE_FUTURE_DATA: Short\n    val HAVE_ENOUGH_DATA: Short\n    val ELEMENT_NODE: Short\n
    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n
    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY:
Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes
the JavaScript [HTMLAudioElement](https://developer.mozilla.org/en/docs/Web/API/HTMLAudioElement) to
Kotlin \n * \n public external abstract class HTMLAudioElement : HTMLMediaElement { \n    companion object { \n
    val NETWORK_EMPTY: Short\n    val NETWORK_IDLE: Short\n    val NETWORK_LOADING: Short\n
    val NETWORK_NO_SOURCE: Short\n    val HAVE_NOTHING: Short\n    val HAVE_METADATA:
Short\n    val HAVE_CURRENT_DATA: Short\n    val HAVE_FUTURE_DATA: Short\n    val
HAVE_ENOUGH_DATA: Short\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n
    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:
Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLTrackElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTrackElement) to Kotlin \n * \n public
external abstract class HTMLTrackElement : HTMLMediaElement { \n    open var kind: String \n    open var src: String \n
open var srclang: String \n    open var label: String \n    open var default: Boolean \n    open val readyState: Short\n
open val track: TextTrack \n \n    companion object { \n    val NONE: Short\n    val LOADING: Short\n    val
LOADED: Short\n    val ERROR: Short\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE:
Short\n
    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n

```

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    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLMediaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMediaElement) to Kotlin\n
*\n\npublic external abstract class HTMLMediaElement : HTMLElement {\n    open val error: MediaError?\n    open
var src: String\n    open var srcObject: MediaProvider?\n    open val currentSrc:
String\n    open var crossOrigin: String?\n    open val networkState: Short\n    open var preload: String\n    open val
buffered: TimeRanges\n    open val readyState: Short\n    open val seeking: Boolean\n    open var currentTime:
Double\n    open val duration: Double\n    open val paused: Boolean\n    open var defaultPlaybackRate: Double\n
open var playbackRate: Double\n    open val played: TimeRanges\n    open val seekable: TimeRanges\n    open val
ended: Boolean\n    open var autoplay: Boolean\n    open var loop: Boolean\n    open var controls: Boolean\n    open
var volume: Double\n    open var muted: Boolean\n    open var defaultMuted: Boolean\n    open val audioTracks:
AudioTrackList\n    open val videoTracks: VideoTrackList\n    open val textTracks: TextTrackList\n    open val
mediaKeys: MediaKeys?\n    open var onencrypted: ((Event) -> dynamic)?\n    open var onwaitingforkey: ((Event) -
> dynamic)?\n    fun load()\n    fun canPlayType(type: String): CanPlayTypeResult\n
    fun fastSeek(time: Double)\n    fun getStartDate(): dynamic\n    fun play(): Promise<Unit>\n    fun pause()\n    fun
addTextTrack(kind: TextTrackKind, label: String = definedExternally, language: String = definedExternally):
TextTrack\n    fun setMediaKeys(mediaKeys: MediaKeys?): Promise<Unit>\n\n    companion object {\n        val
NETWORK_EMPTY: Short\n        val NETWORK_IDLE: Short\n        val NETWORK_LOADING: Short\n
        val NETWORK_NO_SOURCE: Short\n        val HAVE_NOTHING: Short\n        val HAVE_METADATA:
Short\n        val HAVE_CURRENT_DATA: Short\n        val HAVE_FUTURE_DATA: Short\n        val
HAVE_ENOUGH_DATA: Short\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n
        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE:
Short\n        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[MediaError](https://developer.mozilla.org/en/docs/Web/API/MediaError) to Kotlin\n
*\n\npublic external abstract
class MediaError {\n    open val code: Short\n\n    companion object {\n        val MEDIA_ERR_ABORTED: Short\n
        val MEDIA_ERR_NETWORK: Short\n        val MEDIA_ERR_DECODE: Short\n        val
MEDIA_ERR_SRC_NOT_SUPPORTED: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[AudioTrackList](https://developer.mozilla.org/en/docs/Web/API/AudioTrackList) to Kotlin\n
*\n\npublic external
abstract class AudioTrackList : EventTarget {\n    open val
length: Int\n    open var onchange: ((Event) -> dynamic)?\n    open var onaddtrack: ((TrackEvent) -> dynamic)?\n
open var onremovetrack: ((TrackEvent) -> dynamic)?\n    fun getTrackById(id: String):
AudioTrack?\n}\n\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline operator fun AudioTrackList.get(index:
Int): AudioTrack? = asDynamic()[index]\n\n\n/**\n * Exposes the JavaScript
[AudioTrack](https://developer.mozilla.org/en/docs/Web/API/AudioTrack) to Kotlin\n
*\n\npublic external abstract
class AudioTrack : UnionAudioTrackOrTextTrackOrVideoTrack {\n    open val id: String\n    open val kind:
String\n    open val label: String\n    open val language: String\n    open var enabled: Boolean\n    open val
sourceBuffer: SourceBuffer?\n}\n\n\n/**\n * Exposes the JavaScript
[VideoTrackList](https://developer.mozilla.org/en/docs/Web/API/VideoTrackList) to Kotlin\n
*\n\npublic external
abstract class VideoTrackList : EventTarget {\n    open val length:
Int\n    open val selectedIndex: Int\n    open var onchange: ((Event) -> dynamic)?\n    open var onaddtrack:
((TrackEvent) -> dynamic)?\n    open var onremovetrack: ((TrackEvent) -> dynamic)?\n    fun getTrackById(id:

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String): VideoTrack?}\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun VideoTrackList.get(index:
Int): VideoTrack? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[VideoTrack](https://developer.mozilla.org/en/docs/Web/API/VideoTrack) to Kotlin\n *\npublic external abstract
class VideoTrack : UnionAudioTrackOrTextTrackOrVideoTrack {\n  open val id: String\n  open val kind:
String\n  open val label: String\n  open val language: String\n  open var selected: Boolean\n  open val
sourceBuffer: SourceBuffer?}\n}\n\npublic external abstract class TextTrackList : EventTarget {\n  open val length:
Int\n  open var onchange: ((Event) -> dynamic)?\n  open var onaddtrack: ((TrackEvent) ->
dynamic)?\n  open var onremovetrack: ((TrackEvent) -> dynamic)?\n  fun getTrackById(id: String):
TextTrack?}\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun TextTrackList.get(index: Int):
TextTrack? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[TextTrack](https://developer.mozilla.org/en/docs/Web/API/TextTrack) to Kotlin\n *\npublic external abstract
class TextTrack : EventTarget, UnionAudioTrackOrTextTrackOrVideoTrack {\n  open val kind: TextTrackKind\n
open val label: String\n  open val language: String\n  open val id: String\n  open val
inBandMetadataTrackDispatchType: String\n  open var mode: TextTrackMode\n  open val cues:
TextTrackCueList?\n  open val activeCues: TextTrackCueList?\n  open var oncuechange: ((Event) ->
dynamic)?\n  open val sourceBuffer: SourceBuffer?\n  fun addCue(cue: TextTrackCue)\n  fun removeCue(cue:
TextTrackCue)\n}\n}\n\npublic external abstract class
TextTrackCueList {\n  open val length: Int\n  fun getCueById(id: String):
TextTrackCue?}\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun TextTrackCueList.get(index:
Int): TextTrackCue? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[TextTrackCue](https://developer.mozilla.org/en/docs/Web/API/TextTrackCue) to Kotlin\n *\npublic external
abstract class TextTrackCue : EventTarget {\n  open val track: TextTrack?\n  open var id: String\n  open var
startTime: Double\n  open var endTime: Double\n  open var pauseOnExit: Boolean\n  open var onenter: ((Event)
-> dynamic)?\n  open var onexit: ((Event) -> dynamic)?}\n}\n\n/**\n * Exposes the JavaScript
[TimeRanges](https://developer.mozilla.org/en/docs/Web/API/TimeRanges) to Kotlin\n *\npublic external abstract
class TimeRanges {\n  open val length: Int\n  fun start(index: Int): Double\n  fun end(index: Int):
Double}\n}\n\n/**\n * Exposes the JavaScript
[TrackEvent](https://developer.mozilla.org/en/docs/Web/API/TrackEvent) to Kotlin\n *\npublic external open
class TrackEvent(type: String, eventInitDict: TrackEventInit = definedExternally) : Event {\n  open val track:
UnionAudioTrackOrTextTrackOrVideoTrack?}\n\n  companion object {\n    val NONE: Short\n    val
CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n
}\n}\n\npublic external interface TrackEventInit : EventInit {\n  var track:
UnionAudioTrackOrTextTrackOrVideoTrack? /* = null */\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun TrackEventInit(track:
UnionAudioTrackOrTextTrackOrVideoTrack? = null, bubbles: Boolean? = false, cancelable: Boolean? = false,
composed: Boolean? = false): TrackEventInit {\n  val o = js(\"({})\")\n  o[\"track\"] = track\n  o[\"bubbles\"] =
bubbles\n
o[\"cancelable\"] = cancelable\n  o[\"composed\"] = composed\n  return o}\n}\n\n/**\n * Exposes the JavaScript
[HTMLMapElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMapElement) to Kotlin\n *\npublic
external abstract class HTMLMapElement : HTMLElement {\n  open var name: String\n  open val areas:
HTMLCollection\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE:
Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val

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DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLAreaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLAreaElement) to Kotlin\n *\npublic
external abstract class HTMLAreaElement : HTMLInputElement, HTMLHyperlinkElementUtils {\n    open var alt:
String\n    open var coords: String\n    open var shape: String\n    open var target: String\n    open var download:
String\n    open var ping: String\n    open var rel: String\n    open val relList: DOMTokenList\n    open var
referrerPolicy: String\n    open var noHref: Boolean\n\n    companion object {\n        val ELEMENT_NODE:
Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE:
Short\n        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n
            val DOCUMENT_TYPE_NODE: Short\n            val DOCUMENT_FRAGMENT_NODE: Short\n            val
NOTATION_NODE: Short\n            val DOCUMENT_POSITION_DISCONNECTED: Short\n            val
DOCUMENT_POSITION_PRECEDING: Short\n            val DOCUMENT_POSITION_FOLLOWING: Short\n
            val DOCUMENT_POSITION_CONTAINS: Short\n            val DOCUMENT_POSITION_CONTAINED_BY:
Short\n            val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [HTMLTableElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableElement) to
Kotlin\n *\npublic external abstract class HTMLTableElement : HTMLInputElement {\n    open var caption:
HTMLTableCaptionElement?\n    open var tHead: HTMLTableSectionElement?\n    open var tFoot:
HTMLTableSectionElement?\n    open val tBodies: HTMLCollection\n    open val rows: HTMLCollection\n    open
var align: String\n    open var border: String\n    open var frame: String\n    open var rules: String\n    open var
summary: String\n    open var width:
String\n    open var bgColor: String\n    open var cellPadding: String\n    open var cellSpacing: String\n    fun
createCaption(): HTMLTableCaptionElement\n    fun deleteCaption()\n    fun createTHead():
HTMLTableSectionElement\n    fun deleteTHead()\n    fun createTFoot(): HTMLTableSectionElement\n    fun
deleteTFoot()\n    fun createTBody(): HTMLTableSectionElement\n    fun insertRow(index: Int =
definedExternally): HTMLTableRowElement\n    fun deleteRow(index: Int)\n\n    companion object {\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE:
Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n
            val DOCUMENT_POSITION_PRECEDING: Short\n            val DOCUMENT_POSITION_FOLLOWING:
Short\n            val DOCUMENT_POSITION_CONTAINS: Short\n            val
DOCUMENT_POSITION_CONTAINED_BY: Short\n            val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[HTMLTableCaptionElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableCaptionElement) to
Kotlin\n *\npublic external abstract class HTMLTableCaptionElement : HTMLInputElement {\n    open var align:
String\n\n    companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n
        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val

```

DOCUMENT\_POSITION\_DISCONNECTED:

```
Short val DOCUMENT_POSITION_PRECEDING: Short val
DOCUMENT_POSITION_FOLLOWING: Short val DOCUMENT_POSITION_CONTAINS: Short
val DOCUMENT_POSITION_CONTAINED_BY: Short val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short } } \n\n/** * Exposes the JavaScript
[HTMLTableColElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableColElement) to Kotlin
*\npublic external abstract class HTMLTableColElement : HTMLElement { \n open var span: Int \n open var
align: String \n open var ch: String \n open var chOff: String \n open var vAlign: String \n open var width:
String \n \n companion object { \n val ELEMENT_NODE: Short val ATTRIBUTE_NODE: Short
val TEXT_NODE: Short val CDATA_SECTION_NODE: Short val ENTITY_REFERENCE_NODE:
Short val ENTITY_NODE: Short val PROCESSING_INSTRUCTION_NODE: Short val
COMMENT_NODE: Short val DOCUMENT_NODE:
Short val DOCUMENT_TYPE_NODE: Short val DOCUMENT_FRAGMENT_NODE: Short
val NOTATION_NODE: Short val DOCUMENT_POSITION_DISCONNECTED: Short val
DOCUMENT_POSITION_PRECEDING: Short val DOCUMENT_POSITION_FOLLOWING: Short
val DOCUMENT_POSITION_CONTAINS: Short val DOCUMENT_POSITION_CONTAINED_BY:
Short val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short } } \n\n/** * Exposes
the JavaScript
[HTMLTableSectionElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableSectionElement) to
Kotlin *\npublic external abstract class HTMLTableSectionElement : HTMLElement { \n open val rows:
HTMLCollection \n open var align: String \n open var ch: String \n open var chOff: String \n open var vAlign:
String \n fun insertRow(index: Int = definedExternally): HTMLElement \n fun deleteRow(index: Int) \n \n
companion object { \n val ELEMENT_NODE: Short val ATTRIBUTE_NODE: Short
val TEXT_NODE: Short val CDATA_SECTION_NODE: Short val
ENTITY_REFERENCE_NODE: Short val ENTITY_NODE: Short val
PROCESSING_INSTRUCTION_NODE: Short val COMMENT_NODE: Short val
DOCUMENT_NODE: Short val DOCUMENT_TYPE_NODE: Short val
DOCUMENT_FRAGMENT_NODE: Short val NOTATION_NODE: Short val
DOCUMENT_POSITION_DISCONNECTED: Short val DOCUMENT_POSITION_PRECEDING: Short
val DOCUMENT_POSITION_FOLLOWING: Short val DOCUMENT_POSITION_CONTAINS: Short
val DOCUMENT_POSITION_CONTAINED_BY: Short val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short } } \n\n/** * Exposes the JavaScript
[HTMLTableRowElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableRowElement) to Kotlin
*\npublic external abstract class HTMLTableRowElement : HTMLElement { \n open val rowIndex: Int \n open
val sectionRowIndex: Int \n open val cells: HTMLCollection \n open
var align: String \n open var ch: String \n open var chOff: String \n open var vAlign: String \n open var
bgColor: String \n fun insertCell(index: Int = definedExternally): HTMLElement \n fun deleteCell(index: Int) \n \n
companion object { \n val ELEMENT_NODE: Short val ATTRIBUTE_NODE: Short val
TEXT_NODE: Short val CDATA_SECTION_NODE: Short val ENTITY_REFERENCE_NODE:
Short val ENTITY_NODE: Short val PROCESSING_INSTRUCTION_NODE: Short val
COMMENT_NODE: Short val DOCUMENT_NODE: Short val DOCUMENT_TYPE_NODE: Short
val DOCUMENT_FRAGMENT_NODE: Short val NOTATION_NODE: Short val
DOCUMENT_POSITION_DISCONNECTED: Short val DOCUMENT_POSITION_PRECEDING: Short
val DOCUMENT_POSITION_FOLLOWING: Short val DOCUMENT_POSITION_CONTAINS: Short
val DOCUMENT_POSITION_CONTAINED_BY: Short val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC:
Short } } \n\n/** * Exposes the JavaScript
[HTMLTableCellElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTableCellElement) to Kotlin \n
```



```

*  

public external abstract class HTMLTableCellElement : HTMLInputElement {  

    open var colSpan: Int  

    open var rowSpan: Int  

    open var headers: String  

    open val cellIndex: Int  

    open var scope: String  

    open var abbr: String  

    open var align: String  

    open var axis: String  

    open var height: String  

    open var width: String  

    open var ch: String  

    open var chOff: String  

    open var noWrap: Boolean  

    open var vAlign: String  

    open var bgColor: String  

    companion object {  

        val ELEMENT_NODE: Short  

        val ATTRIBUTE_NODE: Short  

        val TEXT_NODE: Short  

        val CDATA_SECTION_NODE: Short  

        val ENTITY_REFERENCE_NODE: Short  

        val ENTITY_NODE: Short  

        val PROCESSING_INSTRUCTION_NODE: Short  

        val COMMENT_NODE: Short  

        val DOCUMENT_NODE: Short  

        val DOCUMENT_TYPE_NODE: Short  

        val DOCUMENT_FRAGMENT_NODE: Short  

        val NOTATION_NODE: Short  

        val DOCUMENT_POSITION_DISCONNECTED: Short  

        val DOCUMENT_POSITION_PRECEDING: Short  

        val DOCUMENT_POSITION_FOLLOWING: Short  

        val DOCUMENT_POSITION_CONTAINS: Short  

        val DOCUMENT_POSITION_CONTAINED_BY: Short  

        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short  

    }  

}

* Exposes the JavaScript [HTMLFormElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFormElement) to Kotlin

*  

public external abstract class HTMLFormElement : HTMLInputElement {  

    open var acceptCharset: String  

    open var action: String  

    open var autocomplete: String  

    open var enctype: String  

    open var encoding: String  

    open var method: String  

    open var name: String  

    open var noValidate: Boolean  

    open var target: String  

    open val elements: HTMLFormControlsCollection  

    open val length: Int  

    fun submit()  

    fun reset()  

    fun checkValidity(): Boolean  

    fun reportValidity(): Boolean  

    companion object {  

        val ELEMENT_NODE: Short  

        val ATTRIBUTE_NODE: Short  

        val TEXT_NODE: Short  

        val CDATA_SECTION_NODE: Short  

        val ENTITY_REFERENCE_NODE: Short  

        val ENTITY_NODE: Short  

        val PROCESSING_INSTRUCTION_NODE: Short  

        val COMMENT_NODE: Short  

        val DOCUMENT_NODE: Short  

        val DOCUMENT_TYPE_NODE: Short  

        val DOCUMENT_FRAGMENT_NODE: Short  

        val NOTATION_NODE: Short  

        val DOCUMENT_POSITION_DISCONNECTED: Short  

        val DOCUMENT_POSITION_PRECEDING: Short  

        val DOCUMENT_POSITION_FOLLOWING: Short  

        val DOCUMENT_POSITION_CONTAINS: Short  

        val DOCUMENT_POSITION_CONTAINED_BY: Short  

        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short  

    }  

}

@Suppress("INVISIBLE_REFERENCE",  

"INVISIBLE_MEMBER")  

@kotlin.internal.InlineOnly  

public inline operator fun  

HTMLFormElement.get(index:  

Int): Element? = asDynamic()[index]  

@Suppress("INVISIBLE_REFERENCE",  

"INVISIBLE_MEMBER")  

@kotlin.internal.InlineOnly  

public inline operator fun  

HTMLFormElement.get(name: String): UnionElementOrRadioNodeList? = asDynamic()[name]

* Exposes the JavaScript [HTMLLabelElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLabelElement) to Kotlin

*  

public external abstract class HTMLLabelElement : HTMLInputElement {  

    open val form: HTMLFormElement?  

    open var htmlFor: String  

    open val control: HTMLInputElement?  

    companion object {  

        val ELEMENT_NODE: Short  

        val ATTRIBUTE_NODE: Short  

        val TEXT_NODE: Short  

        val CDATA_SECTION_NODE: Short  

        val ENTITY_REFERENCE_NODE: Short  

        val ENTITY_NODE: Short  

        val PROCESSING_INSTRUCTION_NODE: Short  

        val COMMENT_NODE: Short  

        val DOCUMENT_NODE: Short  

        val DOCUMENT_TYPE_NODE: Short  

        val DOCUMENT_FRAGMENT_NODE: Short  

        val NOTATION_NODE: Short  

        val DOCUMENT_POSITION_DISCONNECTED: Short  

        val DOCUMENT_POSITION_PRECEDING: Short  

        val DOCUMENT_POSITION_FOLLOWING: Short  

        val DOCUMENT_POSITION_CONTAINS: Short  

        val DOCUMENT_POSITION_CONTAINED_BY: Short  

        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short  

    }  

}

* Exposes the JavaScript [HTMLInputElement](https://developer.mozilla.org/en/docs/Web/API/HTMLInputElement) to

```

```

Kotlin\n */\npublic external abstract class HTMLInputElement : HTMLInputElement {\n  open var accept: String\n  open var alt: String\n  open var autocomplete: String\n  open var autofocus: Boolean\n  open var defaultChecked: Boolean\n  open var checked: Boolean\n  open var dirName: String\n  open var disabled: Boolean\n  open val form: HTMLFormElement?\n  open val files: FileList?\n  open var formAction: String\n  open var formEnctype: String\n  open var formMethod: String\n  open var formNoValidate: Boolean\n  open var formTarget: String\n  open var height: Int\n  open var indeterminate: Boolean\n  open var inputMode: String\n  open val list: HTMLInputElement?\n  open var max: String\n  open var maxLength: Int\n  open var min: String\n  open var minLength: Int\n  open var multiple: Boolean\n  open var name: String\n  open var pattern: String\n  open var placeholder: String\n  open var readOnly: Boolean\n  open var required: Boolean\n  open var size: Int\n  open var src: String\n  open var step: String\n  open var type: String\n  open var defaultValue: String\n  open var value: String\n  open var valueAsDate: dynamic\n  open var valueAsNumber: Double\n  open var width: Int\n  open val willValidate: Boolean\n  open val validity: ValidityState\n  open val validationMessage: String\n  open val labels: NodeList\n  open var selectionStart: Int?\n  open var selectionEnd: Int?\n  open var selectionDirection: String?\n  open var align: String\n  open var useMap: String\n  fun stepUp(n: Int = definedExternally)\n  fun stepDown(n: Int = definedExternally)\n  fun checkValidity(): Boolean\n  fun reportValidity(): Boolean\n  fun setCustomValidity(error: String)\n  fun select()\n  fun setRangeText(replacement: String)\n  fun setRangeText(replacement: String, start: Int, end: Int, selectionMode: SelectionMode = definedExternally)\n  fun setSelectionRange(start: Int, end: Int, direction: String = definedExternally)\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\n/**\n * Exposes the JavaScript [HTMLButtonElement](https://developer.mozilla.org/en/docs/Web/API/HTMLButtonElement) to Kotlin\n */\n\npublic external abstract class HTMLButtonElement : HTMLInputElement {\n  open var autofocus: Boolean\n  open var disabled: Boolean\n  open val form: HTMLFormElement?\n  open var formAction: String\n  open var formEnctype: String\n  open var formMethod: String\n  open var formNoValidate: Boolean\n  open var formTarget: String\n  open var name: String\n  open var type: String\n  open var value: String\n  open var menu: HTMLMenuElement?\n  open val willValidate: Boolean\n  open val validity: ValidityState\n  open val validationMessage: String\n  open val labels: NodeList\n  fun checkValidity(): Boolean\n  fun reportValidity(): Boolean\n  fun setCustomValidity(error: String)\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\n/**\n * Exposes the JavaScript [HTMLSelectElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSelectElement)

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to Kotlin\n */\npublic external abstract class HTMLSelectElement : HTMLInputElement, ItemArrayLike<Element> {\n
open var autocomplete: String\n open var autofocus: Boolean\n open var disabled: Boolean\n open val form:
HTMLFormElement?\n open var multiple: Boolean\n open var name: String\n open var required: Boolean\n
open var size: Int\n open val type: String\n open val options: HTMLOptionsCollection\n override var length:
Int\n open val selectedOptions: HTMLCollection\n open var selectedIndex: Int\n open var value: String\n
open val willValidate: Boolean\n open val validity: ValidityState\n open val validationMessage: String\n open
val labels: NodeList\n fun namedItem(name: String): HTMLOptionElement?\n fun add(element:
UnionHTMLOptGroupElementOrHTMLOptionElement, before: dynamic = definedExternally)\n fun
remove(index: Int)\n fun checkValidity(): Boolean\n fun reportValidity(): Boolean\n
fun setCustomValidity(error: String)\n override fun item(index: Int): Element?\n\n companion object {\n
val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val
CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE:
Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n
}\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun
HTMLSelectElement.get(index:
Int): Element? = asDynamic()[index]\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun
HTMLSelectElement.set(index: Int, option: HTMLOptionElement?) { asDynamic()[index] = option }\n\n/**\n *
Exposes the JavaScript
[HTMLDataListElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDataListElement) to Kotlin\n
*/\npublic external abstract class HTMLDataListElement : HTMLInputElement {\n open val options:
HTMLCollection\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE:
Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val
ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val
PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED:
Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val
DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript
[HTMLOptGroupElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOptGroupElement) to Kotlin\n
*/\npublic external abstract class HTMLOptGroupElement : HTMLInputElement,
UnionHTMLOptGroupElementOrHTMLOptionElement {\n open var disabled: Boolean\n open var label:
String\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n
val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE:
Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val
COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n
}

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val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLOptionElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOptionElement) to Kotlin \n
*\npublic external abstract class HTMLOptionElement : HTMLElement,
UnionHTMLOptGroupElementOrHTMLOptionElement { \n    open var disabled: Boolean \n    open val form:
HTMLFormElement? \n    open var label: String \n    open var defaultSelected: Boolean \n    open var selected:
Boolean \n    open var value: String \n    open var text: String \n    open val index: Int \n \n    companion object { \n
val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n
    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val
ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLTextAreaElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTextAreaElement) to Kotlin \n
*\npublic external abstract class HTMLTextAreaElement : HTMLFormElement { \n    open var autocomplete: String \n
open var autofocus: Boolean \n    open var cols: Int \n    open var dirName: String \n    open
var disabled: Boolean \n    open val form: HTMLFormElement? \n    open var inputMode: String \n    open var
maxLength: Int \n    open var minLength: Int \n    open var name: String \n    open var placeholder: String \n    open var
readOnly: Boolean \n    open var required: Boolean \n    open var rows: Int \n    open var wrap: String \n    open val
type: String \n    open var defaultValue: String \n    open var value: String \n    open val textLength: Int \n    open val
willValidate: Boolean \n    open val validity: ValidityState \n    open val validationMessage: String \n    open val
labels: NodeList \n    open var selectionStart: Int? \n    open var selectionEnd: Int? \n    open var selectionDirection:
String? \n    fun checkValidity(): Boolean \n    fun reportValidity(): Boolean \n    fun setCustomValidity(error:
String) \n    fun select() \n    fun setRangeText(replacement: String) \n    fun setRangeText(replacement: String, start:
Int, end: Int, selectionMode: SelectionMode = definedExternally) \n    fun setSelectionRange(start:
Int, end: Int, direction: String = definedExternally) \n \n    companion object { \n    val ELEMENT_NODE: Short\n
    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n
    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLKeygenElement](https://developer.mozilla.org/en/docs/Web/API/HTMLKeygenElement) to Kotlin \n
*\npublic
external abstract class HTMLKeygenElement : HTMLFormElement { \n    open var autofocus: Boolean \n    open var
challenge: String \n    open var disabled: Boolean \n    open val form: HTMLFormElement? \n    open var keytype:
String \n    open var name: String \n    open val type: String \n    open val willValidate: Boolean \n    open val validity:
ValidityState \n    open val validationMessage: String \n    open val labels: NodeList \n    fun checkValidity():
Boolean \n    fun reportValidity(): Boolean \n    fun setCustomValidity(error: String) \n \n    companion object { \n

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val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n
    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING:
Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val
DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n
    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the
JavaScript [HTMLOutputElement](https://developer.mozilla.org/en/docs/Web/API/HTMLOutputElement) to Kotlin
*\npublic external abstract class HTMLOutputElement : HTMLElement { \n    open val htmlFor:
DOMTokenList \n    open val form: HTMLFormElement? \n    open var name: String \n    open val type: String \n
open var defaultValue: String \n    open var value: String \n    open val willValidate: Boolean \n    open val validity:
ValidityState \n    open val validationMessage: String \n    open val labels: NodeList \n    fun checkValidity():
Boolean \n    fun reportValidity(): Boolean \n    fun setCustomValidity(error: String) \n    companion object { \n
    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the JavaScript
[HTMLProgressElement](https://developer.mozilla.org/en/docs/Web/API/HTMLProgressElement) to Kotlin
*\npublic external abstract class HTMLProgressElement : HTMLElement { \n    open var value: Double \n    open
var max:
Double \n    open val position: Double \n    open val labels: NodeList \n    companion object { \n    val
ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the JavaScript
[HTMLMeterElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMeterElement) to Kotlin
*\npublic
external
abstract class HTMLMeterElement : HTMLElement { \n    open var value: Double \n    open var min: Double \n
open var max: Double \n    open var low: Double \n    open var high: Double \n    open var optimum: Double \n    open
val labels: NodeList \n    companion object { \n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE:
Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n

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    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC:
Short\n } \n} \n/n/**\n * Exposes the JavaScript
[HTMLFieldSetElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFieldSetElement) to Kotlin\n
*\npublic external abstract class HTMLFieldSetElement : HTMLElement {\n    open var disabled: Boolean\n
open val form: HTMLFormElement?\n    open var name: String\n    open val type: String\n    open val elements:
HTMLCollection\n    open val willValidate: Boolean\n    open val validity: ValidityState\n    open val
validationMessage: String\n    fun checkValidity(): Boolean\n    fun reportValidity(): Boolean\n    fun
setCustomValidity(error: String)\n\n    companion object {\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE:
Short\n        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n/n/**\n * Exposes the JavaScript
[HTMLLegendElement](https://developer.mozilla.org/en/docs/Web/API/HTMLLegendElement) to Kotlin\n
*\npublic external abstract class HTMLLegendElement : HTMLElement {\n    open val form:
HTMLFormElement?\n    open var align: String\n\n    companion object {\n        val ELEMENT_NODE: Short\n
        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n
        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n
        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n/n/**\n * Exposes the JavaScript
[ValidityState](https://developer.mozilla.org/en/docs/Web/API/ValidityState) to Kotlin\n
*\npublic external
abstract class ValidityState {\n    open val valueMissing: Boolean\n    open val typeMismatch: Boolean\n    open val
patternMismatch: Boolean\n    open val tooLong: Boolean\n    open val tooShort: Boolean\n    open val
rangeUnderflow: Boolean\n    open val rangeOverflow: Boolean\n    open val stepMismatch: Boolean\n    open val
badInput: Boolean\n    open val customError: Boolean\n    open val
valid: Boolean\n} \n/n/**\n * Exposes the JavaScript
[HTMLDetailsElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDetailsElement) to Kotlin\n
*\npublic external abstract class HTMLDetailsElement : HTMLElement {\n    open var open: Boolean\n
companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val
TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC:

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Short\n }\\n\\npublic external abstract class HTMLMenuElement : HTMLElement {\n  open var type: String\n  open var label: String\n  open var compact: Boolean\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\\n}\\n\\npublic external abstract class HTMLMenuItemElement : HTMLElement {\n  open var type: String\n  open var label: String\n  open var icon: String\n  open var disabled: Boolean\n  open var checked: Boolean\n  open var radiogroup: String\n  open var default: Boolean\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\\n}\\n\\npublic external open class RelatedEvent(type: String, eventInitDict: RelatedEventInit = definedExternally) : Event {\n  open val relatedTarget: EventTarget?\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\\n}\\n\\npublic external interface RelatedEventInit : EventInit {\n  var relatedTarget: EventTarget? /* = null */\n  get() = definedExternally\n  set(value) = definedExternally\n}\\n\\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun RelatedEventInit(relatedTarget: EventTarget? = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): RelatedEventInit {\n  val o = js(\"({})\")\n  o[\"relatedTarget\"] = relatedTarget\n  o[\"bubbles\"] = bubbles\n  o[\"cancelable\"] = cancelable\n  o[\"composed\"] = composed\n  return o\n}\\n\\n/**\n * Exposes the JavaScript [HTMLDialogElement](https://developer.mozilla.org/en/docs/Web/API/HTMLDialogElement) to Kotlin\n */\npublic external abstract class HTMLDialogElement : HTMLElement {\n  open var open: Boolean\n  open var returnValue: String\n  fun show(anchor: UnionElementOrMouseEvent = definedExternally)\n  fun showModal(anchor: UnionElementOrMouseEvent = definedExternally)\n  fun close(returnValue: String = definedExternally)\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\\n}\\n\\n/**\n * Exposes the

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JavaScript [HTMLScriptElement](https://developer.mozilla.org/en/docs/Web/API/HTMLScriptElement) to Kotlin\n
*\npublic external abstract class HTMLScriptElement : HTMLElement, HTMLORSVGScriptElement {\n  open
var src: String\n  open var type: String\n  open var charset: String\n  open var async: Boolean\n  open var defer:
Boolean\n  open var crossOrigin: String?\n  open var text: String\n  open var nonce: String\n  open var event:
String\n  open var htmlFor: String\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val
ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n
    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\n/**\n * Exposes the JavaScript
[HTMLTemplateElement](https://developer.mozilla.org/en/docs/Web/API/HTMLTemplateElement) to Kotlin\n
*\npublic external abstract class HTMLTemplateElement : HTMLElement {\n  open val content:
DocumentFragment\n\n  companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE:
Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n
    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\n/**\n * Exposes the JavaScript
[HTMLSlotElement](https://developer.mozilla.org/en/docs/Web/API/HTMLSlotElement) to Kotlin\n
*\npublic external abstract class HTMLSlotElement : HTMLElement {\n  open var name: String\n  fun
assignedNodes(options: AssignedNodesOptions = definedExternally): Array<Node>\n\n  companion object {\n
val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n
    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val
ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\npublic external interface
AssignedNodesOptions {\n  var flatten: Boolean? /* = false */\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun AssignedNodesOptions(flatten:
Boolean? = false): AssignedNodesOptions
{\n  val o = js(\"({})\")\n  o[\"flatten\"] = flatten\n  return o\n}\n\n/**\n * Exposes the JavaScript
[HTMLCanvasElement](https://developer.mozilla.org/en/docs/Web/API/HTMLCanvasElement) to Kotlin\n
*\npublic external abstract class HTMLCanvasElement : HTMLElement, CanvasImageSource, TexImageSource
{\n  open var width: Int\n  open var height: Int\n  fun getContext(contextId: String, vararg arguments: Any?):
RenderingContext?\n  fun toDataURL(type: String = definedExternally, quality: Any? = definedExternally):
String\n  fun toBlob(_callback: (Blob?) -> Unit, type: String = definedExternally, quality: Any? =

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definedExternally)\n\n companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n } \n\n\npublic external interface CanvasRenderingContext2DSettings {\n    var alpha: Boolean? /* = true */\n    get() = definedExternally\n    set(value) = definedExternally\n } \n\n\n@Suppress(\"INVISIBLE_REFERENCE\", \"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun CanvasRenderingContext2DSettings(alpha: Boolean? = true): CanvasRenderingContext2DSettings {\n    val o = js(\"({})\")\n    o[\"alpha\"] = alpha\n    return o\n } \n\n\n**\n * Exposes the JavaScript [CanvasRenderingContext2D](https://developer.mozilla.org/en/docs/Web/API/CanvasRenderingContext2D) to Kotlin\n *\n\npublic external abstract class CanvasRenderingContext2D : CanvasState, CanvasTransform, CanvasCompositing, CanvasImageSmoothing, CanvasFillStrokeStyles, CanvasShadowStyles, CanvasFilters, CanvasRect, CanvasDrawPath, CanvasUserInterface, CanvasText, CanvasDrawImage, CanvasHitRegion, CanvasImageData, CanvasPathDrawingStyles, CanvasTextDrawingStyles, CanvasPath, RenderingContext {\n    open val canvas: HTMLCanvasElement\n } \n\n\npublic external interface CanvasState {\n    fun save()\n    fun restore()\n } \n\n\npublic external interface CanvasTransform {\n    fun scale(x: Double, y: Double)\n    fun rotate(angle: Double)\n    fun translate(x: Double, y: Double)\n    fun transform(a: Double, b: Double, c: Double, d: Double, e: Double, f: Double)\n    fun getTransform(): DOMMatrix\n    fun setTransform(a: Double, b: Double, c: Double, d: Double, e: Double, f: Double)\n    fun setTransform(transform: dynamic = definedExternally)\n    fun resetTransform()\n } \n\n\npublic external interface CanvasCompositing {\n    var globalAlpha: Double\n    var globalCompositeOperation: String\n } \n\n\npublic external interface CanvasImageSmoothing {\n    var imageSmoothingEnabled: Boolean\n    var imageSmoothingQuality: ImageSmoothingQuality\n } \n\n\npublic external interface CanvasFillStrokeStyles {\n    var strokeStyle: dynamic\n    get() = definedExternally\n    set(value) = definedExternally\n    var fillStyle: dynamic\n    get() = definedExternally\n    set(value) = definedExternally\n    fun createLinearGradient(x0: Double, y0: Double, x1: Double, y1: Double): CanvasGradient\n    fun createRadialGradient(x0: Double, y0: Double, r0: Double, x1: Double, y1: Double, r1: Double): CanvasGradient\n    fun createPattern(image: CanvasImageSource, repetition: String): CanvasPattern?\n } \n\n\npublic external interface CanvasShadowStyles {\n    var shadowOffsetX: Double\n    var shadowOffsetY: Double\n    var shadowBlur: Double\n    var shadowColor: String\n } \n\n\npublic external interface CanvasFilters {\n    var filter: String\n } \n\n\npublic external interface CanvasRect {\n    fun clearRect(x: Double, y: Double, w: Double, h: Double)\n    fun fillRect(x: Double, y: Double, w: Double, h: Double)\n    fun strokeRect(x: Double, y: Double, w: Double, h: Double)\n } \n\n\npublic external interface CanvasDrawPath {\n    fun beginPath()\n    fun fill(fillRule: CanvasFillRule = definedExternally)\n    fun fill(path: Path2D, fillRule: CanvasFillRule = definedExternally)\n    fun stroke()\n    fun stroke(path: Path2D)\n    fun clip(fillRule: CanvasFillRule = definedExternally)\n    fun clip(path: Path2D, fillRule: CanvasFillRule = definedExternally)\n    fun resetClip()\n    fun isPointInPath(x: Double, y: Double, fillRule: CanvasFillRule = definedExternally): Boolean\n    fun isPointInPath(path: Path2D, x: Double, y: Double, fillRule: CanvasFillRule = definedExternally): Boolean\n    fun isPointInStroke(x: Double, y: Double): Boolean\n    fun isPointInStroke(path: Path2D, x: Double, y: Double): Boolean\n } \n\n\npublic external interface CanvasUserInterface {\n    fun drawFocusIfNeeded(element: Element)\n    fun drawFocusIfNeeded(path: Path2D, element: Element)\n    fun scrollPathIntoView()\n    fun scrollPathIntoView(path: Path2D)\n } \n\n\npublic external interface CanvasText {\n    fun fillText(text: String, x: Double, y: Double, maxWidth: Double =

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definedExternally)\n fun strokeText(text: String, x: Double, y: Double, maxWidth: Double = definedExternally)\n
fun measureText(text: String): TextMetrics\n}\n\npublic external interface CanvasDrawImage {\n fun
drawImage(image: CanvasImageSource, dx: Double, dy: Double)\n fun drawImage(image: CanvasImageSource,
dx: Double, dy: Double, dw: Double, dh: Double)\n fun drawImage(image: CanvasImageSource, sx: Double, sy:
Double, sw: Double, sh: Double, dx: Double, dy: Double, dw: Double, dh: Double)\n}\n\npublic external interface
CanvasHitRegion {\n fun addHitRegion(options:
HitRegionOptions = definedExternally)\n fun removeHitRegion(id: String)\n fun
clearHitRegions()\n}\n\npublic external interface CanvasImageData {\n fun createImageData(sw: Double, sh:
Double): ImageData\n fun createImageData(imagedata: ImageData): ImageData\n fun getImageData(sx:
Double, sy: Double, sw: Double, sh: Double): ImageData\n fun putImageData(imagedata: ImageData, dx: Double,
dy: Double)\n fun putImageData(imagedata: ImageData, dx: Double, dy: Double, dirtyX: Double, dirtyY: Double,
dirtyWidth: Double, dirtyHeight: Double)\n}\n\npublic external interface CanvasPathDrawingStyles {\n var
lineWidth: Double\n var lineCap: CanvasLineCap\n var lineJoin: CanvasLineJoin\n var miterLimit: Double\n
var lineDashOffset: Double\n fun setLineDash(segments: Array<Double>)\n fun getLineDash():
Array<Double>\n}\n\npublic external interface CanvasTextDrawingStyles {\n var font: String\n var textAlign:
CanvasTextAlign\n var textBaseline:
CanvasTextBaseline\n var direction: CanvasDirection\n}\n\npublic external interface CanvasPath {\n fun
closePath()\n fun moveTo(x: Double, y: Double)\n fun lineTo(x: Double, y: Double)\n fun
quadraticCurveTo(cpx: Double, cpy: Double, x: Double, y: Double)\n fun bezierCurveTo(cp1x: Double, cp1y:
Double, cp2x: Double, cp2y: Double, x: Double, y: Double)\n fun arcTo(x1: Double, y1: Double, x2: Double, y2:
Double, radius: Double)\n fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radiusX: Double, radiusY:
Double, rotation: Double)\n fun rect(x: Double, y: Double, w: Double, h: Double)\n fun arc(x: Double, y:
Double, radius: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean = definedExternally)\n
fun ellipse(x: Double, y: Double, radiusX: Double, radiusY: Double, rotation: Double, startAngle: Double,
endAngle: Double, anticlockwise: Boolean = definedExternally)\n}\n\n**\n * Exposes the JavaScript
[CanvasGradient](https://developer.mozilla.org/en/docs/Web/API/CanvasGradient)
to Kotlin\n * \n\npublic external abstract class CanvasGradient {\n fun addColorStop(offset: Double, color:
String)\n}\n\n**\n * Exposes the JavaScript
[CanvasPattern](https://developer.mozilla.org/en/docs/Web/API/CanvasPattern) to Kotlin\n * \n\npublic external
abstract class CanvasPattern {\n fun setTransform(transform: dynamic = definedExternally)\n}\n\n**\n * Exposes
the JavaScript [TextMetrics](https://developer.mozilla.org/en/docs/Web/API/TextMetrics) to Kotlin\n * \n\npublic
external abstract class TextMetrics {\n open val width: Double\n open val actualBoundingBoxLeft: Double\n
open val actualBoundingBoxRight: Double\n open val fontBoundingBoxAscent: Double\n open val
fontBoundingBoxDescent: Double\n open val actualBoundingBoxAscent: Double\n open val
actualBoundingBoxDescent: Double\n open val emHeightAscent: Double\n open val emHeightDescent:
Double\n open val hangingBaseline: Double\n open val
alphabeticBaseline: Double\n open val ideographicBaseline: Double\n}\n\npublic external interface
HitRegionOptions {\n var path: Path2D? /* = null */\n get() = definedExternally\n set(value) =
definedExternally\n var fillRule: CanvasFillRule? /* = CanvasFillRule.NONZERO */\n get() =
definedExternally\n set(value) = definedExternally\n var id: String? /* = "" */\n get() =
definedExternally\n set(value) = definedExternally\n var parentId: String? /* = null */\n get() =
definedExternally\n set(value) = definedExternally\n var cursor: String? /* = "inherit" */\n get() =
definedExternally\n set(value) = definedExternally\n var control: Element? /* = null */\n get() =
definedExternally\n set(value) = definedExternally\n var label: String? /* = null */\n get() =
definedExternally\n set(value) = definedExternally\n var role: String? /* = null */\n get() =
definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun HitRegionOptions(path: Path2D? =

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null, fillRule: CanvasFillRule? = CanvasFillRule.NONZERO, id: String? = "", parentID: String? = null, cursor:
String? = "inherit", control: Element? = null, label: String? = null, role: String? = null): HitRegionOptions {
    val o = js("{}")
    o["path"] = path
    o["fillRule"] = fillRule
    o["id"] = id
    o["parentID"] = parentID
    o["cursor"] = cursor
    o["control"] = control
    o["label"] = label
    o["role"] = role
    return o
}

* Exposes the JavaScript [ImageData](https://developer.mozilla.org/en/docs/Web/API/ImageData) to
Kotlin

*public external open class ImageData : ImageBitmapSource, TexImageSource {
    constructor(sw: Int, sh: Int)
    constructor(data: Uint8ClampedArray, sw: Int, sh: Int = definedExternally)
    open val width: Int
    open val height: Int
    open val data: Uint8ClampedArray
}

* Exposes the JavaScript [Path2D](https://developer.mozilla.org/en/docs/Web/API/Path2D) to Kotlin

*public external open class Path2D() : CanvasPath {
    constructor(path: Path2D)
    constructor(paths: Array<Path2D>, fillRule: CanvasFillRule = definedExternally)
    constructor(d: String)
    fun addPath(path: Path2D, transform: dynamic = definedExternally)
    override fun closePath()
    override fun moveTo(x: Double, y: Double)
    override fun lineTo(x: Double, y: Double)
    override fun quadraticCurveTo(cpx: Double, cpy: Double, x: Double, y: Double)
    override fun bezierCurveTo(cp1x: Double, cp1y: Double, cp2x: Double, cp2y: Double, x: Double, y: Double)
    override fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radius: Double)
    override fun arcTo(x1: Double, y1: Double, x2: Double, y2: Double, radiusX: Double, radiusY: Double, rotation: Double)
    override fun rect(x: Double, y: Double, w: Double, h: Double)
    override fun arc(x: Double, y: Double, radius: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean /* = definedExternally */)
    override fun ellipse(x: Double, y: Double, radiusX: Double, radiusY: Double, rotation: Double, startAngle: Double, endAngle: Double, anticlockwise: Boolean /* = definedExternally */)
}

* Exposes the JavaScript [ImageBitmapRenderingContext](https://developer.mozilla.org/en/docs/Web/API/ImageBitmapRenderingContext) to Kotlin

*public external abstract class ImageBitmapRenderingContext {
    open val canvas: HTMLCanvasElement
    fun transferFromImageBitmap(bitmap: ImageBitmap?)
}

*public external interface ImageBitmapRenderingContextSettings {
    var alpha: Boolean? /* = true */
    get() = definedExternally
    set(value) = definedExternally
}

@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")
@kotlin.internal.InlineOnly
*public inline fun ImageBitmapRenderingContextSettings(alpha: Boolean? = true): ImageBitmapRenderingContextSettings {
    val o = js("{}")
    o["alpha"] = alpha
    return o
}

* Exposes the JavaScript [CustomElementRegistry](https://developer.mozilla.org/en/docs/Web/API/CustomElementRegistry) to Kotlin

*public external abstract class CustomElementRegistry {
    fun define(name: String, constructor: () -> dynamic, options: ElementDefinitionOptions = definedExternally)
    fun get(name: String): Any?
    fun whenDefined(name: String): Promise<Unit>
}

*public external interface ElementDefinitionOptions {
    var extends: String?
    get() = definedExternally
    set(value) = definedExternally
}

@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")
@kotlin.internal.InlineOnly
*public inline fun ElementDefinitionOptions(extends: String? = undefined): ElementDefinitionOptions {
    val o = js("{}")
    o["extends"] = extends
    return o
}

*public external interface ElementContentEditable {
    var contentEditable: String
    val isContentEditable: Boolean
}

* Exposes the JavaScript [DataTransfer](https://developer.mozilla.org/en/docs/Web/API/DataTransfer) to Kotlin

*public external abstract class DataTransfer {
    open var dropEffect: String
    open var effectAllowed: String
    open val items: DataTransferItemList
    open val types: Array<out String>
    open val files: FileList
    fun setDragImage(image: Element, x: Int, y: Int)
    fun getData(format: String): String
    fun setData(format: String, data: String)
    fun clearData(format: String = definedExternally)
}

* Exposes the JavaScript [DataTransferItemList](https://developer.mozilla.org/en/docs/Web/API/DataTransferItemList) to Kotlin

*public external abstract class DataTransferItemList {
    open val length: Int
    fun add(data: String, type: String): DataTransferItem?
    fun add(data: File): DataTransferItem?
}

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fun remove(index: Int)\n fun clear()\n}\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun
DataTransferItemList.get(index: Int): DataTransferItem? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[DataTransferItem](https://developer.mozilla.org/en/docs/Web/API/DataTransferItem) to Kotlin\n */\npublic
external abstract class DataTransferItem {\n open val kind: String\n open val type: String\n fun
getAsString(_callback: ((String) -> Unit)?)\n fun getAsFile(): File?\n}\n\n/**\n * Exposes the JavaScript
[DragEvent](https://developer.mozilla.org/en/docs/Web/API/DragEvent) to Kotlin\n */\npublic external open class
DragEvent(type: String, eventInitDict: DragEventInit = definedExternally) : MouseEvent {\n open val
dataTransfer: DataTransfer?\n\n companion object {\n val NONE: Short\n val CAPTURING_PHASE:
Short\n val AT_TARGET: Short\n val BUBBLING_PHASE: Short\n }\n}\n\npublic
external interface DragEventInit : MouseEventInit {\n var dataTransfer: DataTransfer? /* = null */\n get() =
definedExternally\n set(value) = definedExternally\n}\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun DragEventInit(dataTransfer:
DataTransfer? = null, screenX: Int? = 0, screenY: Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0,
buttons: Short? = 0, relatedTarget: EventTarget? = null, region: String? = null, ctrlKey: Boolean? = false, shiftKey:
Boolean? = false, altKey: Boolean? = false, metaKey: Boolean? = false, modifierAltGraph: Boolean? = false,
modifierCapsLock: Boolean? = false, modifierFn: Boolean? = false, modifierFnLock: Boolean? = false,
modifierHyper: Boolean? = false, modifierNumLock: Boolean? = false, modifierScrollLock: Boolean? = false,
modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? = false, view:
Window? = null, detail:
Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): DragEventInit {\n
val o = js(\\"({})\")\n o[\"dataTransfer\"] = dataTransfer\n o[\"screenX\"] = screenX\n o[\"screenY\"] =
screenY\n o[\"clientX\"] = clientX\n o[\"clientY\"] = clientY\n o[\"button\"] = button\n o[\"buttons\"] =
buttons\n o[\"relatedTarget\"] = relatedTarget\n o[\"region\"] = region\n o[\"ctrlKey\"] = ctrlKey\n
o[\"shiftKey\"] = shiftKey\n o[\"altKey\"] = altKey\n o[\"metaKey\"] = metaKey\n o[\"modifierAltGraph\"] =
modifierAltGraph\n o[\"modifierCapsLock\"] = modifierCapsLock\n o[\"modifierFn\"] = modifierFn\n
o[\"modifierFnLock\"] = modifierFnLock\n o[\"modifierHyper\"] = modifierHyper\n o[\"modifierNumLock\"] =
modifierNumLock\n o[\"modifierScrollLock\"] = modifierScrollLock\n o[\"modifierSuper\"] = modifierSuper\n
o[\"modifierSymbol\"] = modifierSymbol\n o[\"modifierSymbolLock\"] = modifierSymbolLock\n
o[\"view\"] = view\n o[\"detail\"] = detail\n o[\"bubbles\"] = bubbles\n o[\"cancelable\"] = cancelable\n
o[\"composed\"] = composed\n return o\n}\n\n/**\n * Exposes the JavaScript
[Window](https://developer.mozilla.org/en/docs/Web/API/Window) to Kotlin\n */\npublic external abstract class
Window : EventTarget, GlobalEventHandlers, WindowEventHandlers, WindowOrWorkerGlobalScope,
WindowSessionStorage, WindowLocalStorage, GlobalPerformance, UnionMessagePortOrWindowProxy {\n open
val window: Window\n open val self: Window\n open val document: Document\n open var name: String\n
open val location: Location\n open val history: History\n open val customElements: CustomElementRegistry\n
open val locationbar: BarProp\n open val menubar: BarProp\n open val personalbar: BarProp\n open val
scrollbars: BarProp\n open val statusbar: BarProp\n open val toolbar: BarProp\n open var status: String\n
open val closed: Boolean\n open
val frames: Window\n open val length: Int\n open val top: Window\n open var opener: Any?\n open val
parent: Window\n open val frameElement: Element?\n open val navigator: Navigator\n open val
applicationCache: ApplicationCache\n open val external: External\n open val screen: Screen\n open val
innerWidth: Int\n open val innerHeight: Int\n open val scrollX: Double\n open val pageXOffset: Double\n
open val scrollY: Double\n open val pageYOffset: Double\n open val screenX: Int\n open val screenY: Int\n
open val outerWidth: Int\n open val outerHeight: Int\n open val devicePixelRatio: Double\n fun close()\n fun
stop()\n fun focus()\n fun blur()\n fun open(url: String = definedExternally, target: String = definedExternally,
features: String = definedExternally): Window?\n fun alert()\n fun alert(message: String)\n fun
confirm(message: String = definedExternally): Boolean\n fun prompt(message: String = definedExternally,

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default: String = definedExternally): String?\n fun print()\n fun requestAnimationFrame(callback: (Double) ->
Unit): Int\n fun cancelAnimationFrame(handle: Int)\n fun postMessage(message: Any?, targetOrigin: String,
transfer: Array<dynamic> = definedExternally)\n fun captureEvents()\n fun releaseEvents()\n fun
matchMedia(query: String): MediaQueryList\n fun moveTo(x: Int, y: Int)\n fun moveBy(x: Int, y: Int)\n fun
resizeTo(x: Int, y: Int)\n fun resizeBy(x: Int, y: Int)\n fun scroll(options: ScrollToOptions = definedExternally)\n
fun scroll(x: Double, y: Double)\n fun scrollTo(options: ScrollToOptions = definedExternally)\n fun
scrollTo(x: Double, y: Double)\n fun scrollBy(options: ScrollToOptions = definedExternally)\n fun scrollBy(x:
Double, y: Double)\n fun getComputedStyle(elt: Element, pseudoElt: String? = definedExternally):
CSSStyleDeclaration\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic
inline operator fun Window.get(name: String): dynamic = asDynamic()[name]\n\npublic external abstract class
BarProp {\n open val visible: Boolean\n}\n\n/**\n * Exposes the JavaScript
[History](https://developer.mozilla.org/en/docs/Web/API/History) to Kotlin\n */\npublic external abstract class
History {\n open val length: Int\n open var scrollRestoration: ScrollRestoration\n open val state: Any?\n fun
go(delta: Int = definedExternally)\n fun back()\n fun forward()\n fun pushState(data: Any?, title: String, url:
String? = definedExternally)\n fun replaceState(data: Any?, title: String, url: String? =
definedExternally)\n}\n\n/**\n * Exposes the JavaScript
[Location](https://developer.mozilla.org/en/docs/Web/API/Location) to Kotlin\n */\npublic external abstract class
Location {\n open var href: String\n open val origin: String\n open var protocol: String\n open var host:
String\n open var hostname: String\n open
var port: String\n open var pathname: String\n open var search: String\n open var hash: String\n open val
ancestorOrigins: Array<out String>\n fun assign(url: String)\n fun replace(url: String)\n fun
reload()\n}\n\n/**\n * Exposes the JavaScript
[PopStateEvent](https://developer.mozilla.org/en/docs/Web/API/PopStateEvent) to Kotlin\n */\npublic external
open class PopStateEvent(type: String, eventInitDict: PopStateEventInit = definedExternally) : Event {\n open val
state: Any?\n\n companion object {\n val NONE: Short\n val CAPTURING_PHASE: Short\n val
AT_TARGET: Short\n val BUBBLING_PHASE: Short\n }\n}\n\npublic external interface PopStateEventInit
: EventInit {\n var state: Any? /* = null */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun PopStateEventInit(state: Any? = null,
bubbles: Boolean?
= false, cancelable: Boolean? = false, composed: Boolean? = false): PopStateEventInit {\n val o = js(\"({})\")\n
o[\"state\"] = state\n o[\"bubbles\"] = bubbles\n o[\"cancelable\"] = cancelable\n o[\"composed\"] =
composed\n return o\n}\n\n/**\n * Exposes the JavaScript
[HashChangeEvent](https://developer.mozilla.org/en/docs/Web/API/HashChangeEvent) to Kotlin\n */\npublic
external open class HashChangeEvent(type: String, eventInitDict: HashChangeEventInit = definedExternally) :
Event {\n open val oldURL: String\n open val newURL: String\n\n companion object {\n val NONE:
Short\n val CAPTURING_PHASE: Short\n val AT_TARGET: Short\n val BUBBLING_PHASE:
Short\n }\n}\n\npublic external interface HashChangeEventInit : EventInit {\n var oldURL: String? /* = \"\" */\n
get() = definedExternally\n set(value) = definedExternally\n var newURL: String? /* = \"\" */\n get() =
definedExternally\n set(value)
= definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun HashChangeEventInit(oldURL:
String? = \"\", newURL: String? = \"\", bubbles: Boolean? = false, cancelable: Boolean? = false, composed:
Boolean? = false): HashChangeEventInit {\n val o = js(\"({})\")\n o[\"oldURL\"] = oldURL\n o[\"newURL\"]
= newURL\n o[\"bubbles\"] = bubbles\n o[\"cancelable\"] = cancelable\n o[\"composed\"] = composed\n
return o\n}\n\n/**\n * Exposes the JavaScript
[PageTransitionEvent](https://developer.mozilla.org/en/docs/Web/API/PageTransitionEvent) to Kotlin\n */\npublic

```

```

external open class PageTransitionEvent(type: String, eventInitDict: PageTransitionEventInit = definedExternally) :
Event {\n  open val persisted: Boolean\n\n  companion object {\n    val NONE: Short\n    val
CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n
}\n}\n\npublic external interface
PageTransitionEventInit : EventInit {\n  var persisted: Boolean? /* = false */\n    get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun PageTransitionEventInit(persisted:
Boolean? = false, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
PageTransitionEventInit {\n  val o = js("{}")\n  o["persisted"] = persisted\n  o["bubbles"] = bubbles\n
o["cancelable"] = cancelable\n  o["composed"] = composed\n  return o\n}\n\n/**\n * Exposes the JavaScript
[BeforeUnloadEvent](https://developer.mozilla.org/en/docs/Web/API/BeforeUnloadEvent) to Kotlin\n */\npublic
external open class BeforeUnloadEvent : Event {\n  var returnValue: String\n\n  companion object {\n    val
NONE: Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val
BUBBLING_PHASE: Short\n  }\n}\n\npublic
external abstract class ApplicationCache : EventTarget {\n  open val status: Short\n  open var onchecking:
((Event) -> dynamic)?\n  open var onerror: ((Event) -> dynamic)?\n  open var onnoupdate: ((Event) ->
dynamic)?\n  open var ondownloading: ((Event) -> dynamic)?\n  open var onprogress: ((ProgressEvent) ->
dynamic)?\n  open var onupdateready: ((Event) -> dynamic)?\n  open var oncached: ((Event) -> dynamic)?\n
open var onobsolete: ((Event) -> dynamic)?\n  fun update()\n  fun abort()\n  fun swapCache()\n\n  companion
object {\n    val UNCACHED: Short\n    val IDLE: Short\n    val CHECKING: Short\n    val
DOWNLOADING: Short\n    val UPDATEREADY: Short\n    val OBSOLETE: Short\n  }\n}\n\n/**\n *
Exposes the JavaScript [NavigatorOnLine](https://developer.mozilla.org/en/docs/Web/API/NavigatorOnLine) to
Kotlin\n */\npublic external interface NavigatorOnLine {\n  val onLine: Boolean\n}\n\n/**\n * Exposes the
JavaScript [ErrorEvent](https://developer.mozilla.org/en/docs/Web/API/ErrorEvent)
to Kotlin\n */\npublic external open class ErrorEvent(type: String, eventInitDict: ErrorEventInit =
definedExternally) : Event {\n  open val message: String\n  open val filename: String\n  open val lineno: Int\n
open val colno: Int\n  open val error: Any?\n\n  companion object {\n    val NONE: Short\n    val
CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n
}\n}\n\npublic external interface ErrorEventInit : EventInit {\n  var message: String? /* = "" */\n    get() =
definedExternally\n    set(value) = definedExternally\n  var filename: String? /* = "" */\n    get() =
definedExternally\n    set(value) = definedExternally\n  var lineno: Int? /* = 0 */\n    get() =
definedExternally\n    set(value) = definedExternally\n  var colno: Int? /* = 0 */\n    get() =
definedExternally\n    set(value) = definedExternally\n  var error: Any?
/* = null */\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun ErrorEventInit(message: String? = "",
filename: String? = "", lineno: Int? = 0, colno: Int? = 0, error: Any? = null, bubbles: Boolean? = false, cancelable:
Boolean? = false, composed: Boolean? = false): ErrorEventInit {\n  val o = js("{}")\n  o["message"] =
message\n  o["filename"] = filename\n  o["lineno"] = lineno\n  o["colno"] = colno\n  o["error"] = error\n
o["bubbles"] = bubbles\n  o["cancelable"] = cancelable\n  o["composed"] = composed\n  return
o\n}\n\n/**\n * Exposes the JavaScript
[PromiseRejectionEvent](https://developer.mozilla.org/en/docs/Web/API/PromiseRejectionEvent) to Kotlin\n
*/\npublic external open class PromiseRejectionEvent(type: String, eventInitDict: PromiseRejectionEventInit) :
Event {\n  open val promise: Promise<Any?>\n
open val reason: Any?\n\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE:
Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\n}\n\npublic external interface
PromiseRejectionEventInit : EventInit {\n  var promise: Promise<Any?>?\n  var reason: Any?\n    get() =
definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",

```

```

\`INVISIBLE_MEMBER\`)@kotlin.internal.InlineOnly\npublic inline fun PromiseRejectionEventInit(promise:
Promise<Any?>?, reason: Any? = undefined, bubbles: Boolean? = false, cancelable: Boolean? = false, composed:
Boolean? = false): PromiseRejectionEventInit {\n    val o = js\`(\{\})\`\n    o\["promise"\] = promise\n
o\["reason"\] = reason\n    o\["bubbles"\] = bubbles\n    o\["cancelable"\] = cancelable\n    o\["composed"\] =
composed\n    return o\n}\n\n\`*\n * Exposes the JavaScript
[GlobalEventHandlers](https://developer.mozilla.org/en/docs/Web/API/GlobalEventHandlers)
to Kotlin\n\n\`*\npublic external interface GlobalEventHandlers {\n    var onabort: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onblur: ((FocusEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var oncancel: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var oncanplay: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var oncanplaythrough: ((Event) -> dynamic)?\n        get()
= definedExternally\n        set(value) = definedExternally\n    var onchange: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onclick: ((MouseEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onclose: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value)
= definedExternally\n    var oncontextmenu: ((MouseEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var oncuechange: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondblclick: ((MouseEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondrag: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondragend: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondragenter: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondragexit: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondragleave: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondragover: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondragstart: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondrop: ((DragEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var ondurationchange: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onemptied: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onended: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n        get() = definedExternally\n
        set(value) = definedExternally\n    var onfocus: ((FocusEvent) -> dynamic)?\n        get() = definedExternally\n
        set(value) = definedExternally\n    var oninput: ((InputEvent)
-> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var oninvalid: ((Event) ->
dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var onkeydown:
((KeyboardEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onkeypress: ((KeyboardEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n
    var onkeyup: ((KeyboardEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onload: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onloadeddata: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onloadedmetadata: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onloadend: ((Event) -> dynamic)?\n        get()
= definedExternally\n        set(value) = definedExternally\n    var onloadstart: ((ProgressEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onmousedown: ((MouseEvent) ->
dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var onmouseenter:
((MouseEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onmouseleave: ((MouseEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n
    var onmousemove: ((MouseEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) =

```

```

definedExternally\n    var onmouseout: ((MouseEvent) -> dynamic)?\n        get() = definedExternally\n
set(value) = definedExternally\n    var onmouseover: ((MouseEvent) -> dynamic)?\n        get() = definedExternally\n
    set(value) = definedExternally\n    var onmouseup: ((MouseEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onwheel: ((WheelEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onpause: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onplay: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onplaying: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onprogress: ((ProgressEvent) -> dynamic)?\n
get() = definedExternally\n        set(value) = definedExternally\n    var onratechange: ((Event) -> dynamic)?\n
get() = definedExternally\n        set(value) = definedExternally\n    var onreset: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onresize: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n
    var onscroll: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onseeked: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onseeking: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onselect: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onshow: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onstalled: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onsubmit: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onsuspend: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
ontimeupdate: ((Event) -> dynamic)?\n        get() = definedExternally\n
        set(value) = definedExternally\n    var ontoggle: ((Event) -> dynamic)?\n        get() = definedExternally\n
set(value) = definedExternally\n    var onvolumechange: ((Event) -> dynamic)?\n        get() = definedExternally\n
set(value) = definedExternally\n    var onwaiting: ((Event) -> dynamic)?\n        get() = definedExternally\n
set(value) = definedExternally\n    var ongotpointercapture: ((PointerEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onlostpointercapture: ((PointerEvent) -> dynamic)?\n
        get() = definedExternally\n        set(value) = definedExternally\n    var onpointerdown: ((PointerEvent) ->
dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var onpointermove:
((PointerEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var
onpointerup: ((PointerEvent) -> dynamic)?\n        get() = definedExternally\n
        set(value) = definedExternally\n    var onpointercancel: ((PointerEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onpointerover: ((PointerEvent) -> dynamic)?\n
get() = definedExternally\n        set(value) = definedExternally\n    var onpointerout: ((PointerEvent) -> dynamic)?\n
        get() = definedExternally\n        set(value) = definedExternally\n    var onpointerenter: ((PointerEvent) ->
dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n    var onpointerleave:
((PointerEvent) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n}\n\n/*\n

```

Exposes the JavaScript

[WindowEventHandlers](<https://developer.mozilla.org/en/docs/Web/API/WindowEventHandlers>) to Kotlin\n

```

*\npublic external interface WindowEventHandlers {\n    var onafterprint: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n
    var onbeforeprint: ((Event) -> dynamic)?\n        get() = definedExternally\n        set(value) = definedExternally\n
    var onbeforeunload: ((BeforeUnloadEvent) -> String)?\n        get() = definedExternally\n        set(value) =
definedExternally\n    var onhashchange: ((HashChangeEvent) -> dynamic)?\n        get() = definedExternally\n
set(value) = definedExternally\n    var onlanguagechange: ((Event) -> dynamic)?\n        get() = definedExternally\n
        set(value) = definedExternally\n    var onmessage: ((MessageEvent) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onoffline: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var ononline: ((Event) -> dynamic)?\n        get() =
definedExternally\n        set(value) = definedExternally\n    var onpagehide: ((PageTransitionEvent) -> dynamic)?\n

```



```

    get() = definedExternally\n    set(value) = definedExternally\n
    var onpageshow: ((PageTransitionEvent) -> dynamic)?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var onpopstate: ((PopStateEvent) -> dynamic)?\n    get() = definedExternally\n
set(value) = definedExternally\n    var onrejectionhandled: ((Event) -> dynamic)?\n    get() = definedExternally\n
    set(value) = definedExternally\n    var onstorage: ((StorageEvent) -> dynamic)?\n    get() = definedExternally\n
    set(value) = definedExternally\n    var onunhandledrejection: ((PromiseRejectionEvent) -> dynamic)?\n
get() = definedExternally\n    set(value) = definedExternally\n    var onunload: ((Event) -> dynamic)?\n    get()
= definedExternally\n    set(value) = definedExternally\n}\n\npublic external interface
DocumentAndElementEventHandlers {\n    var oncopy: ((ClipboardEvent) -> dynamic)?\n    get() =
definedExternally\n    set(value) = definedExternally\n    var oncut: ((ClipboardEvent) ->
dynamic)?\n    get() = definedExternally\n    set(value) = definedExternally\n    var onpaste: ((ClipboardEvent)
-> dynamic)?\n    get() = definedExternally\n    set(value) = definedExternally\n}\n\n**\n * Exposes the
JavaScript
[WindowOrWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/WindowOrWorkerGlobalScope)
to Kotlin\n *^\npublic external interface WindowOrWorkerGlobalScope {\n    val origin: String\n    val caches:
CacheStorage\n    fun btoa(data: String): String\n    fun atob(data: String): String\n    fun setTimeout(handler:
dynamic, timeout: Int = definedExternally, vararg arguments: Any?): Int\n    fun clearTimeout(handle: Int =
definedExternally)\n    fun setInterval(handler: dynamic, timeout: Int = definedExternally, vararg arguments: Any?):
Int\n    fun clearInterval(handle: Int = definedExternally)\n    fun createImageBitmap(image: ImageBitmapSource,
options: ImageBitmapOptions = definedExternally): Promise<ImageBitmap>\n    fun createImageBitmap(image:
ImageBitmapSource, sx: Int, sy: Int, sw: Int, sh: Int, options: ImageBitmapOptions = definedExternally):
Promise<ImageBitmap>\n    fun fetch(input: dynamic, init: RequestInit = definedExternally):
Promise<Response>\n}\n\n**\n * Exposes the JavaScript
[Navigator](https://developer.mozilla.org/en/docs/Web/API/Navigator) to Kotlin\n *^\npublic external abstract class
Navigator : NavigatorID, NavigatorLanguage, NavigatorOnLine, NavigatorContentUtils, NavigatorCookies,
NavigatorPlugins, NavigatorConcurrentHardware {\n    open val clipboard: Clipboard\n    open val mediaDevices:
MediaDevices\n    open val maxTouchPoints: Int\n    open val serviceWorker: ServiceWorkerContainer\n    fun
requestMediaKeySystemAccess(keySystem: String, supportedConfigurations:
Array<MediaKeySystemConfiguration>): Promise<MediaKeySystemAccess>\n    fun getUserMedia(constraints:
MediaStreamConstraints, successCallback: (MediaStream) -> Unit, errorCallback: (dynamic) -> Unit)\n    fun
vibrate(pattern:
dynamic): Boolean\n}\n\n**\n * Exposes the JavaScript
[NavigatorID](https://developer.mozilla.org/en/docs/Web/API/NavigatorID) to Kotlin\n *^\npublic external interface
NavigatorID {\n    val appCodeName: String\n    val appName: String\n    val appVersion: String\n    val platform:
String\n    val product: String\n    val productSub: String\n    val userAgent: String\n    val vendor: String\n    val
vendorSub: String\n    val oscpu: String\n    fun taintEnabled(): Boolean\n}\n\n**\n * Exposes the JavaScript
[NavigatorLanguage](https://developer.mozilla.org/en/docs/Web/API/NavigatorLanguage) to Kotlin\n *^\npublic
external interface NavigatorLanguage {\n    val language: String\n    val languages: Array<out String>\n}\n\npublic
external interface NavigatorContentUtils {\n    fun registerProtocolHandler(scheme: String, url: String, title:
String)\n    fun registerContentHandler(mimeType: String, url: String, title: String)\n    fun
isProtocolHandlerRegistered(scheme: String, url: String):
String\n    fun isContentHandlerRegistered(mimeType: String, url: String): String\n    fun
unregisterProtocolHandler(scheme: String, url: String)\n    fun unregisterContentHandler(mimeType: String, url:
String)\n}\n\npublic external interface NavigatorCookies {\n    val cookieEnabled: Boolean\n}\n\n**\n * Exposes
the JavaScript [NavigatorPlugins](https://developer.mozilla.org/en/docs/Web/API/NavigatorPlugins) to Kotlin\n
*^\npublic external interface NavigatorPlugins {\n    val plugins: PluginArray\n    val mimeTypes:
MimeTypeArray\n    fun javaEnabled(): Boolean\n}\n\n**\n * Exposes the JavaScript
[PluginArray](https://developer.mozilla.org/en/docs/Web/API/PluginArray) to Kotlin\n *^\npublic external abstract

```



```

String, eventInitDict: MessageEventInit = definedExternally) : Event {
    open val data: Any?
    open val origin: String
    open val lastEventId: String
    open val source: UnionMessagePortOrWindowProxy?
    open val ports: Array<out MessagePort>
    fun initMessageEvent(type: String, bubbles: Boolean, cancelable: Boolean, data: Any?, origin: String, lastEventId: String, source: UnionMessagePortOrWindowProxy?, ports: Array<MessagePort>)\n\n companion object {
        val NONE: Short
        val CAPTURING_PHASE: Short
        val AT_TARGET: Short
        val BUBBLING_PHASE: Short
    }\n\npublic external interface MessageEventInit : EventInit {
    var data: Any? /* = null */
    get() = definedExternally\n    set(value) = definedExternally\n    var origin: String? /* = "" */
    get() = definedExternally\n    set(value) = definedExternally\n    var lastEventId: String? /* = "" */
    get() = definedExternally\n    set(value) = definedExternally\n    var source: UnionMessagePortOrWindowProxy? /* = null */
    get() = definedExternally\n    set(value) = definedExternally\n    var ports: Array<MessagePort>? /* = arrayOf() */
    get() = definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun MessageEventInit(data: Any? = null, origin: String? = "", lastEventId: String? = "", source: UnionMessagePortOrWindowProxy? = null, ports: Array<MessagePort>? = arrayOf(), bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): MessageEventInit {
    val o = js("{}")\n    o["data"] = data\n    o["origin"] = origin\n    o["lastEventId"] = lastEventId\n    o["source"] = source\n    o["ports"] = ports\n    o["bubbles"] = bubbles\n    o["cancelable"] = cancelable\n    o["composed"] = composed\n    return o\n}\n\n/**\n * Exposes the JavaScript [EventSource](https://developer.mozilla.org/en/docs/Web/API/EventSource) to Kotlin\n */\npublic external open class EventSource(url: String, eventSourceInitDict: EventSourceInit = definedExternally) : EventTarget {
    open val url: String
    open val withCredentials: Boolean
    open val readyState: Short
    var onopen: ((Event) -> dynamic)?
    var onmessage: ((MessageEvent) -> dynamic)?
    var onerror: ((Event) -> dynamic)?
    fun close()\n\n companion object {
        val CONNECTING: Short
        val OPEN: Short
        val CLOSED: Short
    }\n\npublic external interface EventSourceInit {
    var withCredentials: Boolean? /* = false */
    get() = definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun EventSourceInit(withCredentials: Boolean? = false): EventSourceInit {
    val o = js("{}")\n    o["withCredentials"] = withCredentials\n    return o\n}\n\n/**\n * Exposes the JavaScript [WebSocket](https://developer.mozilla.org/en/docs/Web/API/WebSocket) to Kotlin\n */\npublic external open class WebSocket(url: String, protocols: dynamic = definedExternally) : EventTarget {
    open val url: String
    open val readyState: Short
    open val bufferedAmount: Number
    var onopen: ((Event) -> dynamic)?
    var onerror: ((Event) -> dynamic)?
    var onclose: ((Event) -> dynamic)?
    open val extensions: String
    open val protocol: String
    var onmessage: ((MessageEvent) -> dynamic)?
    var binaryType: BinaryType
    fun close(code: Short = definedExternally, reason: String = definedExternally)\n    fun send(data: String)\n    fun send(data: Blob)\n    fun send(data: ArrayBuffer)\n    fun send(data: ArrayBufferView)\n\n companion object {
        val CONNECTING: Short
        val OPEN: Short
        val CLOSING: Short
        val CLOSED: Short
    }\n\n/**\n * Exposes the JavaScript [CloseEvent](https://developer.mozilla.org/en/docs/Web/API/CloseEvent) to Kotlin\n */\npublic external open class CloseEvent(type: String, eventInitDict: CloseEventInit = definedExternally) : Event {
    open val wasClean: Boolean
    open val code: Short
    open val reason: String\n\n companion object {
        val NONE: Short
        val CAPTURING_PHASE: Short
        val AT_TARGET: Short
        val BUBBLING_PHASE: Short
    }\n\npublic external interface CloseEventInit : EventInit {
    var wasClean: Boolean? /* = false */
    get() = definedExternally\n    set(value) = definedExternally\n    var code: Short? /* = 0 */
    get() = definedExternally\n    set(value) = definedExternally\n    var reason: String? /* = "" */
    get() = definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun CloseEventInit(wasClean: Boolean? = false, code: Short? =

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0, reason: String? = "", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
CloseEventInit { \n val o = js("{}")\n o["wasClean"] = wasClean\n o["code"] = code\n o["reason"] =
reason\n o["bubbles"] = bubbles\n o["cancelable"] = cancelable\n o["composed"] = composed\n return
o\n}\n\n/**\n * Exposes the JavaScript
[MessageChannel](https://developer.mozilla.org/en/docs/Web/API/MessageChannel) to Kotlin\n *\npublic external
open class MessageChannel { \n open val port1: MessagePort\n open val port2: MessagePort\n}\n\n/**\n *
Exposes the JavaScript [MessagePort](https://developer.mozilla.org/en/docs/Web/API/MessagePort) to Kotlin\n
*\npublic external abstract class MessagePort : EventTarget, UnionMessagePortOrWindowProxy,
UnionMessagePortOrServiceWorker, UnionClientOrMessagePortOrServiceWorker { \n open var onmessage:
((MessageEvent) -> dynamic)?\n fun postMessage(message: Any?, transfer: Array<dynamic>
= definedExternally)\n fun start()\n fun close()\n}\n\n/**\n * Exposes the JavaScript
[BroadcastChannel](https://developer.mozilla.org/en/docs/Web/API/BroadcastChannel) to Kotlin\n *\npublic
external open class BroadcastChannel(name: String) : EventTarget { \n open val name: String\n var onmessage:
((MessageEvent) -> dynamic)?\n fun postMessage(message: Any?)\n fun close()\n}\n\n/**\n * Exposes the
JavaScript [WorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/WorkerGlobalScope) to Kotlin\n
*\npublic external abstract class WorkerGlobalScope : EventTarget, WindowOrWorkerGlobalScope,
GlobalPerformance { \n open val self: WorkerGlobalScope\n open val location: WorkerLocation\n open val
navigator: WorkerNavigator\n open var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n open var
onlanguagechange: ((Event) -> dynamic)?\n open var onoffline: ((Event) -> dynamic)?\n open var ononline:
((Event) -> dynamic)?\n open var onrejectionhandled:
((Event) -> dynamic)?\n open var onunhandledrejection: ((PromiseRejectionEvent) -> dynamic)?\n fun
importScripts(vararg urls: String)\n}\n\n/**\n * Exposes the JavaScript
[DedicatedWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/DedicatedWorkerGlobalScope) to
Kotlin\n *\npublic external abstract class DedicatedWorkerGlobalScope : WorkerGlobalScope { \n open var
onmessage: ((MessageEvent) -> dynamic)?\n fun postMessage(message: Any?, transfer: Array<dynamic> =
definedExternally)\n fun close()\n}\n\n/**\n * Exposes the JavaScript
[SharedWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/SharedWorkerGlobalScope) to
Kotlin\n *\npublic external abstract class SharedWorkerGlobalScope : WorkerGlobalScope { \n open val name:
String\n open val applicationCache: ApplicationCache\n open var onconnect: ((Event) -> dynamic)?\n fun
close()\n}\n\n/**\n * Exposes the JavaScript
[AbstractWorker](https://developer.mozilla.org/en/docs/Web/API/AbstractWorker)
to Kotlin\n *\npublic external interface AbstractWorker { \n var onerror: ((Event) -> dynamic)?\n get() =
definedExternally\n set(value) = definedExternally\n}\n\n/**\n * Exposes the JavaScript
[Worker](https://developer.mozilla.org/en/docs/Web/API/Worker) to Kotlin\n *\npublic external open class
Worker(scriptURL: String, options: WorkerOptions = definedExternally) : EventTarget, AbstractWorker { \n var
onmessage: ((MessageEvent) -> dynamic)?\n override var onerror: ((Event) -> dynamic)?\n fun terminate()\n
fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n}\n\npublic external interface
WorkerOptions { \n var type: WorkerType? /* = WorkerType.CLASSIC */\n get() = definedExternally\n
set(value) = definedExternally\n var credentials: RequestCredentials? /* = RequestCredentials.OMIT */\n
get() = definedExternally\n set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun WorkerOptions(type: WorkerType? =
WorkerType.CLASSIC, credentials: RequestCredentials? = RequestCredentials.OMIT): WorkerOptions { \n val o
= js("{}")\n o["type"] = type\n o["credentials"] = credentials\n return o\n}\n\n/**\n * Exposes the
JavaScript [SharedWorker](https://developer.mozilla.org/en/docs/Web/API/SharedWorker) to Kotlin\n *\npublic
external open class SharedWorker(scriptURL: String, name: String = definedExternally, options: WorkerOptions =
definedExternally) : EventTarget, AbstractWorker { \n open val port: MessagePort\n override var onerror:
((Event) -> dynamic)?\n}\n\n/**\n * Exposes the JavaScript
[NavigatorConcurrentHardware](https://developer.mozilla.org/en/docs/Web/API/NavigatorConcurrentHardware) to

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Kotlin\n *\npublic external interface NavigatorConcurrentHardware {\n    val hardwareConcurrency:
Number\n}\n\n**\n * Exposes the JavaScript
[WorkerNavigator](https://developer.mozilla.org/en/docs/Web/API/WorkerNavigator)
to Kotlin\n *\npublic external abstract class WorkerNavigator : NavigatorID, NavigatorLanguage,
NavigatorOnLine, NavigatorConcurrentHardware {\n    open val serviceWorker:
ServiceWorkerContainer\n}\n\n**\n * Exposes the JavaScript
[WorkerLocation](https://developer.mozilla.org/en/docs/Web/API/WorkerLocation) to Kotlin\n *\npublic external
abstract class WorkerLocation {\n    open val href: String\n    open val origin: String\n    open val protocol: String\n
open val host: String\n    open val hostname: String\n    open val port: String\n    open val pathname: String\n    open
val search: String\n    open val hash: String\n}\n\n**\n * Exposes the JavaScript
[Storage](https://developer.mozilla.org/en/docs/Web/API/Storage) to Kotlin\n *\npublic external abstract class
Storage {\n    open val length: Int\n    fun key(index: Int): String?\n    fun removeItem(key: String)\n    fun clear()\n
fun getItem(key: String): String?\n
    fun setItem(key: String, value: String)\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Storage.get(key: String):
String? = asDynamic()[key]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Storage.set(key: String, value:
String) { asDynamic()[key] = value }\n\n**\n * Exposes the JavaScript
[WindowSessionStorage](https://developer.mozilla.org/en/docs/Web/API/WindowSessionStorage) to Kotlin\n
*\npublic external interface WindowSessionStorage {\n    val sessionStorage: Storage\n}\n\n**\n * Exposes the
JavaScript [WindowLocalStorage](https://developer.mozilla.org/en/docs/Web/API/WindowLocalStorage) to
Kotlin\n *\npublic external interface WindowLocalStorage {\n    val localStorage: Storage\n}\n\n**\n * Exposes
the JavaScript [StorageEvent](https://developer.mozilla.org/en/docs/Web/API/StorageEvent) to Kotlin\n *\npublic
external open class
StorageEvent(type: String, eventInitDict: StorageEventInit = definedExternally) : Event {\n    open val key:
String?\n    open val oldValue: String?\n    open val newValue: String?\n    open val url: String\n    open val
storageArea: Storage?\n\n    companion object {\n        val NONE: Short\n        val CAPTURING_PHASE: Short\n
        val AT_TARGET: Short\n        val BUBBLING_PHASE: Short\n    }\n\n\npublic external interface
StorageEventInit : EventInit {\n    var key: String? /* = null */\n        get() = definedExternally\n        set(value) =
definedExternally\n    var oldValue: String? /* = null */\n        get() = definedExternally\n        set(value) =
definedExternally\n    var newValue: String? /* = null */\n        get() = definedExternally\n        set(value) =
definedExternally\n    var url: String? /* = "" */\n        get() = definedExternally\n        set(value) =
definedExternally\n    var storageArea: Storage? /* = null */\n        get() = definedExternally\n
        set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun StorageEventInit(key: String? = null,
oldValue: String? = null, newValue: String? = null, url: String? = "", storageArea: Storage? = null, bubbles:
Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): StorageEventInit {\n    val o =
js("{}")\n    o["key"] = key\n    o["oldValue"] = oldValue\n    o["newValue"] = newValue\n    o["url"] =
url\n    o["storageArea"] = storageArea\n    o["bubbles"] = bubbles\n    o["cancelable"] = cancelable\n
o["composed"] = composed\n    return o\n}\n\npublic external abstract class HTMLAppletElement :
HTMLElement {\n    open var align: String\n    open var alt: String\n    open var archive: String\n    open var code:
String\n    open var codeBase: String\n    open var height: String\n    open var hspace: Int\n    open var name:
String\n    open var _object: String\n
    open var vspace: Int\n    open var width: String\n\n    companion object {\n        val ELEMENT_NODE: Short\n
        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n
        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
        PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
        DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val

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DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLMarqueeElement](https://developer.mozilla.org/en/docs/Web/API/HTMLMarqueeElement) to Kotlin \n
*/ \n public external abstract
class HTMLMarqueeElement : HTMLElement { \n    open var behavior: String \n    open var bgColor: String \n
open var direction: String \n    open var height: String \n    open var hspace: Int \n    open var loop: Int \n
open var scrollAmount: Int \n    open var scrollDelay: Int \n    open var trueSpeed: Boolean \n    open var vspace: Int \n
open var width: String \n    open var onbounce: ((Event) -> dynamic)? \n    open var onfinish: ((Event) -> dynamic)? \n
open var onstart: ((Event) -> dynamic)? \n    fun start() \n    fun stop() \n \n    companion object { \n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE:
Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE:
Short\n        val DOCUMENT_POSITION_DISCONNECTED: Short\n        val
DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes
the JavaScript [HTMLFrameSetElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFrameSetElement)
to Kotlin \n */ \n public external abstract class HTMLFrameSetElement : HTMLElement, WindowEventHandlers { \n
open var cols: String \n    open var rows: String \n \n    companion object { \n        val ELEMENT_NODE: Short\n
val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n
val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n public external abstract class
HTMLFrameElement : HTMLElement { \n    open var name: String \n    open var scrolling: String \n    open var src:
String \n    open var frameBorder: String \n    open var longDesc: String \n    open var noResize: Boolean \n    open val
contentDocument: Document? \n    open val contentWindow: Window? \n    open var marginHeight: String \n    open
var marginWidth: String \n \n    companion object { \n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n
val COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n public external abstract class
HTMLDirectoryElement : HTMLElement { \n    open var compact: Boolean \n \n    companion object { \n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val

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CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n
val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n \n /** \n * Exposes the JavaScript
[HTMLFontElement](https://developer.mozilla.org/en/docs/Web/API/HTMLFontElement) to Kotlin \n * \n public
external abstract class HTMLFontElement : HTMLElement { \n    open var color: String \n    open var face: String \n
open var size: String \n \n    companion object { \n        val ELEMENT_NODE: Short \n        val
ATTRIBUTE_NODE: Short \n        val TEXT_NODE: Short \n        val CDATA_SECTION_NODE: Short \n        val
ENTITY_REFERENCE_NODE: Short \n        val ENTITY_NODE: Short \n        val
PROCESSING_INSTRUCTION_NODE:
Short \n        val COMMENT_NODE: Short \n        val DOCUMENT_NODE: Short \n        val
DOCUMENT_TYPE_NODE: Short \n        val DOCUMENT_FRAGMENT_NODE: Short \n        val
NOTATION_NODE: Short \n        val DOCUMENT_POSITION_DISCONNECTED: Short \n        val
DOCUMENT_POSITION_PRECEDING: Short \n        val DOCUMENT_POSITION_FOLLOWING: Short \n
val DOCUMENT_POSITION_CONTAINS: Short \n        val DOCUMENT_POSITION_CONTAINED_BY:
Short \n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short \n    } \n} \n \n public external
interface External { \n    fun AddSearchProvider() \n    fun IsSearchProviderInstalled() \n} \n \n public external interface
EventInit { \n    var bubbles: Boolean? /* = false */ \n        get() = definedExternally \n        set(value) =
definedExternally \n    var cancelable: Boolean? /* = false */ \n        get() = definedExternally \n        set(value) =
definedExternally \n    var composed: Boolean? /* = false */ \n        get() = definedExternally \n        set(value)
= definedExternally \n} \n \n @Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n @kotlin.internal.InlineOnly \n public inline fun EventInit(bubbles: Boolean? = false,
cancelable: Boolean? = false, composed: Boolean? = false): EventInit { \n    val o = js("{}") \n    o["bubbles"] =
bubbles \n    o["cancelable"] = cancelable \n    o["composed"] = composed \n    return o \n} \n \n /** \n * Exposes the
JavaScript [CustomEvent](https://developer.mozilla.org/en/docs/Web/API/CustomEvent) to Kotlin \n * \n public
external open class CustomEvent(type: String, eventInitDict: CustomEventInit = definedExternally) : Event { \n
    open val detail: Any? \n    fun initCustomEvent(type: String, bubbles: Boolean, cancelable: Boolean, detail:
Any?) \n \n    companion object { \n        val NONE: Short \n        val CAPTURING_PHASE: Short \n        val
AT_TARGET: Short \n        val BUBBLING_PHASE: Short \n    } \n} \n \n public external interface CustomEventInit :
EventInit { \n    var detail: Any? /* = null */ \n
        get() = definedExternally \n        set(value) = definedExternally \n} \n \n @Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n @kotlin.internal.InlineOnly \n public inline fun CustomEventInit(detail: Any? = null,
bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): CustomEventInit { \n    val o
= js("{}") \n    o["detail"] = detail \n    o["bubbles"] = bubbles \n    o["cancelable"] = cancelable \n
    o["composed"] = composed \n    return o \n} \n \n public external interface EventListenerOptions { \n    var capture:
Boolean? /* = false */ \n        get() = definedExternally \n        set(value) =
definedExternally \n} \n \n @Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n @kotlin.internal.InlineOnly \n public inline fun EventListenerOptions(capture:
Boolean? = false): EventListenerOptions { \n    val o = js("{}") \n    o["capture"] = capture \n    return
o \n} \n \n public external interface AddEventListenerOptions : EventListenerOptions { \n    var
passive: Boolean? /* = false */ \n        get() = definedExternally \n        set(value) = definedExternally \n    var once:
Boolean? /* = false */ \n        get() = definedExternally \n        set(value) =
definedExternally \n} \n \n @Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER") \n @kotlin.internal.InlineOnly \n public inline fun AddEventListenerOptions(passive:

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Boolean? = false, once: Boolean? = false, capture: Boolean? = false): AddEventListenerOptions {\n  val o =
js("{}")\n  o["passive"] = passive\n  o["once"] = once\n  o["capture"] = capture\n  return o}\n\npublic
external interface NonElementParentNode {\n  fun getElementById(elementId: String): Element?\n}\n\n**\n *
Exposes the JavaScript
[DocumentOrShadowRoot](https://developer.mozilla.org/en/docs/Web/API/DocumentOrShadowRoot) to Kotlin\n
*\npublic external interface DocumentOrShadowRoot {\n  val fullscreenElement: Element?\n  get() =
definedExternally\n}\n\n**\n * Exposes the JavaScript
[ParentNode](https://developer.mozilla.org/en/docs/Web/API/ParentNode)
to Kotlin\n *\npublic external interface ParentNode {\n  val children: HTMLCollection\n  val firstElementChild:
Element?\n  get() = definedExternally\n  val lastElementChild: Element?\n  get() = definedExternally\n
val childElementCount: Int\n  fun prepend(vararg nodes: dynamic)\n  fun append(vararg nodes: dynamic)\n  fun
querySelector(selectors: String): Element?\n  fun querySelectorAll(selectors: String): NodeList\n}\n\n**\n *
Exposes the JavaScript
[NonDocumentTypeChildNode](https://developer.mozilla.org/en/docs/Web/API/NonDocumentTypeChildNode) to
Kotlin\n *\npublic external interface NonDocumentTypeChildNode {\n  val previousElementSibling: Element?\n
  get() = definedExternally\n  val nextElementSibling: Element?\n  get() = definedExternally\n}\n\n**\n *
Exposes the JavaScript [ChildNode](https://developer.mozilla.org/en/docs/Web/API/ChildNode) to Kotlin\n
*\npublic
external interface ChildNode {\n  fun before(vararg nodes: dynamic)\n  fun after(vararg nodes: dynamic)\n  fun
replaceWith(vararg nodes: dynamic)\n  fun remove()\n}\n\n**\n * Exposes the JavaScript
[Slotable](https://developer.mozilla.org/en/docs/Web/API/Slotable) to Kotlin\n *\npublic external interface Slotable
{\n  val assignedSlot: HTMLSlotElement?\n  get() = definedExternally\n}\n\n**\n * Exposes the JavaScript
[NodeList](https://developer.mozilla.org/en/docs/Web/API/NodeList) to Kotlin\n *\npublic external abstract class
NodeList : ItemArrayLike<Node> {\n  override fun item(index: Int):
Node?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun NodeList.get(index: Int):
Node? = asDynamic()[index]\n\n**\n * Exposes the JavaScript
[HTMLCollection](https://developer.mozilla.org/en/docs/Web/API/HTMLCollection) to Kotlin\n *\npublic
external abstract class HTMLCollection : ItemArrayLike<Element>,
UnionElementOrHTMLCollection {\n  override fun item(index: Int): Element?\n  fun namedItem(name: String):
Element?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLCollection.get(index:
Int): Element? = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun HTMLCollection.get(name:
String): Element? = asDynamic()[name]\n\n**\n * Exposes the JavaScript
[MutationObserver](https://developer.mozilla.org/en/docs/Web/API/MutationObserver) to Kotlin\n *\npublic
external open class MutationObserver(callback: (Array<MutationRecord>, MutationObserver) -> Unit) {\n  fun
observe(target: Node, options: MutationObserverInit = definedExternally)\n  fun disconnect()\n  fun
takeRecords(): Array<MutationRecord>\n}\n\n**\n * Exposes the JavaScript
[MutationObserverInit](https://developer.mozilla.org/en/docs/Web/API/MutationObserverInit)
to Kotlin\n *\npublic external interface MutationObserverInit {\n  var childList: Boolean? /* = false */\n  get()
= definedExternally\n  set(value) = definedExternally\n  var attributes: Boolean?\n  get() =
definedExternally\n  set(value) = definedExternally\n  var characterData: Boolean?\n  get() =
definedExternally\n  set(value) = definedExternally\n  var subtree: Boolean? /* = false */\n  get() =
definedExternally\n  set(value) = definedExternally\n  var attributeOldValue: Boolean?\n  get() =
definedExternally\n  set(value) = definedExternally\n  var characterDataOldValue: Boolean?\n  get() =
definedExternally\n  set(value) = definedExternally\n  var attributeFilter: Array<String>?\n  get() =
definedExternally\n  set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",

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\@kotlin.internal.InlineOnly\npublic inline fun MutationObserverInit(childList:
Boolean? = false, attributes: Boolean? = undefined, characterData: Boolean? = undefined, subtree: Boolean? =
false, attributeOldValue: Boolean? = undefined, characterDataOldValue: Boolean? = undefined, attributeFilter:
Array<String?> = undefined): MutationObserverInit {\n val o = js("{}")\n o["childList"] = childList\n
o["attributes"] = attributes\n o["characterData"] = characterData\n o["subtree"] = subtree\n
o["attributeOldValue"] = attributeOldValue\n o["characterDataOldValue"] = characterDataOldValue\n
o["attributeFilter"] = attributeFilter\n return o\n}\n\n/**\n * Exposes the JavaScript
[MutationRecord](https://developer.mozilla.org/en/docs/Web/API/MutationRecord) to Kotlin\n */\npublic external
abstract class MutationRecord {\n open val type: String\n open val target: Node\n open val addedNodes:
NodeList\n open val removedNodes: NodeList\n open val previousSibling: Node?\n open val nextSibling:
Node?\n open val attributeName:
String?\n open val attributeNamespace: String?\n open val oldValue: String?\n}\n\n/**\n * Exposes the
JavaScript [Node](https://developer.mozilla.org/en/docs/Web/API/Node) to Kotlin\n */\npublic external abstract
class Node : EventTarget {\n open val nodeType: Short\n open val nodeName: String\n open val baseURI:
String\n open val isConnected: Boolean\n open val ownerDocument: Document?\n open val parentNode:
Node?\n open val parentElement: Element?\n open val childNodes: NodeList\n open val firstChild: Node?\n
open val lastChild: Node?\n open val previousSibling: Node?\n open val nextSibling: Node?\n open var
nodeValue: String?\n open var textContent: String?\n fun getRootNode(options: GetRootNodeOptions =
definedExternally): Node\n fun hasChildNodes(): Boolean\n fun normalize()\n fun cloneNode(deep: Boolean
= definedExternally): Node\n fun isEqualNode(otherNode: Node?): Boolean\n fun isSameNode(otherNode:
Node?):
Boolean\n fun compareDocumentPosition(other: Node): Short\n fun contains(other: Node?): Boolean\n fun
lookupPrefix(namespace: String?): String?\n fun lookupNamespaceURI(prefix: String?): String?\n fun
isDefaultNamespace(namespace: String?): Boolean\n fun insertBefore(node: Node, child: Node?): Node\n fun
appendChild(node: Node): Node\n fun replaceChild(node: Node, child: Node): Node\n fun removeChild(child:
Node): Node\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE:
Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val
ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val
PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING:
Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n val
DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY: Short\n
val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external interface
GetRootNodeOptions {\n var composed: Boolean? /* = false */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress("\@kotlin.internal.InlineOnly\npublic inline fun GetRootNodeOptions(composed:
Boolean? = false): GetRootNodeOptions {\n val o = js("{}")\n o["composed"] = composed\n return
o\n}\n\n/**\n * Exposes the JavaScript [Document](https://developer.mozilla.org/en/docs/Web/API/Document) to
Kotlin\n */\npublic external open class Document : Node, GlobalEventHandlers,
DocumentAndElementEventHandlers, NonElementParentNode, DocumentOrShadowRoot, ParentNode,
GeometryUtils {\n open val implementation: DOMImplementation\n
open val URL: String\n open val documentURI: String\n open val origin: String\n open val compatMode:
String\n open val characterSet: String\n open val charset: String\n open val inputEncoding: String\n open val
contentType: String\n open val doctype: DocumentType?\n open val documentElement: Element?\n open val
location: Location?\n var domain: String\n open val referrer: String\n var cookie: String\n open val
lastModified: String\n open val readyState: DocumentReadyState\n var title: String\n var dir: String\n var

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body: HTMLElement? \n open val head: HTMLHeadElement? \n open val images: HTMLCollection \n open val embeds: HTMLCollection \n open val plugins: HTMLCollection \n open val links: HTMLCollection \n open val forms: HTMLCollection \n open val scripts: HTMLCollection \n open val currentScript: HTMLScriptElement? \n open val defaultView: Window? \n open val activeElement: Element? \n var designMode: String \n var onreadystatechange: ((Event) -> dynamic)? \n var fgColor: String \n var linkColor: String \n var vlinkColor: String \n var alinkColor: String \n var bgColor: String \n open val anchors: HTMLCollection \n open val applets: HTMLCollection \n open val all: HTMLAllCollection \n open val scrollingElement: Element? \n open val styleSheets: StyleSheetList \n open val rootElement: SVGSVGElement? \n open val fullscreenEnabled: Boolean \n open val fullscreen: Boolean \n var onfullscreenchange: ((Event) -> dynamic)? \n var onfullscreenerror: ((Event) -> dynamic)? \n override var onabort: ((Event) -> dynamic)? \n override var onblur: ((FocusEvent) -> dynamic)? \n override var oncancel: ((Event) -> dynamic)? \n override var oncanplay: ((Event) -> dynamic)? \n override var oncanplaythrough: ((Event) -> dynamic)? \n override var onchange: ((Event) -> dynamic)? \n override var onclick: ((MouseEvent) -> dynamic)? \n override var onclose: ((Event) -> dynamic)? \n override var oncontextmenu: ((MouseEvent) -> dynamic)? \n override var oncuechange: ((Event) -> dynamic)? \n override var ondblclick: ((MouseEvent) -> dynamic)? \n override var ondrag: ((DragEvent) -> dynamic)? \n override var ondragend: ((DragEvent) -> dynamic)? \n override var ondragenter: ((DragEvent) -> dynamic)? \n override var ondragexit: ((DragEvent) -> dynamic)? \n override var ondragleave: ((DragEvent) -> dynamic)? \n override var ondragover: ((DragEvent) -> dynamic)? \n override var ondragstart: ((DragEvent) -> dynamic)? \n override var ondrop: ((DragEvent) -> dynamic)? \n override var ondurationchange: ((Event) -> dynamic)? \n override var onemptied: ((Event) -> dynamic)? \n override var onended: ((Event) -> dynamic)? \n override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)? \n override var onfocus: ((FocusEvent) -> dynamic)? \n override var oninput: ((InputEvent) -> dynamic)? \n override var oninvalid: ((Event) -> dynamic)? \n override var onkeydown: ((KeyboardEvent) -> dynamic)? \n override var onkeypress: ((KeyboardEvent) -> dynamic)? \n override var onkeyup: ((KeyboardEvent) -> dynamic)? \n override var onload: ((Event) -> dynamic)? \n override var onloadeddata: ((Event) -> dynamic)? \n override var onloadedmetadata: ((Event) -> dynamic)? \n override var onloadend: ((Event) -> dynamic)? \n override var onloadstart: ((ProgressEvent) -> dynamic)? \n override var onmousedown: ((MouseEvent) -> dynamic)? \n override var onmouseenter: ((MouseEvent) -> dynamic)? \n override var onmouseleave: ((MouseEvent) -> dynamic)? \n override var onmousemove: ((MouseEvent) -> dynamic)? \n override var onmouseout: ((MouseEvent) -> dynamic)? \n override var onmouseover: ((MouseEvent) -> dynamic)? \n override var onmouseup: ((MouseEvent) -> dynamic)? \n override var onwheel: ((WheelEvent) -> dynamic)? \n override var onpause: ((Event) -> dynamic)? \n override var onplay: ((Event) -> dynamic)? \n override var onplaying: ((Event) -> dynamic)? \n override var onprogress: ((ProgressEvent) -> dynamic)? \n override var onratechange: ((Event) -> dynamic)? \n override var onreset: ((Event) -> dynamic)? \n override var onresize: ((Event) -> dynamic)? \n override var onscroll: ((Event) -> dynamic)? \n override var onseeked: ((Event) -> dynamic)? \n override var onseeking: ((Event) -> dynamic)? \n override var onselect: ((Event) -> dynamic)? \n override var onshow: ((Event) -> dynamic)? \n override var onstalled: ((Event) -> dynamic)? \n override var onsubmit: ((Event) -> dynamic)? \n override var onsuspend: ((Event) -> dynamic)? \n override var ontimeupdate: ((Event) -> dynamic)? \n override var ontoggle: ((Event) -> dynamic)? \n override var onvolumechange: ((Event) -> dynamic)? \n override var onwaiting: ((Event) -> dynamic)? \n override var ongotpointercapture: ((PointerEvent) -> dynamic)? \n override var onlostpointercapture: ((PointerEvent) -> dynamic)? \n override var onpointerdown: ((PointerEvent) -> dynamic)? \n override var onpointermove: ((PointerEvent) -> dynamic)? \n override var onpointerup: ((PointerEvent) -> dynamic)? \n override var onpointercancel: ((PointerEvent) -> dynamic)? \n override var onpointerover: ((PointerEvent) -> dynamic)? \n override var onpointerout: ((PointerEvent) -> dynamic)? \n override var onpointerenter:

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(PointerEvent) -> dynamic)?\n  override var onpointerleave: ((PointerEvent) -> dynamic)?\n  override var
oncopy: ((ClipboardEvent) -> dynamic)?\n  override var oncut: ((ClipboardEvent) -> dynamic)?\n  override var
onpaste: ((ClipboardEvent) -> dynamic)?\n  override val fullscreenElement: Element?\n  override val children:
HTMLCollection\n  override val firstElementChild: Element?\n  override val lastElementChild: Element?\n
override val childElementCount: Int\n  fun getElementsByTagName(qualifiedName: String): HTMLCollection\n
  fun getElementsByTagNameNS(namespace: String?, localName: String): HTMLCollection\n  fun
getElementsByTagName(className: String): HTMLCollection\n  fun createElement(localName: String,
options: ElementCreationOptions = definedExternally): Element\n  fun createElementNS(namespace: String?,
qualifiedName: String, options: ElementCreationOptions = definedExternally): Element\n  fun
createDocumentFragment(): DocumentFragment\n  fun createTextNode(data: String): Text\n  fun
createCDATASection(data: String): CDATASection\n  fun createComment(data: String): Comment\n  fun
createProcessingInstruction(target: String, data: String): ProcessingInstruction\n  fun importNode(node: Node,
deep: Boolean = definedExternally): Node\n  fun adoptNode(node: Node): Node\n  fun
createAttribute(localName: String): Attr\n  fun createAttributeNS(namespace: String?, qualifiedName: String):
Attr\n  fun createEvent(`interface`: String): Event\n  fun createRange(): Range\n  fun
createNodeIterator(root: Node, whatToShow: Int = definedExternally, filter: NodeFilter? = definedExternally):
NodeIterator\n  fun createNodeIterator(root: Node, whatToShow: Int = definedExternally, filter: ((Node) -> Short)?
= definedExternally): NodeIterator\n  fun createTreeWalker(root: Node, whatToShow: Int = definedExternally,
filter: NodeFilter? = definedExternally): TreeWalker\n  fun createTreeWalker(root: Node, whatToShow: Int =
definedExternally, filter: ((Node) -> Short)? = definedExternally): TreeWalker\n  fun
getElementsByTagName(elementName: String): NodeList\n  fun open(type: String = definedExternally, replace:
String = definedExternally): Document\n  fun open(url: String, name: String, features: String): Window\n  fun
close()\n  fun write(vararg text: String)\n  fun writeln(vararg text: String)\n  fun hasFocus(): Boolean\n  fun
execCommand(commandId: String, showUI: Boolean = definedExternally, value: String = definedExternally):
Boolean\n  fun queryCommandEnabled(commandId:
String): Boolean\n  fun queryCommandIndeterm(commandId: String): Boolean\n  fun
queryCommandState(commandId: String): Boolean\n  fun queryCommandSupported(commandId: String):
Boolean\n  fun queryCommandValue(commandId: String): String\n  fun clear()\n  fun captureEvents()\n  fun
releaseEvents()\n  fun elementFromPoint(x: Double, y: Double): Element?\n  fun elementsFromPoint(x: Double,
y: Double): Array<Element>\n  fun caretPositionFromPoint(x: Double, y: Double): CaretPosition?\n  fun
createTouch(view: Window, target: EventTarget, identifier: Int, pageX: Int, pageY: Int, screenX: Int, screenY: Int):
Touch\n  fun createTouchList(vararg touches: Touch): TouchList\n  fun exitFullscreen(): Promise<Unit>\n
override fun getElementById(elementId: String): Element?\n  override fun prepend(vararg nodes: dynamic)\n
override fun append(vararg nodes: dynamic)\n  override fun querySelector(selectors: String): Element?\n
override fun
querySelectorAll(selectors: String): NodeList\n  override fun getBoxQuads(options: BoxQuadOptions /* =
definedExternally */): Array<DOMQuad>\n  override fun convertQuadFromNode(quad: dynamic, from: dynamic,
options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n  override fun
convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* =
definedExternally */): DOMQuad\n  override fun convertPointFromNode(point: DOMPointInit, from: dynamic,
options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n  companion object {\n    val
ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE:
Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n
val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n

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    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY:
Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n
}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun Document.get(name: String):
dynamic = asDynamic()[name]\n\n/**\n * Exposes the JavaScript
[XMLDocument](https://developer.mozilla.org/en/docs/Web/API/XMLDocument) to Kotlin\n */\npublic external
open class XMLDocument : Document {\n    companion object {\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n
        val COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE:
Short\n        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external interface
ElementCreationOptions {\n    var `is`: String?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun ElementCreationOptions(`is`: String?
= undefined): ElementCreationOptions {\n    val o = js("{}")\n    o["is"] = `is`\n    return o\n}\n\n/**\n *
Exposes the JavaScript
[DOMImplementation](https://developer.mozilla.org/en/docs/Web/API/DOMImplementation)
to Kotlin\n */\npublic external abstract class DOMImplementation {\n    fun createDocumentType(qualifiedName:
String, publicId: String, systemId: String): DocumentType\n    fun createDocument(namespace: String?,
qualifiedName: String, doctype: DocumentType? = definedExternally): XMLDocument\n    fun
createHTMLDocument(title: String = definedExternally): Document\n    fun hasFeature(): Boolean\n}\n\n/**\n *
Exposes the JavaScript [DocumentType](https://developer.mozilla.org/en/docs/Web/API/DocumentType) to
Kotlin\n */\npublic external abstract class DocumentType : Node, ChildNode {\n    open val name: String\n    open
val publicId: String\n    open val systemId: String\n\n    companion object {\n        val ELEMENT_NODE: Short\n
        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n
        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[DocumentFragment](https://developer.mozilla.org/en/docs/Web/API/DocumentFragment) to Kotlin\n */\npublic
external open class DocumentFragment : Node, NonElementParentNode, ParentNode {\n    override val children:
HTMLCollection\n    override val firstElementChild: Element?\n    override val lastElementChild: Element?\n
    override val childElementCount: Int\n    override fun getElementById(elementId: String): Element?\n    override fun
prepend(vararg nodes: dynamic)\n    override fun
append(vararg nodes: dynamic)\n    override fun querySelector(selectors: String): Element?\n    override fun
querySelectorAll(selectors: String): NodeList\n\n    companion object {\n        val ELEMENT_NODE: Short\n
        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n
        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val

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DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val  
DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val  
DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n  
val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n  
val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val  
DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n } \n } \n \n /\*\* \n \* Exposes the JavaScript  
[ShadowRoot](https://developer.mozilla.org/en/docs/Web/API/ShadowRoot)  
to Kotlin \n \* \n public external open class ShadowRoot : DocumentFragment, DocumentOrShadowRoot { \n open  
val mode: ShadowRootMode \n open val host: Element \n override val fullscreenElement: Element? \n \n  
companion object { \n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val  
TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE:  
Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val  
COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n  
val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val  
DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n  
val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n  
val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val  
DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC:  
Short\n } \n } \n \n /\*\* \n \* Exposes the JavaScript  
[Element](https://developer.mozilla.org/en/docs/Web/API/Element) to Kotlin \n \* \n public external abstract class  
Element : Node, ParentNode, NonDocumentTypeChildNode, ChildNode, Slotable, GeometryUtils,  
UnionElementOrHTMLCollection, UnionElementOrRadioNodeList, UnionElementOrMouseEvent,  
UnionElementOrProcessingInstruction { \n open val namespaceURI: String? \n open val prefix: String? \n open  
val localName: String \n open val tagName: String \n open var id: String \n open var className: String \n open  
val classList: DOMTokenList \n open var slot: String \n open val attributes: NamedNodeMap \n open val  
shadowRoot: ShadowRoot? \n open var scrollTop: Double \n open var scrollLeft: Double \n open val  
scrollWidth: Int \n open val scrollHeight: Int \n open val clientTop: Int \n open val clientLeft: Int \n open val  
clientWidth: Int \n open val clientHeight: Int \n open var innerHTML: String \n  
open var outerHTML: String \n fun hasAttributes(): Boolean \n fun getAttributeNames(): Array<String> \n  
fun getAttribute(qualifiedName: String): String? \n fun getAttributeNS(namespace: String?, localName: String):  
String? \n fun setAttribute(qualifiedName: String, value: String) \n fun setAttributeNS(namespace: String?,  
qualifiedName: String, value: String) \n fun removeAttribute(qualifiedName: String) \n fun  
removeAttributeNS(namespace: String?, localName: String) \n fun hasAttribute(qualifiedName: String): Boolean \n  
fun hasAttributeNS(namespace: String?, localName: String): Boolean \n fun getAttributeNode(qualifiedName:  
String): Attr? \n fun getAttributeNodeNS(namespace: String?, localName: String): Attr? \n fun  
setAttributeNode(attr: Attr): Attr? \n fun setAttributeNodeNS(attr: Attr): Attr? \n fun removeAttributeNode(attr:  
Attr): Attr \n fun attachShadow(init: ShadowRootInit): ShadowRoot \n fun closest(selectors: String): Element? \n  
fun  
matches(selectors: String): Boolean \n fun webkitMatchesSelector(selectors: String): Boolean \n fun  
getElementsByTagName(qualifiedName: String): HTMLCollection \n fun  
getElementsByTagNameNS(namespace: String?, localName: String): HTMLCollection \n fun  
getElementsByClassName(classNames: String): HTMLCollection \n fun insertAdjacentElement(where: String,  
element: Element): Element? \n fun insertAdjacentText(where: String, data: String) \n fun getClientRects():  
Array<DOMRect> \n fun getBoundingClientRect(): DOMRect \n fun scrollIntoView() \n fun  
scrollIntoView(arg: dynamic) \n fun scroll(options: ScrollToOptions = definedExternally) \n fun scroll(x: Double,  
y: Double) \n fun scrollTo(options: ScrollToOptions = definedExternally) \n fun scrollTo(x: Double, y: Double) \n  
fun scrollBy(options: ScrollToOptions = definedExternally) \n fun scrollBy(x: Double, y: Double) \n fun  
insertAdjacentHTML(position: String, text: String) \n fun setPointerCapture(pointerId:

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Int)\n fun releasePointerCapture(pointerId: Int)\n fun hasPointerCapture(pointerId: Int): Boolean\n fun
requestFullscreen(): Promise<Unit>\n\n companion object {\n val ELEMENT_NODE: Short\n val
ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val
ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val
PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external interface
ShadowRootInit {\n var mode:
ShadowRootMode?\n}\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ShadowRootInit(mode:
ShadowRootMode?): ShadowRootInit {\n val o = js(\\"({})\")\n o[\"mode\"] = mode\n return o\n}\n\n/**\n *
Exposes the JavaScript [NamedNodeMap](https://developer.mozilla.org/en/docs/Web/API/NamedNodeMap) to
Kotlin\n */\npublic external abstract class NamedNodeMap : ItemArrayLike<Attr> {\n fun
getNamedItemNS(namespace: String?, localName: String): Attr?\n fun setNamedItem(attr: Attr): Attr?\n fun
setNamedItemNS(attr: Attr): Attr?\n fun removeNamedItem(qualifiedName: String): Attr\n fun
removeNamedItemNS(namespace: String?, localName: String): Attr\n override fun item(index: Int): Attr?\n fun
getNamedItem(qualifiedName: String): Attr?\n}\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun NamedNodeMap.get(index:
Int): Attr? = asDynamic()[index]\n\n@Suppress(\\"INVISIBLE_REFERENCE\",
\\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun
NamedNodeMap.get(qualifiedName: String): Attr? = asDynamic()[qualifiedName]\n\n/**\n * Exposes the
JavaScript [Attr](https://developer.mozilla.org/en/docs/Web/API/Attr) to Kotlin\n */\npublic external abstract class
Attr : Node {\n open val namespaceURI: String?\n open val prefix: String?\n open val localName: String\n
open val name: String\n open var value: String\n open val ownerElement: Element?\n open val specified:
Boolean\n\n companion object {\n val ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n
val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE:
Short\n val ENTITY_NODE: Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val
COMMENT_NODE: Short\n val DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n
val DOCUMENT_FRAGMENT_NODE: Short\n
val NOTATION_NODE: Short\n val DOCUMENT_POSITION_DISCONNECTED: Short\n val
DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING: Short\n
val DOCUMENT_POSITION_CONTAINS: Short\n val DOCUMENT_POSITION_CONTAINED_BY:
Short\n val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes
the JavaScript [CharacterData](https://developer.mozilla.org/en/docs/Web/API/CharacterData) to Kotlin\n
*/\npublic external abstract class CharacterData : Node, NonDocumentTypeChildNode, ChildNode {\n open var
data: String\n open val length: Int\n fun substringData(offset: Int, count: Int): String\n fun appendData(data:
String)\n fun insertData(offset: Int, data: String)\n fun deleteData(offset: Int, count: Int)\n fun
replaceData(offset: Int, count: Int, data: String)\n\n companion object {\n val ELEMENT_NODE: Short\n
val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE:
Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val
PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n

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    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[Text](https://developer.mozilla.org/en/docs/Web/API/Text) to Kotlin\n */\npublic external open class Text(data:
String = definedExternally) : CharacterData, Slotable, GeometryUtils {\n    open val wholeText: String\n    override
val assignedSlot: HTMLSlotElement?\n    override val previousElementSibling: Element?\n
    override val nextElementSibling: Element?\n    fun splitText(offset: Int): Text\n    override fun
getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n    override fun
convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally
*/): DOMQuad\n    override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options:
ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n    override fun convertPointFromNode(point:
DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n
    override fun before(vararg nodes: dynamic)\n    override fun after(vararg nodes: dynamic)\n    override fun
replaceWith(vararg nodes: dynamic)\n    override fun remove()\n\n    companion object {\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[CDATASection](https://developer.mozilla.org/en/docs/Web/API/CDATASection) to Kotlin\n */\npublic external
open class CDATASection : Text {\n    companion object {\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE:
Short\n        val COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val
DOCUMENT_TYPE_NODE: Short\n        val DOCUMENT_FRAGMENT_NODE: Short\n        val
NOTATION_NODE: Short\n        val DOCUMENT_POSITION_DISCONNECTED: Short\n        val
DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
        val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [ProcessingInstruction](https://developer.mozilla.org/en/docs/Web/API/ProcessingInstruction) to
Kotlin\n */\npublic external abstract class ProcessingInstruction : CharacterData, LinkStyle,
UnionElementOrProcessingInstruction {\n    open val target: String\n\n    companion object {\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[Comment](https://developer.mozilla.org/en/docs/Web/API/Comment) to Kotlin\n */\npublic external open class
Comment(data: String = definedExternally) : CharacterData {\n    override val previousElementSibling: Element?\n

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fun toggle(token: String, force: Boolean = definedExternally): Boolean\n fun replace(token: String, newToken:
String)\n fun supports(token: String): Boolean\n override fun item(index: Int):
String?\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMTokenList.get(index:
Int): String? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[DOMPointReadOnly](https://developer.mozilla.org/en/docs/Web/API/DOMPointReadOnly) to Kotlin\n */\npublic
external open class DOMPointReadOnly(x:
Double, y: Double, z: Double, w: Double) {\n open val x: Double\n open val y: Double\n open val z:
Double\n open val w: Double\n fun matrixTransform(matrix: DOMMatrixReadOnly): DOMPoint\n}\n\n/**\n *
Exposes the JavaScript [DOMPoint](https://developer.mozilla.org/en/docs/Web/API/DOMPoint) to Kotlin\n
*/\npublic external open class DOMPoint : DOMPointReadOnly {\n constructor(point: DOMPointInit)\n
constructor(x: Double = definedExternally, y: Double = definedExternally, z: Double = definedExternally, w:
Double = definedExternally)\n override var x: Double\n override var y: Double\n override var z: Double\n
override var w: Double\n}\n\n/**\n * Exposes the JavaScript
[DOMPointInit](https://developer.mozilla.org/en/docs/Web/API/DOMPointInit) to Kotlin\n */\npublic external
interface DOMPointInit {\n var x: Double? /* = 0.0 */\n get() = definedExternally\n set(value) =
definedExternally\n var y: Double? /* = 0.0 */\n get()
= definedExternally\n set(value) = definedExternally\n var z: Double? /* = 0.0 */\n get() =
definedExternally\n set(value) = definedExternally\n var w: Double? /* = 1.0 */\n get() =
definedExternally\n set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun DOMPointInit(x: Double? = 0.0, y:
Double? = 0.0, z: Double? = 0.0, w: Double? = 1.0): DOMPointInit {\n val o = js("{}")\n o["x"] = x\n
o["y"] = y\n o["z"] = z\n o["w"] = w\n return o\n}\n\n/**\n * Exposes the JavaScript
[DOMRect](https://developer.mozilla.org/en/docs/Web/API/DOMRect) to Kotlin\n */\npublic external open class
DOMRect(x: Double = definedExternally, y: Double = definedExternally, width: Double = definedExternally,
height: Double = definedExternally) : DOMRectReadOnly {\n override var x: Double\n override var y: Double\n
override var width: Double\n override
var height: Double\n}\n\n/**\n * Exposes the JavaScript
[DOMRectReadOnly](https://developer.mozilla.org/en/docs/Web/API/DOMRectReadOnly) to Kotlin\n */\npublic
external open class DOMRectReadOnly(x: Double, y: Double, width: Double, height: Double) {\n open val x:
Double\n open val y: Double\n open val width: Double\n open val height: Double\n open val top: Double\n
open val right: Double\n open val bottom: Double\n open val left: Double\n}\n\npublic external interface
DOMRectInit {\n var x: Double? /* = 0.0 */\n get() = definedExternally\n set(value) =
definedExternally\n var y: Double? /* = 0.0 */\n get() = definedExternally\n set(value) =
definedExternally\n var width: Double? /* = 0.0 */\n get() = definedExternally\n set(value) =
definedExternally\n var height: Double? /* = 0.0 */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic
inline fun DOMRectInit(x: Double? = 0.0, y: Double? = 0.0, width: Double? = 0.0, height: Double? = 0.0):
DOMRectInit {\n val o = js("{}")\n o["x"] = x\n o["y"] = y\n o["width"] = width\n o["height"] =
height\n return o\n}\n\npublic external interface DOMRectList : ItemArrayLike<DOMRect> {\n override fun
item(index: Int): DOMRect?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun DOMRectList.get(index: Int):
DOMRect? = asDynamic()[index]\n\n/**\n * Exposes the JavaScript
[DOMQuad](https://developer.mozilla.org/en/docs/Web/API/DOMQuad) to Kotlin\n */\npublic external open class
DOMQuad {\n constructor(p1: DOMPointInit = definedExternally, p2: DOMPointInit = definedExternally, p3:
DOMPointInit = definedExternally, p4: DOMPointInit = definedExternally)\n constructor(rect: DOMRectInit)\n
open val p1: DOMPoint\n open val p2:

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DOMPoint\n open val p3: DOMPoint\n open val p4: DOMPoint\n open val bounds:
DOMRectReadOnly\n}\n\n**\n * Exposes the JavaScript
[DOMMatrixReadOnly](https://developer.mozilla.org/en/docs/Web/API/DOMMatrixReadOnly) to Kotlin\n
*\npublic external open class DOMMatrixReadOnly(numberSequence: Array<Double>) {\n open val a: Double\n
open val b: Double\n open val c: Double\n open val d: Double\n open val e: Double\n open val f: Double\n
open val m11: Double\n open val m12: Double\n open val m13: Double\n open val m14: Double\n open val
m21: Double\n open val m22: Double\n open val m23: Double\n open val m24: Double\n open val m31:
Double\n open val m32: Double\n open val m33: Double\n open val m34: Double\n open val m41: Double\n
open val m42: Double\n open val m43: Double\n open val m44: Double\n open val is2D: Boolean\n open
val isIdentity: Boolean\n fun translate(tx: Double, ty: Double, tz: Double = definedExternally):
DOMMatrix\n fun scale(scale: Double, originX: Double = definedExternally, originY: Double =
definedExternally): DOMMatrix\n fun scale3d(scale: Double, originX: Double = definedExternally, originY:
Double = definedExternally, originZ: Double = definedExternally): DOMMatrix\n fun scaleNonUniform(scaleX:
Double, scaleY: Double = definedExternally, scaleZ: Double = definedExternally, originX: Double =
definedExternally, originY: Double = definedExternally, originZ: Double = definedExternally): DOMMatrix\n fun
rotate(angle: Double, originX: Double = definedExternally, originY: Double = definedExternally): DOMMatrix\n
fun rotateFromVector(x: Double, y: Double): DOMMatrix\n fun rotateAxisAngle(x: Double, y: Double, z:
Double, angle: Double): DOMMatrix\n fun skewX(sx: Double): DOMMatrix\n fun skewY(sy: Double):
DOMMatrix\n fun multiply(other: DOMMatrix): DOMMatrix\n fun flipX(): DOMMatrix\n fun flipY():
DOMMatrix\n fun inverse(): DOMMatrix\n
fun transformPoint(point: DOMPointInit = definedExternally): DOMPoint\n fun toFloat32Array():
Float32Array\n fun toFloat64Array(): Float64Array\n}\n\n**\n * Exposes the JavaScript
[DOMMatrix](https://developer.mozilla.org/en/docs/Web/API/DOMMatrix) to Kotlin\n
*\npublic external open
class DOMMatrix() : DOMMatrixReadOnly {\n constructor(transformList: String)\n constructor(other:
DOMMatrixReadOnly)\n constructor(array32: Float32Array)\n constructor(array64: Float64Array)\n
constructor(numberSequence: Array<Double>)\n override var a: Double\n override var b: Double\n override
var c: Double\n override var d: Double\n override var e: Double\n override var f: Double\n override var m11:
Double\n override var m12: Double\n override var m13: Double\n override var m14: Double\n override var
m21: Double\n override var m22: Double\n override var m23: Double\n override var m24: Double\n override
var m31: Double\n override
var m32: Double\n override var m33: Double\n override var m34: Double\n override var m41: Double\n
override var m42: Double\n override var m43: Double\n override var m44: Double\n fun multiplySelf(other:
DOMMatrix): DOMMatrix\n fun preMultiplySelf(other: DOMMatrix): DOMMatrix\n fun translateSelf(tx:
Double, ty: Double, tz: Double = definedExternally): DOMMatrix\n fun scaleSelf(scale: Double, originX: Double
= definedExternally, originY: Double = definedExternally): DOMMatrix\n fun scale3dSelf(scale: Double,
originX: Double = definedExternally, originY: Double = definedExternally, originZ: Double = definedExternally):
DOMMatrix\n fun scaleNonUniformSelf(scaleX: Double, scaleY: Double = definedExternally, scaleZ: Double =
definedExternally, originX: Double = definedExternally, originY: Double = definedExternally, originZ: Double =
definedExternally): DOMMatrix\n fun rotateSelf(angle: Double, originX: Double = definedExternally, originY:
Double = definedExternally):
DOMMatrix\n fun rotateFromVectorSelf(x: Double, y: Double): DOMMatrix\n fun rotateAxisAngleSelf(x:
Double, y: Double, z: Double, angle: Double): DOMMatrix\n fun skewXSelf(sx: Double): DOMMatrix\n fun
skewYSelf(sy: Double): DOMMatrix\n fun invertSelf(): DOMMatrix\n fun setMatrixValue(transformList:
String): DOMMatrix\n}\n\npublic external interface ScrollOptions {\n var behavior: ScrollBehavior? /* =
ScrollBehavior.AUTO */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ScrollOptions(behavior:
ScrollBehavior? = ScrollBehavior.AUTO): ScrollOptions {\n val o = js(\"({})\")\n o[\"behavior\"] = behavior\n

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return o\n}\n\n/**\n * Exposes the JavaScript
[ScrollToOptions](https://developer.mozilla.org/en/docs/Web/API/ScrollToOptions) to Kotlin\n */\npublic external
interface ScrollToOptions : ScrollOptions {\n
    var left: Double?\n        get() = definedExternally\n        set(value) = definedExternally\n    var top: Double?\n
get() = definedExternally\n        set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ScrollToOptions(left: Double? =
undefined, top: Double? = undefined, behavior: ScrollBehavior? = ScrollBehavior.AUTO): ScrollToOptions {\n
    val o = js(\"({})\")\n    o[\"left\"] = left\n    o[\"top\"] = top\n    o[\"behavior\"] = behavior\n    return o\n}\n\n/**\n *
Exposes the JavaScript [MediaQueryList](https://developer.mozilla.org/en/docs/Web/API/MediaQueryList) to
Kotlin\n */\npublic external abstract class MediaQueryList : EventTarget {\n    open val media: String\n    open val
matches: Boolean\n    open var onchange: ((Event) -> dynamic)?\n    fun addListener(listener: EventListener?)\n
fun addListener(listener: ((Event) -> Unit)?)\n    fun removeListener(listener: EventListener?)\n
    fun removeListener(listener: ((Event) -> Unit)?)\n}\n\n/**\n * Exposes the JavaScript
[MediaQueryListEvent](https://developer.mozilla.org/en/docs/Web/API/MediaQueryListEvent) to Kotlin\n
*/\npublic external open class MediaQueryListEvent(type: String, eventInitDict: MediaQueryListEventInit =
definedExternally) : Event {\n    open val media: String\n    open val matches: Boolean\n\n    companion object {\n
        val NONE: Short\n        val CAPTURING_PHASE: Short\n        val AT_TARGET: Short\n        val
BUBBLING_PHASE: Short\n    }\n\n    public external interface MediaQueryListEventInit : EventInit {\n        var
media: String? /* = \"\" */\n        get() = definedExternally\n        set(value) = definedExternally\n        var matches:
Boolean? /* = false */\n        get() = definedExternally\n        set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun MediaQueryListEventInit(media:
String? =
\"\", matches: Boolean? = false, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? =
false): MediaQueryListEventInit {\n    val o = js(\"({})\")\n    o[\"media\"] = media\n    o[\"matches\"] = matches\n
o[\"bubbles\"] = bubbles\n    o[\"cancelable\"] = cancelable\n    o[\"composed\"] = composed\n    return
o\n}\n\n/**\n * Exposes the JavaScript [Screen](https://developer.mozilla.org/en/docs/Web/API/Screen) to Kotlin\n
*/\npublic external abstract class Screen {\n    open val availWidth: Int\n    open val availHeight: Int\n    open val
width: Int\n    open val height: Int\n    open val colorDepth: Int\n    open val pixelDepth: Int\n}\n\n/**\n * Exposes
the JavaScript [CaretPosition](https://developer.mozilla.org/en/docs/Web/API/CaretPosition) to Kotlin\n */\npublic
external abstract class CaretPosition {\n    open val offsetNode: Node\n    open val offset: Int\n    fun
getClientRect(): DOMRect?\n}\n\npublic external interface ScrollIntoViewOptions : ScrollOptions
{\n    var block: ScrollLogicalPosition? /* = ScrollLogicalPosition.CENTER */\n        get() = definedExternally\n
set(value) = definedExternally\n    var inline: ScrollLogicalPosition? /* = ScrollLogicalPosition.CENTER */\n
get() = definedExternally\n        set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ScrollIntoViewOptions(block:
ScrollLogicalPosition? = ScrollLogicalPosition.CENTER, inline: ScrollLogicalPosition? =
ScrollLogicalPosition.CENTER, behavior: ScrollBehavior? = ScrollBehavior.AUTO): ScrollIntoViewOptions {\n
    val o = js(\"({})\")\n    o[\"block\"] = block\n    o[\"inline\"] = inline\n    o[\"behavior\"] = behavior\n    return
o\n}\n\npublic external interface BoxQuadOptions {\n    var box: CSSBoxType? /* = CSSBoxType.BORDER */\n
get() = definedExternally\n        set(value) = definedExternally\n    var relativeTo: dynamic\n        get() =
definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun BoxQuadOptions(box: CSSBoxType?
= CSSBoxType.BORDER, relativeTo: dynamic = undefined): BoxQuadOptions {\n    val o = js(\"({})\")\n
o[\"box\"] = box\n    o[\"relativeTo\"] = relativeTo\n    return o\n}\n\npublic external interface
ConvertCoordinateOptions {\n    var fromBox: CSSBoxType? /* = CSSBoxType.BORDER */\n        get() =
definedExternally\n        set(value) = definedExternally\n    var toBox: CSSBoxType? /* = CSSBoxType.BORDER

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*/\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConvertCoordinateOptions(fromBox:
CSSBoxType? = CSSBoxType.BORDER, toBox: CSSBoxType? = CSSBoxType.BORDER):
ConvertCoordinateOptions {\n    val o = js(\"({})\")\n    o[\"fromBox\"] = fromBox\n    o[\"toBox\"]
= toBox\n    return o\n}\n\n/**\n * Exposes the JavaScript
[GeometryUtils](https://developer.mozilla.org/en/docs/Web/API/GeometryUtils) to Kotlin\n */\npublic external
interface GeometryUtils {\n    fun getBoxQuads(options: BoxQuadOptions = definedExternally):
Array<DOMQuad>\n    fun convertQuadFromNode(quad: dynamic, from: dynamic, options:
ConvertCoordinateOptions = definedExternally): DOMQuad\n    fun convertRectFromNode(rect:
DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions = definedExternally): DOMQuad\n    fun
convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions =
definedExternally): DOMPoint\n}\n\n/**\n * Exposes the JavaScript
[Touch](https://developer.mozilla.org/en/docs/Web/API/Touch) to Kotlin\n */\npublic external abstract class Touch
{\n    open val identifier: Int\n    open val target: EventTarget\n    open val screenX: Int\n    open val screenY: Int\n
open val clientX: Int\n    open val clientY: Int\n    open val
pageX: Int\n    open val pageY: Int\n    open val region: String?\n}\n\npublic external abstract class TouchList :
ItemArrayLike<Touch> {\n    override fun item(index: Int):
Touch?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun TouchList.get(index: Int):
Touch? = asDynamic()[index]\n\npublic external open class TouchEvent : UIEvent {\n    open val touches:
TouchList\n    open val targetTouches: TouchList\n    open val changedTouches: TouchList\n    open val altKey:
Boolean\n    open val metaKey: Boolean\n    open val ctrlKey: Boolean\n    open val shiftKey: Boolean\n\n    companion object {\n        val NONE: Short\n        val CAPTURING_PHASE: Short\n        val AT_TARGET:
Short\n        val BUBBLING_PHASE: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[Image](https://developer.mozilla.org/en/docs/Web/API/Image) to Kotlin\n */\npublic external open class
Image(width: Int = definedExternally, height: Int = definedExternally)
: HTMLElement {\n    override var onabort: ((Event) -> dynamic)?\n    override var onblur: ((FocusEvent) ->
dynamic)?\n    override var oncancel: ((Event) -> dynamic)?\n    override var oncanplay: ((Event) -> dynamic)?\n
override var oncanplaythrough: ((Event) -> dynamic)?\n    override var onchange: ((Event) -> dynamic)?\n
override var onclick: ((MouseEvent) -> dynamic)?\n    override var onclose: ((Event) -> dynamic)?\n    override var
oncontextmenu: ((MouseEvent) -> dynamic)?\n    override var oncuechange: ((Event) -> dynamic)?\n    override var
ondblclick: ((MouseEvent) -> dynamic)?\n    override var ondrag: ((DragEvent) -> dynamic)?\n    override var
ondragend: ((DragEvent) -> dynamic)?\n    override var ondragenter: ((DragEvent) -> dynamic)?\n    override var
ondragexit: ((DragEvent) -> dynamic)?\n    override var ondragleave: ((DragEvent) -> dynamic)?\n    override var
ondragover: ((DragEvent) -> dynamic)?\n    override var ondragstart: ((DragEvent) ->
dynamic)?\n    override var ondrop: ((DragEvent) -> dynamic)?\n    override var ondurationchange: ((Event) ->
dynamic)?\n    override var onemptied: ((Event) -> dynamic)?\n    override var onended: ((Event) -> dynamic)?\n
override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n    override var onfocus: ((FocusEvent) ->
dynamic)?\n    override var oninput: ((InputEvent) -> dynamic)?\n    override var oninvalid: ((Event) -> dynamic)?\n
override var onkeydown: ((KeyboardEvent) -> dynamic)?\n    override var onkeypress: ((KeyboardEvent) ->
dynamic)?\n    override var onkeyup: ((KeyboardEvent) -> dynamic)?\n    override var onload: ((Event) ->
dynamic)?\n    override var onloadeddata: ((Event) -> dynamic)?\n    override var onloadedmetadata: ((Event) ->
dynamic)?\n    override var onloadend: ((Event) -> dynamic)?\n    override var onloadstart: ((ProgressEvent) ->
dynamic)?\n    override var onmousedown: ((MouseEvent) -> dynamic)?\n    override var onmouseenter:
(MouseEvent)\n    -> dynamic)?\n    override var onmouseleave: ((MouseEvent) -> dynamic)?\n    override var onmousemove:
(MouseEvent) -> dynamic)?\n    override var onmouseout: ((MouseEvent) -> dynamic)?\n    override var

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onmouseover: ((MouseEvent) -> dynamic)?\n  override var onmouseup: ((MouseEvent) -> dynamic)?\n  override
var onwheel: ((WheelEvent) -> dynamic)?\n  override var onpause: ((Event) -> dynamic)?\n  override var onplay:
((Event) -> dynamic)?\n  override var onplaying: ((Event) -> dynamic)?\n  override var onprogress:
((ProgressEvent) -> dynamic)?\n  override var onratechange: ((Event) -> dynamic)?\n  override var onreset:
((Event) -> dynamic)?\n  override var onresize: ((Event) -> dynamic)?\n  override var onscroll: ((Event) ->
dynamic)?\n  override var onseeked: ((Event) -> dynamic)?\n  override var onseeking: ((Event) -> dynamic)?\n
override var onselect: ((Event) -> dynamic)?\n  override var onshow: ((Event) -> dynamic)?\n  override var
onstalled:
((Event) -> dynamic)?\n  override var onsubmit: ((Event) -> dynamic)?\n  override var onsuspend: ((Event) ->
dynamic)?\n  override var ontimeupdate: ((Event) -> dynamic)?\n  override var ontoggle: ((Event) -> dynamic)?\n
  override var onvolumechange: ((Event) -> dynamic)?\n  override var onwaiting: ((Event) -> dynamic)?\n
override var ongotpointercapture: ((PointerEvent) -> dynamic)?\n  override var onlostpointercapture:
((PointerEvent) -> dynamic)?\n  override var onpointerdown: ((PointerEvent) -> dynamic)?\n  override var
onpointermove: ((PointerEvent) -> dynamic)?\n  override var onpointerup: ((PointerEvent) -> dynamic)?\n
override var onpointercancel: ((PointerEvent) -> dynamic)?\n  override var onpointerover: ((PointerEvent) ->
dynamic)?\n  override var onpointerout: ((PointerEvent) -> dynamic)?\n  override var onpointerenter:
((PointerEvent) -> dynamic)?\n  override var onpointerleave: ((PointerEvent) -> dynamic)?\n  override var
oncopy: ((ClipboardEvent)
-> dynamic)?\n  override var oncut: ((ClipboardEvent) -> dynamic)?\n  override var onpaste: ((ClipboardEvent) -
> dynamic)?\n  override var contentEditable: String\n  override val isContentEditable: Boolean\n  override val
style: CSSStyleDeclaration\n  override val children: HTMLCollection\n  override val firstElementChild:
Element?\n  override val lastElementChild: Element?\n  override val childElementCount: Int\n  override val
previousElementSibling: Element?\n  override val nextElementSibling: Element?\n  override val assignedSlot:
HTMLSlotElement?\n  override fun prepend(vararg nodes: dynamic)\n  override fun append(vararg nodes:
dynamic)\n  override fun querySelector(selectors: String): Element?\n  override fun querySelectorAll(selectors:
String): NodeList\n  override fun before(vararg nodes: dynamic)\n  override fun after(vararg nodes: dynamic)\n
override fun replaceWith(vararg nodes: dynamic)\n  override fun remove()\n  override
fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n  override fun
convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally
*/): DOMQuad\n  override fun convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options:
ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n  override fun convertPointFromNode(point:
DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n
companion object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val
TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:
Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n\npublic external open class
Audio(src: String = definedExternally) : HTMLAudioElement {\n  override var onabort: ((Event) -> dynamic)?\n
override var onblur: ((FocusEvent) -> dynamic)?\n  override var oncancel: ((Event) -> dynamic)?\n  override var
oncanplay: ((Event) -> dynamic)?\n  override var oncanplaythrough: ((Event) -> dynamic)?\n  override var
onchange: ((Event) -> dynamic)?\n  override var onclick: ((MouseEvent) -> dynamic)?\n  override var onclose:
((Event) -> dynamic)?\n  override var oncontextmenu: ((MouseEvent) -> dynamic)?\n  override var oncuechange:
((Event) -> dynamic)?\n  override var ondblclick: ((MouseEvent) -> dynamic)?\n  override var ondrag:

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((DragEvent) -> dynamic)?\n  override var ondragend: ((DragEvent) -> dynamic)?\n  override var ondragenter:
((DragEvent) -> dynamic)?\n  override var ondragexit: ((DragEvent) -> dynamic)?\n  override var ondragleave:
((DragEvent) -> dynamic)?\n  override var ondragover: ((DragEvent) -> dynamic)?\n  override var ondragstart:
((DragEvent) -> dynamic)?\n  override var ondrop: ((DragEvent) -> dynamic)?\n  override var ondurationchange:
((Event) -> dynamic)?\n  override var onemptied: ((Event) -> dynamic)?\n  override var onended: ((Event) ->
dynamic)?\n  override var onerror: ((dynamic, String, Int, Int, Any?) -> dynamic)?\n  override var onfocus:
((FocusEvent) -> dynamic)?\n  override var oninput: ((InputEvent) -> dynamic)?\n  override var oninvalid:
((Event) -> dynamic)?\n  override var onkeydown: ((KeyboardEvent) -> dynamic)?\n  override var onkeypress:
((KeyboardEvent) -> dynamic)?\n  override var onkeyup: ((KeyboardEvent) -> dynamic)?\n  override
var onload: ((Event) -> dynamic)?\n  override var onloadeddata: ((Event) -> dynamic)?\n  override var
onloadedmetadata: ((Event) -> dynamic)?\n  override var onloadend: ((Event) -> dynamic)?\n  override var
onloadstart: ((ProgressEvent) -> dynamic)?\n  override var onmousedown: ((MouseEvent) -> dynamic)?\n
override var onmouseenter: ((MouseEvent) -> dynamic)?\n  override var onmouseleave: ((MouseEvent) ->
dynamic)?\n  override var onmousemove: ((MouseEvent) -> dynamic)?\n  override var onmouseout:
((MouseEvent) -> dynamic)?\n  override var onmouseover: ((MouseEvent) -> dynamic)?\n  override var
onmouseup: ((MouseEvent) -> dynamic)?\n  override var onwheel: ((WheelEvent) -> dynamic)?\n  override var
onpause: ((Event) -> dynamic)?\n  override var onplay: ((Event) -> dynamic)?\n  override var onplaying: ((Event)
-> dynamic)?\n  override var onprogress: ((ProgressEvent) -> dynamic)?\n  override var onratechange: ((Event) ->
dynamic)?\n  override var onreset:
((Event) -> dynamic)?\n  override var onresize: ((Event) -> dynamic)?\n  override var onscroll: ((Event) ->
dynamic)?\n  override var onseeked: ((Event) -> dynamic)?\n  override var onseeking: ((Event) -> dynamic)?\n
override var onselect: ((Event) -> dynamic)?\n  override var onshow: ((Event) -> dynamic)?\n  override var
onstalled: ((Event) -> dynamic)?\n  override var onsubmit: ((Event) -> dynamic)?\n  override var onsuspend:
((Event) -> dynamic)?\n  override var ontimeupdate: ((Event) -> dynamic)?\n  override var ontoggle: ((Event) ->
dynamic)?\n  override var onvolumechange: ((Event) -> dynamic)?\n  override var onwaiting: ((Event) ->
dynamic)?\n  override var ongotpointercapture: ((PointerEvent) -> dynamic)?\n  override var
onlostpointercapture: ((PointerEvent) -> dynamic)?\n  override var onpointerdown: ((PointerEvent) -> dynamic)?\n
override var onpointermove: ((PointerEvent) -> dynamic)?\n  override var onpointerup: ((PointerEvent)
-> dynamic)?\n  override var onpointercancel: ((PointerEvent) -> dynamic)?\n  override var onpointerover:
((PointerEvent) -> dynamic)?\n  override var onpointerout: ((PointerEvent) -> dynamic)?\n  override var
onpointerenter: ((PointerEvent) -> dynamic)?\n  override var onpointerleave: ((PointerEvent) -> dynamic)?\n
override var oncopy: ((ClipboardEvent) -> dynamic)?\n  override var oncut: ((ClipboardEvent) -> dynamic)?\n
override var onpaste: ((ClipboardEvent) -> dynamic)?\n  override var contentEditable: String\n  override val
isContentEditable: Boolean\n  override val style: CSSStyleDeclaration\n  override val children:
HTMLCollection\n  override val firstElementChild: Element?\n  override val lastElementChild: Element?\n
override val childElementCount: Int\n  override val previousElementSibling: Element?\n  override val
nextElementSibling: Element?\n  override val assignedSlot: HTMLSlotElement?\n  override fun prepend(vararg
nodes: dynamic)\n
  override fun append(vararg nodes: dynamic)\n  override fun querySelector(selectors: String): Element?\n
override fun querySelectorAll(selectors: String): NodeList\n  override fun before(vararg nodes: dynamic)\n
override fun after(vararg nodes: dynamic)\n  override fun replaceWith(vararg nodes: dynamic)\n  override fun
remove()\n  override fun getBoxQuads(options: BoxQuadOptions /* = definedExternally */): Array<DOMQuad>\n
  override fun convertQuadFromNode(quad: dynamic, from: dynamic, options: ConvertCoordinateOptions /* =
definedExternally */): DOMQuad\n  override fun convertRectFromNode(rect: DOMRectReadOnly, from:
dynamic, options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n  override fun
convertPointFromNode(point: DOMPointInit, from: dynamic, options: ConvertCoordinateOptions /* =
definedExternally */): DOMPoint\n\n  companion object {\n    val NETWORK_EMPTY: Short\n    val
NETWORK_IDLE: Short\n    val NETWORK_LOADING: Short\n

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((PointerEvent) -> dynamic)?\n  override var onpointercancel: ((PointerEvent) -> dynamic)?\n  override
var onpointerover: ((PointerEvent) -> dynamic)?\n  override var onpointerout: ((PointerEvent) -> dynamic)?\n
override var onpointerenter: ((PointerEvent) -> dynamic)?\n  override var onpointerleave: ((PointerEvent) ->
dynamic)?\n  override var oncopy: ((ClipboardEvent) -> dynamic)?\n  override var oncut: ((ClipboardEvent) ->
dynamic)?\n  override var onpaste: ((ClipboardEvent) -> dynamic)?\n  override var contentEditable: String\n
override val isContentEditable: Boolean\n  override val style: CSSStyleDeclaration\n  override val children:
HTMLCollection\n  override val firstElementChild: Element?\n  override val lastElementChild: Element?\n
override val childElementCount: Int\n  override val previousElementSibling: Element?\n  override val
nextElementSibling: Element?\n  override val assignedSlot: HTMLSlotElement?\n  override fun prepend(vararg
nodes: dynamic)\n  override fun append(vararg nodes: dynamic)\n  override fun querySelector(selectors:
String): Element?\n  override fun querySelectorAll(selectors: String): NodeList\n  override fun before(vararg
nodes: dynamic)\n  override fun after(vararg nodes: dynamic)\n  override fun replaceWith(vararg nodes:
dynamic)\n  override fun remove()\n  override fun getBoxQuads(options: BoxQuadOptions /* =
definedExternally */): Array<DOMQuad>\n  override fun convertQuadFromNode(quad: dynamic, from: dynamic,
options: ConvertCoordinateOptions /* = definedExternally */): DOMQuad\n  override fun
convertRectFromNode(rect: DOMRectReadOnly, from: dynamic, options: ConvertCoordinateOptions /* =
definedExternally */): DOMQuad\n  override fun convertPointFromNode(point: DOMPointInit, from: dynamic,
options: ConvertCoordinateOptions /* = definedExternally */): DOMPoint\n\n  companion object {\n    val
ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val
ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n\n  public external interface
UnionElementOrHTMLCollection\n\n  public external interface UnionElementOrRadioNodeList\n\n  public external
interface UnionHTMLOptGroupElementOrHTMLOptionElement\n\n  public external interface
UnionAudioTrackOrTextTrackOrVideoTrack\n\n  public external interface UnionElementOrMouseEvent\n\n  public
external interface UnionMessagePortOrWindowProxy\n\n  public external interface MediaProvider\n\n  public
external
interface RenderingContext\n\n  public external interface HTMLOrSVGImageElement :
CanvasImageSource\n\n  public external interface CanvasImageSource : ImageBitmapSource\n\n  public external
interface ImageBitmapSource\n\n  public external interface HTMLOrSVGScriptElement\n\n  /* please, don't
implement this interface!
*\n\n  @JsName("null")\n  @Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n  public external
interface DocumentReadyState {\n    companion object\n  }\n\n  public inline val
DocumentReadyState.Companion.LOADING: DocumentReadyState get() =
"loading".asDynamic().unsafeCast<DocumentReadyState>()\n\n  public inline val
DocumentReadyState.Companion.INTERACTIVE: DocumentReadyState get() =
"interactive".asDynamic().unsafeCast<DocumentReadyState>()\n\n  public inline val
DocumentReadyState.Companion.COMPLETE: DocumentReadyState get() =
"complete".asDynamic().unsafeCast<DocumentReadyState>()\n\n  /* please, don't implement this interface!
*\n\n  @JsName("null")\n  @Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n  public
external interface CanPlayTypeResult {\n    companion object\n  }\n\n  public inline val
CanPlayTypeResult.Companion.EMPTY: CanPlayTypeResult get() =
""\n\n  public inline val CanPlayTypeResult.Companion.MAYBE:

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CanPlayTypeResult get() = \"maybe\".asDynamic().unsafeCast<CanPlayTypeResult>()\n\npublic inline val
CanPlayTypeResult.Companion.PROBABLY: CanPlayTypeResult get() =
\"probably\".asDynamic().unsafeCast<CanPlayTypeResult>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface TextTrackMode {\n  companion object\n}\n\npublic inline val TextTrackMode.Companion.DISABLED:
TextTrackMode get() = \"disabled\".asDynamic().unsafeCast<TextTrackMode>()\n\npublic inline val
TextTrackMode.Companion.HIDDEN: TextTrackMode get() =
\"hidden\".asDynamic().unsafeCast<TextTrackMode>()\n\npublic inline val
TextTrackMode.Companion.SHOWING: TextTrackMode
get() = \"showing\".asDynamic().unsafeCast<TextTrackMode>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface TextTrackKind {\n  companion object\n}\n\npublic inline val TextTrackKind.Companion.SUBTITLES:
TextTrackKind get() = \"subtitles\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val
TextTrackKind.Companion.CAPTIONS: TextTrackKind get() =
\"captions\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val
TextTrackKind.Companion.DESCRPTIONS: TextTrackKind get() =
\"descriptions\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val
TextTrackKind.Companion.CHAPTERS: TextTrackKind get() =
\"chapters\".asDynamic().unsafeCast<TextTrackKind>()\n\npublic inline val
TextTrackKind.Companion.METADATA: TextTrackKind get() =
\"metadata\".asDynamic().unsafeCast<TextTrackKind>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic
external interface SelectionMode {\n  companion object\n}\n\npublic inline val
SelectionMode.Companion.SELECT: SelectionMode get() =
\"select\".asDynamic().unsafeCast<SelectionMode>()\n\npublic inline val SelectionMode.Companion.START:
SelectionMode get() = \"start\".asDynamic().unsafeCast<SelectionMode>()\n\npublic inline val
SelectionMode.Companion.END: SelectionMode get() =
\"end\".asDynamic().unsafeCast<SelectionMode>()\n\npublic inline val SelectionMode.Companion.PRESERVE:
SelectionMode get() = \"preserve\".asDynamic().unsafeCast<SelectionMode>()\n\n/* please, don't implement this
interface! *\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic
external interface CanvasFillRule {\n  companion object\n}\n\npublic inline val
CanvasFillRule.Companion.NONZERO: CanvasFillRule get() =
\"nonzero\".asDynamic().unsafeCast<CanvasFillRule>()\n\npublic inline val
CanvasFillRule.Companion.EVENODD: CanvasFillRule get() =
\"evenodd\".asDynamic().unsafeCast<CanvasFillRule>()\n\n/*
please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface ImageSmoothingQuality {\n  companion object\n}\n\npublic inline val
ImageSmoothingQuality.Companion.LOW: ImageSmoothingQuality get() =
\"low\".asDynamic().unsafeCast<ImageSmoothingQuality>()\n\npublic inline val
ImageSmoothingQuality.Companion.MEDIUM: ImageSmoothingQuality get() =
\"medium\".asDynamic().unsafeCast<ImageSmoothingQuality>()\n\npublic inline val
ImageSmoothingQuality.Companion.HIGH: ImageSmoothingQuality get() =
\"high\".asDynamic().unsafeCast<ImageSmoothingQuality>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface CanvasLineCap {\n  companion object\n}\n\npublic inline val CanvasLineCap.Companion.BUTT:
CanvasLineCap get() = \"butt\".asDynamic().unsafeCast<CanvasLineCap>()\n\npublic

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inline val CanvasLineCap.Companion.ROUND: CanvasLineCap get() =
`round`.asDynamic().unsafeCast<CanvasLineCap>()\n\npublic inline val CanvasLineCap.Companion.SQUARE:
CanvasLineCap get() = `square`.asDynamic().unsafeCast<CanvasLineCap>()\n\n/* please, don't implement this
interface! *\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic
external interface CanvasLineJoin {\n  companion object\n}\n\npublic inline val
CanvasLineJoin.Companion.ROUND: CanvasLineJoin get() =
`round`.asDynamic().unsafeCast<CanvasLineJoin>()\n\npublic inline val CanvasLineJoin.Companion.BEVEL:
CanvasLineJoin get() = `bevel`.asDynamic().unsafeCast<CanvasLineJoin>()\n\npublic inline val
CanvasLineJoin.Companion.MITER: CanvasLineJoin get() =
`miter`.asDynamic().unsafeCast<CanvasLineJoin>()\n\n/* please, don't implement this interface!
*\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic external
interface CanvasTextAlign {\n  companion object\n}\n\npublic
inline val CanvasTextAlign.Companion.START: CanvasTextAlign get() =
`start`.asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val CanvasTextAlign.Companion.END:
CanvasTextAlign get() = `end`.asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val
CanvasTextAlign.Companion.LEFT: CanvasTextAlign get() =
`left`.asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val CanvasTextAlign.Companion.RIGHT:
CanvasTextAlign get() = `right`.asDynamic().unsafeCast<CanvasTextAlign>()\n\npublic inline val
CanvasTextAlign.Companion.CENTER: CanvasTextAlign get() =
`center`.asDynamic().unsafeCast<CanvasTextAlign>()\n\n/* please, don't implement this interface!
*\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic external
interface CanvasTextBaseline {\n  companion object\n}\n\npublic inline val CanvasTextBaseline.Companion.TOP:
CanvasTextBaseline get() = `top`.asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val
CanvasTextBaseline.Companion.HANGING:
CanvasTextBaseline get() = `hanging`.asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val
CanvasTextBaseline.Companion.MIDDLE: CanvasTextBaseline get() =
`middle`.asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val
CanvasTextBaseline.Companion.ALPHABETIC: CanvasTextBaseline get() =
`alphabetic`.asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val
CanvasTextBaseline.Companion.IDEOGRAPHIC: CanvasTextBaseline get() =
`ideographic`.asDynamic().unsafeCast<CanvasTextBaseline>()\n\npublic inline val
CanvasTextBaseline.Companion.BOTTOM: CanvasTextBaseline get() =
`bottom`.asDynamic().unsafeCast<CanvasTextBaseline>()\n\n/* please, don't implement this interface!
*\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic external
interface CanvasDirection {\n  companion object\n}\n\npublic inline val CanvasDirection.Companion.LTR:
CanvasDirection get() = `ltr`.asDynamic().unsafeCast<CanvasDirection>()\n\npublic
inline val CanvasDirection.Companion.RTL: CanvasDirection get() =
`rtl`.asDynamic().unsafeCast<CanvasDirection>()\n\npublic inline val CanvasDirection.Companion.INHERIT:
CanvasDirection get() = `inherit`.asDynamic().unsafeCast<CanvasDirection>()\n\n/* please, don't implement this
interface! *\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic
external interface ScrollRestoration {\n  companion object\n}\n\npublic inline val
ScrollRestoration.Companion.AUTO: ScrollRestoration get() =
`auto`.asDynamic().unsafeCast<ScrollRestoration>()\n\npublic inline val
ScrollRestoration.Companion.MANUAL: ScrollRestoration get() =
`manual`.asDynamic().unsafeCast<ScrollRestoration>()\n\n/* please, don't implement this interface!
*\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic external
interface ImageOrientation {\n  companion object\n}\n\npublic inline val ImageOrientation.Companion.NONE:
ImageOrientation get()

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= \"none\".asDynamic().unsafeCast<ImageOrientation>()\n\npublic inline val
ImageOrientation.Companion.FLIPY: ImageOrientation get() =
\"flipY\".asDynamic().unsafeCast<ImageOrientation>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface PremultiplyAlpha {\n  companion object\n}\n\npublic inline val PremultiplyAlpha.Companion.NONE:
PremultiplyAlpha get() = \"none\".asDynamic().unsafeCast<PremultiplyAlpha>()\n\npublic inline val
PremultiplyAlpha.Companion.PREMULTIPLY: PremultiplyAlpha get() =
\"premultiply\".asDynamic().unsafeCast<PremultiplyAlpha>()\n\npublic inline val
PremultiplyAlpha.Companion.DEFAULT: PremultiplyAlpha get() =
\"default\".asDynamic().unsafeCast<PremultiplyAlpha>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface ColorSpaceConversion {\n  companion object\n}\n\npublic inline
val ColorSpaceConversion.Companion.NONE: ColorSpaceConversion get() =
\"none\".asDynamic().unsafeCast<ColorSpaceConversion>()\n\npublic inline val
ColorSpaceConversion.Companion.DEFAULT: ColorSpaceConversion get() =
\"default\".asDynamic().unsafeCast<ColorSpaceConversion>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface ResizeQuality {\n  companion object\n}\n\npublic inline val ResizeQuality.Companion.PIXELATED:
ResizeQuality get() = \"pixelated\".asDynamic().unsafeCast<ResizeQuality>()\n\npublic inline val
ResizeQuality.Companion.LOW: ResizeQuality get() =
\"low\".asDynamic().unsafeCast<ResizeQuality>()\n\npublic inline val ResizeQuality.Companion.MEDIUM:
ResizeQuality get() = \"medium\".asDynamic().unsafeCast<ResizeQuality>()\n\npublic inline val
ResizeQuality.Companion.HIGH: ResizeQuality get() = \"high\".asDynamic().unsafeCast<ResizeQuality>()\n\n/*
please, don't implement this
interface! *\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic
external interface BinaryType {\n  companion object\n}\n\npublic inline val BinaryType.Companion.BLOB:
BinaryType get() = \"blob\".asDynamic().unsafeCast<BinaryType>()\n\npublic inline val
BinaryType.Companion.ARRAYBUFFER: BinaryType get() =
\"arraybuffer\".asDynamic().unsafeCast<BinaryType>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface WorkerType {\n  companion object\n}\n\npublic inline val WorkerType.Companion.CLASSIC:
WorkerType get() = \"classic\".asDynamic().unsafeCast<WorkerType>()\n\npublic inline val
WorkerType.Companion.MODULE: WorkerType get() =
\"module\".asDynamic().unsafeCast<WorkerType>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface ShadowRootMode {\n  companion object\n}\n\npublic
inline val ShadowRootMode.Companion.OPEN: ShadowRootMode get() =
\"open\".asDynamic().unsafeCast<ShadowRootMode>()\n\npublic inline val
ShadowRootMode.Companion.CLOSED: ShadowRootMode get() =
\"closed\".asDynamic().unsafeCast<ShadowRootMode>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface ScrollBehavior {\n  companion object\n}\n\npublic inline val ScrollBehavior.Companion.AUTO:
ScrollBehavior get() = \"auto\".asDynamic().unsafeCast<ScrollBehavior>()\n\npublic inline val
ScrollBehavior.Companion.INSTANT: ScrollBehavior get() =
\"instant\".asDynamic().unsafeCast<ScrollBehavior>()\n\npublic inline val ScrollBehavior.Companion.SMOOTH:
ScrollBehavior get() = \"smooth\".asDynamic().unsafeCast<ScrollBehavior>()\n\n/* please, don't implement this
interface! *\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic
external interface ScrollLogicalPosition {\n

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companion object\n}\n\npublic inline val ScrollLogicalPosition.Companion.START: ScrollLogicalPosition get() =
\"start\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\npublic inline val
ScrollLogicalPosition.Companion.CENTER: ScrollLogicalPosition get() =
\"center\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\npublic inline val
ScrollLogicalPosition.Companion.END: ScrollLogicalPosition get() =
\"end\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\npublic inline val
ScrollLogicalPosition.Companion.NEAREST: ScrollLogicalPosition get() =
\"nearest\".asDynamic().unsafeCast<ScrollLogicalPosition>()\n\n/* please, don't implement this interface!
*/\n\n@JsName(\"null\")\n\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface CSSBoxType {\n  companion object\n}\n\npublic inline val CSSBoxType.Companion.MARGIN:
CSSBoxType get() = \"margin\".asDynamic().unsafeCast<CSSBoxType>()\n\npublic inline val
CSSBoxType.Companion.BORDER: CSSBoxType get() =
\"border\".asDynamic().unsafeCast<CSSBoxType>()\n\npublic
inline val CSSBoxType.Companion.PADDING: CSSBoxType get() =
\"padding\".asDynamic().unsafeCast<CSSBoxType>()\n\npublic inline val CSSBoxType.Companion.CONTENT:
CSSBoxType get() = \"content\".asDynamic().unsafeCast<CSSBoxType>()\", \"/*\n * Copyright 2010-2021 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED,
DO NOT EDIT!\n\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.fetch\n\nimport kotlin.js.*\nimport
org.khronos.webgl.*\nimport org.w3c.files.*\nimport org.w3c.xhr.*\n\n/**\n * Exposes the JavaScript
[Headers](https://developer.mozilla.org/en/docs/Web/API/Headers) to Kotlin\n */\n\npublic external open class
Headers(init: dynamic = definedExternally) {\n  fun append(name: String, value: String)\n  fun delete(name:
String)\n  fun get(name: String): String?\n\n  fun has(name: String): Boolean\n  fun set(name: String, value:
String)\n}\n\n/**\n * Exposes the JavaScript [Body](https://developer.mozilla.org/en/docs/Web/API/Body) to Kotlin\n
*/\n\npublic external interface Body {\n  val bodyUsed: Boolean\n  fun arrayBuffer(): Promise<ArrayBuffer>\n  fun
blob(): Promise<Blob>\n  fun
formData(): Promise<FormData>\n  fun json(): Promise<Any?>\n  fun text(): Promise<String>\n}\n\n/**\n *
Exposes the JavaScript [Request](https://developer.mozilla.org/en/docs/Web/API/Request) to Kotlin\n */\n\npublic
external open class Request(input: dynamic, init: RequestInit = definedExternally) : Body {\n  open val method:
String\n  open val url: String\n  open val headers: Headers\n  open val type: RequestType\n  open val
destination: RequestDestination\n  open val referrer: String\n  open val referrerPolicy: dynamic\n  open val
mode: RequestMode\n  open val credentials: RequestCredentials\n  open val cache: RequestCache\n  open
val redirect: RequestRedirect\n  open val integrity: String\n  open val keepalive: Boolean\n  override val
bodyUsed: Boolean\n  fun clone(): Request\n  override fun arrayBuffer(): Promise<ArrayBuffer>\n  override fun
blob(): Promise<Blob>\n  override fun formData(): Promise<FormData>\n  override fun json():
Promise<Any?>\n  override fun text(): Promise<String>\n}\n\npublic external interface RequestInit {\n  var
method: String?\n  get() = definedExternally\n  set(value) = definedExternally\n  var headers: dynamic\n  get() =
definedExternally\n  set(value) = definedExternally\n  var body: dynamic\n  get() =
definedExternally\n  set(value) = definedExternally\n  var referrer: String?\n  get() = definedExternally\n  set(value) =
definedExternally\n  var referrerPolicy: dynamic\n  get() = definedExternally\n  set(value) =
definedExternally\n  var mode: RequestMode?\n  get() = definedExternally\n  set(value) = definedExternally\n  var
credentials: RequestCredentials?\n  get() = definedExternally\n  set(value) = definedExternally\n  var cache:
RequestCache?\n  get() = definedExternally\n  set(value) = definedExternally\n  var redirect: RequestRedirect?\n
get() = definedExternally\n  set(value) = definedExternally\n  var integrity: String?\n  get() = definedExternally\n
set(value) = definedExternally\n  var keepalive: Boolean?\n  get() = definedExternally\n  set(value) = definedExternally\n
var window: Any?\n  get() = definedExternally\n  set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\")

```

```

\ "INVISIBLE_MEMBER" )\n@kotlin.internal.InlineOnly\npublic inline fun RequestInit(method: String? =
undefined, headers: dynamic = undefined, body: dynamic = undefined, referrer: String? = undefined, referrerPolicy:
dynamic = undefined, mode: RequestMode? = undefined, credentials:
RequestCredentials? = undefined, cache: RequestCache? = undefined, redirect: RequestRedirect? = undefined,
integrity: String? = undefined, keepalive: Boolean? = undefined, window: Any? = undefined): RequestInit {\n val
o = js(\("{ }\}")\n o["method"] = method\n o["headers"] = headers\n o["body"] = body\n o["referrer"] =
referrer\n o["referrerPolicy"] = referrerPolicy\n o["mode"] = mode\n o["credentials"] = credentials\n
o["cache"] = cache\n o["redirect"] = redirect\n o["integrity"] = integrity\n o["keepalive"] = keepalive\n
o["window"] = window\n return o\n}\n\n/*\n * Exposes the JavaScript
[Response](https://developer.mozilla.org/en/docs/Web/API/Response) to Kotlin\n */\npublic external open class
Response(body: dynamic = definedExternally, init: ResponseInit = definedExternally) : Body {\n open val type:
ResponseType\n open val url: String\n open val redirected: Boolean\n open val status: Short\n open
val ok: Boolean\n open val statusText: String\n open val headers: Headers\n open val body: dynamic\n open
val trailer: Promise<Headers>\n override val bodyUsed: Boolean\n fun clone(): Response\n override fun
arrayBuffer(): Promise<ArrayBuffer>\n override fun blob(): Promise<Blob>\n override fun formData():
Promise<FormData>\n override fun json(): Promise<Any?>\n override fun text(): Promise<String>\n\n
companion object {\n fun error(): Response\n fun redirect(url: String, status: Short = definedExternally):
Response\n }\n}\n\npublic external interface ResponseInit {\n var status: Short? /* = 200 */\n get() =
definedExternally\n set(value) = definedExternally\n var statusText: String? /* = "OK" */\n get() =
definedExternally\n set(value) = definedExternally\n var headers: dynamic\n get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress(\ "INVISIBLE_REFERENCE" ,
\ "INVISIBLE_MEMBER" )\n@kotlin.internal.InlineOnly\npublic
inline fun ResponseInit(status: Short? = 200, statusText: String? = \ "OK" , headers: dynamic = undefined):
ResponseInit {\n val o = js(\("{ }\}")\n o["status"] = status\n o["statusText"] = statusText\n o["headers"]
= headers\n return o\n}\n\n/* please, don't implement this interface!
*/\n\n@JsName(\ "null" )\n@Suppress(\ "NESTED_CLASS_IN_EXTERNAL_INTERFACE" )\npublic external
interface RequestType {\n companion object\n}\n\npublic inline val RequestType.Companion.EMPTY:
RequestType get() = \ "" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val
RequestType.Companion.AUDIO: RequestType get() =
\ "audio" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.FONT:
RequestType get() = \ "font" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val
RequestType.Companion.IMAGE: RequestType get() =
\ "image" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.SCRIPT:
RequestType get() = \ "script" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val
RequestType.Companion.STYLE: RequestType get() =
\ "style" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val RequestType.Companion.TRACK:
RequestType get() = \ "track" .asDynamic().unsafeCast<RequestType>()\n\npublic inline val
RequestType.Companion.VIDEO: RequestType get() = \ "video" .asDynamic().unsafeCast<RequestType>()\n\n/*
please, don't implement this interface!
*/\n\n@JsName(\ "null" )\n@Suppress(\ "NESTED_CLASS_IN_EXTERNAL_INTERFACE" )\npublic external
interface RequestDestination {\n companion object\n}\n\npublic inline val
RequestDestination.Companion.EMPTY: RequestDestination get() =
\ "" .asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.DOCUMENT: RequestDestination get() =
\ "document" .asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.EMBED: RequestDestination get() =
\ "embed" .asDynamic().unsafeCast<RequestDestination>()\n\npublic

```

```

inline val RequestDestination.Companion.FONT: RequestDestination get() =
\"font\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.IMAGE: RequestDestination get() =
\"image\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.MANIFEST: RequestDestination get() =
\"manifest\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.MEDIA: RequestDestination get() =
\"media\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.OBJECT: RequestDestination get() =
\"object\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.REPORT: RequestDestination get() =
\"report\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.SCRIPT: RequestDestination get() =
\"script\".asDynamic().unsafeCast<RequestDestination>()\n\npublic
inline val RequestDestination.Companion.SERVICEWORKER: RequestDestination get() =
\"serviceworker\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.SHAREDWORKER: RequestDestination get() =
\"sharedworker\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.STYLE: RequestDestination get() =
\"style\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.WORKER: RequestDestination get() =
\"worker\".asDynamic().unsafeCast<RequestDestination>()\n\npublic inline val
RequestDestination.Companion.XSLT: RequestDestination get() =
\"xslt\".asDynamic().unsafeCast<RequestDestination>()\n\n/* please, don't implement this interface!
*\n\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface RequestMode {\n  companion object\n}\n\npublic inline val RequestMode.Companion.NAVIGATE:
RequestMode
get() = \"navigate\".asDynamic().unsafeCast<RequestMode>()\n\npublic inline val
RequestMode.Companion.SAME_ORIGIN: RequestMode get() = \"same-
origin\".asDynamic().unsafeCast<RequestMode>()\n\npublic inline val RequestMode.Companion.NO_CORS:
RequestMode get() = \"no-cors\".asDynamic().unsafeCast<RequestMode>()\n\npublic inline val
RequestMode.Companion.CORS: RequestMode get() = \"cors\".asDynamic().unsafeCast<RequestMode>()\n\n/*
please, don't implement this interface!
*\n\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface RequestCredentials {\n  companion object\n}\n\npublic inline val RequestCredentials.Companion.OMIT:
RequestCredentials get() = \"omit\".asDynamic().unsafeCast<RequestCredentials>()\n\npublic inline val
RequestCredentials.Companion.SAME_ORIGIN: RequestCredentials get() = \"same-
origin\".asDynamic().unsafeCast<RequestCredentials>()\n\npublic inline val
RequestCredentials.Companion.INCLUDE: RequestCredentials get() =
\"include\".asDynamic().unsafeCast<RequestCredentials>()\n\n/* please, don't implement this interface!
*\n\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface RequestCache {\n  companion object\n}\n\npublic inline val RequestCache.Companion.DEFAULT:
RequestCache get() = \"default\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val
RequestCache.Companion.NO_STORE: RequestCache get() = \"no-
store\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val RequestCache.Companion.RELOAD:
RequestCache get() = \"reload\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val
RequestCache.Companion.NO_CACHE: RequestCache get() = \"no-
cache\".asDynamic().unsafeCast<RequestCache>()\n\npublic inline val

```

```

RequestCache.Companion.FORCE_CACHE: RequestCache get() = `force-
cache`.asDynamic().unsafeCast<RequestCache>()\n\npublic inline val
RequestCache.Companion.ONLY_IF_CACHED: RequestCache get() = `only-if-
cached`.asDynamic().unsafeCast<RequestCache>()\n\n/*
please, don't implement this interface!
*/\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic external
interface RequestRedirect {\n  companion object\n}\n\npublic inline val RequestRedirect.Companion.FOLLOW:
RequestRedirect get() = `follow`.asDynamic().unsafeCast<RequestRedirect>()\n\npublic inline val
RequestRedirect.Companion.ERROR: RequestRedirect get() =
`error`.asDynamic().unsafeCast<RequestRedirect>()\n\npublic inline val RequestRedirect.Companion.MANUAL:
RequestRedirect get() = `manual`.asDynamic().unsafeCast<RequestRedirect>()\n\n/* please, don't implement this
interface! */\n\n@JsName(`null`)\n\n@Suppress(`NESTED_CLASS_IN_EXTERNAL_INTERFACE`)\n\npublic
external interface ResponseType {\n  companion object\n}\n\npublic inline val ResponseType.Companion.BASIC:
ResponseType get() = `basic`.asDynamic().unsafeCast<ResponseType>()\n\npublic inline val
ResponseType.Companion.CORS: ResponseType get() =
`cors`.asDynamic().unsafeCast<ResponseType>()\n\npublic
inline val ResponseType.Companion.DEFAULT: ResponseType get() =
`default`.asDynamic().unsafeCast<ResponseType>()\n\npublic inline val ResponseType.Companion.ERROR:
ResponseType get() = `error`.asDynamic().unsafeCast<ResponseType>()\n\npublic inline val
ResponseType.Companion.OPAQUE: ResponseType get() =
`opaque`.asDynamic().unsafeCast<ResponseType>()\n\npublic inline val
ResponseType.Companion.OPAQUEREDIRECT: ResponseType get() =
`opaqueredirect`.asDynamic().unsafeCast<ResponseType>()), /*\n * Copyright 2010-2021 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT
EDIT!\n\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.mediacapture\n\nimport
kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\n/*\n * Exposes
the JavaScript [MediaStream](https://developer.mozilla.org/en/docs/Web/API/MediaStream) to Kotlin\n */\n\npublic
external open class MediaStream() : EventTarget, MediaProvider {\n  constructor(stream: MediaStream)\n
constructor(tracks: Array<MediaStreamTrack>)\n  open val id: String\n  open val active: Boolean\n  var
onaddtrack: ((MediaStreamTrackEvent) -> dynamic)?\n  var onremovetrack: ((MediaStreamTrackEvent) ->
dynamic)?\n  fun getAudioTracks(): Array<MediaStreamTrack>\n  fun getVideoTracks():
Array<MediaStreamTrack>\n  fun getTracks(): Array<MediaStreamTrack>\n  fun getTrackById(trackId: String):
MediaStreamTrack?\n  fun addTrack(track: MediaStreamTrack)\n  fun removeTrack(track: MediaStreamTrack)\n
fun clone(): MediaStream\n}\n\n/*\n * Exposes the JavaScript
[MediaStreamTrack](https://developer.mozilla.org/en/docs/Web/API/MediaStreamTrack) to Kotlin\n */\n\npublic
external abstract class MediaStreamTrack : EventTarget {\n  open val kind: String\n
open val id: String\n  open val label: String\n  open var enabled: Boolean\n  open val muted: Boolean\n  open
var onmute: ((Event) -> dynamic)?\n  open var onunmute: ((Event) -> dynamic)?\n  open val readyState:
MediaStreamTrackState\n  open var onended: ((Event) -> dynamic)?\n  open var onoverconstrained: ((Event) ->
dynamic)?\n  fun clone(): MediaStreamTrack\n  fun stop()\n  fun getCapabilities(): MediaTrackCapabilities\n
fun getConstraints(): MediaTrackConstraints\n  fun getSettings(): MediaTrackSettings\n  fun
applyConstraints(constraints: MediaTrackConstraints = definedExternally): Promise<Unit>\n}\n\n/*\n * Exposes
the JavaScript
[MediaTrackSupportedConstraints](https://developer.mozilla.org/en/docs/Web/API/MediaTrackSupportedConstrain
ts) to Kotlin\n */\n\npublic external interface MediaTrackSupportedConstraints {\n  var width: Boolean? /* = true
*/\n  get() = definedExternally\n  set(value) = definedExternally\n  var height: Boolean? /*

```

```

= true */n    get() = definedExternally\n    set(value) = definedExternally\n    var aspectRatio: Boolean? /* =
true */n    get() = definedExternally\n    set(value) = definedExternally\n    var frameRate: Boolean? /* = true
*/n    get() = definedExternally\n    set(value) = definedExternally\n    var facingMode: Boolean? /* = true */n
    get() = definedExternally\n    set(value) = definedExternally\n    var resizeMode: Boolean? /* = true */n
get() = definedExternally\n    set(value) = definedExternally\n    var volume: Boolean? /* = true */n    get() =
definedExternally\n    set(value) = definedExternally\n    var sampleRate: Boolean? /* = true */n    get() =
definedExternally\n    set(value) = definedExternally\n    var sampleSize: Boolean? /* = true */n    get() =
definedExternally\n    set(value) = definedExternally\n    var echoCancellation: Boolean? /* = true */n    get()
= definedExternally\n
    set(value) = definedExternally\n    var autoGainControl: Boolean? /* = true */n    get() = definedExternally\n
    set(value) = definedExternally\n    var noiseSuppression: Boolean? /* = true */n    get() = definedExternally\n
    set(value) = definedExternally\n    var latency: Boolean? /* = true */n    get() = definedExternally\n
set(value) = definedExternally\n    var channelCount: Boolean? /* = true */n    get() = definedExternally\n
set(value) = definedExternally\n    var deviceId: Boolean? /* = true */n    get() = definedExternally\n
set(value) = definedExternally\n    var groupId: Boolean? /* = true */n    get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun
MediaTrackSupportedConstraints(width: Boolean? = true, height: Boolean? = true, aspectRatio: Boolean? = true,
frameRate: Boolean? = true, facingMode:
Boolean? = true, resizeMode: Boolean? = true, volume: Boolean? = true, sampleRate: Boolean? = true, sampleSize:
Boolean? = true, echoCancellation: Boolean? = true, autoGainControl: Boolean? = true, noiseSuppression: Boolean?
= true, latency: Boolean? = true, channelCount: Boolean? = true, deviceId: Boolean? = true, groupId: Boolean? =
true): MediaTrackSupportedConstraints {\n    val o = js("{}")\n    o["width"] = width\n    o["height"] =
height\n    o["aspectRatio"] = aspectRatio\n    o["frameRate"] = frameRate\n    o["facingMode"] = facingMode\n
    o["resizeMode"] = resizeMode\n    o["volume"] = volume\n    o["sampleRate"] = sampleRate\n
    o["sampleSize"] = sampleSize\n    o["echoCancellation"] = echoCancellation\n    o["autoGainControl"] =
autoGainControl\n    o["noiseSuppression"] = noiseSuppression\n    o["latency"] = latency\n
    o["channelCount"] = channelCount\n    o["deviceId"] = deviceId\n    o["groupId"] = groupId\n    return
o}\n\n\npublic
external interface MediaTrackCapabilities {\n    var width: ULongRange?\n    get() = definedExternally\n
set(value) = definedExternally\n    var height: ULongRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var aspectRatio: DoubleRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var frameRate: DoubleRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var facingMode: Array<String>?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var resizeMode: Array<String>?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var volume: DoubleRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var sampleRate: ULongRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var sampleSize: ULongRange?\n    get() = definedExternally\n    set(value)
= definedExternally\n    var echoCancellation: Array<Boolean>?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var autoGainControl: Array<Boolean>?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var noiseSuppression: Array<Boolean>?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var latency: DoubleRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var channelCount: ULongRange?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var deviceId: String?\n    get() = definedExternally\n    set(value) = definedExternally\n
var groupId: String?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun MediaTrackCapabilities(width:
ULongRange? = undefined, height: ULongRange? = undefined, aspectRatio:

```



```

DoubleRange? = undefined, frameRate: DoubleRange? = undefined, facingMode: Array<String>? = undefined,
resizeMode: Array<String>? = undefined, volume: DoubleRange? = undefined, sampleRate: ULongRange? =
undefined, sampleSize: ULongRange? = undefined, echoCancellation: Array<Boolean>? = undefined,
autoGainControl: Array<Boolean>? = undefined, noiseSuppression: Array<Boolean>? = undefined, latency:
DoubleRange? = undefined, channelCount: ULongRange? = undefined, deviceId: String? = undefined, groupId:
String? = undefined): MediaTrackCapabilities {
    val o = js("{}")
    o["width"] = width
    o["height"] = height
    o["aspectRatio"] = aspectRatio
    o["frameRate"] = frameRate
    o["facingMode"] = facingMode
    o["resizeMode"] = resizeMode
    o["volume"] = volume
    o["sampleRate"] = sampleRate
    o["sampleSize"] = sampleSize
    o["echoCancellation"] = echoCancellation
    o["autoGainControl"] = autoGainControl
    o["noiseSuppression"]
    = noiseSuppression
    o["latency"] = latency
    o["channelCount"] = channelCount
    o["deviceId"] = deviceId
    o["groupId"] = groupId
    return o
}

/**
 * Exposes the JavaScript
 [MediaTrackConstraints](https://developer.mozilla.org/en/docs/Web/API/MediaTrackConstraints) to Kotlin
 */
public external interface MediaTrackConstraints : MediaTrackConstraintSet {
    var advanced:
    Array<MediaTrackConstraintSet>?
    get() = definedExternally
    set(value) =
    definedExternally
}

@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")
@kotlin.internal.InlineOnly
public inline fun MediaTrackConstraints(advanced:
Array<MediaTrackConstraintSet>? = undefined, width: dynamic = undefined, height: dynamic = undefined,
aspectRatio: dynamic = undefined, frameRate: dynamic = undefined, facingMode: dynamic = undefined,
resizeMode: dynamic = undefined, volume: dynamic = undefined, sampleRate: dynamic = undefined, sampleSize:
dynamic = undefined, echoCancellation:
dynamic = undefined, autoGainControl: dynamic = undefined, noiseSuppression: dynamic = undefined, latency:
dynamic = undefined, channelCount: dynamic = undefined, deviceId: dynamic = undefined, groupId: dynamic =
undefined): MediaTrackConstraints {
    val o = js("{}")
    o["advanced"] = advanced
    o["width"] = width
    o["height"] = height
    o["aspectRatio"] = aspectRatio
    o["frameRate"] = frameRate
    o["facingMode"] = facingMode
    o["resizeMode"] = resizeMode
    o["volume"] = volume
    o["sampleRate"] = sampleRate
    o["sampleSize"] = sampleSize
    o["echoCancellation"] =
    echoCancellation
    o["autoGainControl"] = autoGainControl
    o["noiseSuppression"] = noiseSuppression
    o["latency"] = latency
    o["channelCount"] = channelCount
    o["deviceId"] = deviceId
    o["groupId"] =
    groupId
    return o
}

public external interface MediaTrackConstraintSet {
    var width: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var height: dynamic
    get() = definedExternally
    set(value) =
    definedExternally
    var aspectRatio: dynamic
    get() = definedExternally
    set(value) =
    definedExternally
    var frameRate: dynamic
    get() = definedExternally
    set(value) =
    definedExternally
    var facingMode: dynamic
    get() = definedExternally
    set(value) =
    definedExternally
    var resizeMode: dynamic
    get() = definedExternally
    set(value) =
    definedExternally
    var volume: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var sampleRate: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var sampleSize:
    dynamic
    get() = definedExternally
    set(value) = definedExternally
    var echoCancellation: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var
    autoGainControl: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var
    noiseSuppression: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var latency:
    dynamic
    get() = definedExternally
    set(value) = definedExternally
    var channelCount: dynamic
    get() = definedExternally
    set(value) = definedExternally
    var deviceId: dynamic
    get() =
    definedExternally
    set(value) = definedExternally
    var groupId: dynamic
    get() = definedExternally
    set(value) = definedExternally
}

@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")
@kotlin.internal.InlineOnly
public inline fun MediaTrackConstraintSet(width:
dynamic = undefined, height: dynamic = undefined, aspectRatio: dynamic = undefined, frameRate: dynamic =

```

```

undefined, facingMode: dynamic = undefined, resizeMode: dynamic = undefined, volume: dynamic = undefined,
sampleRate: dynamic = undefined,
sampleSize: dynamic = undefined, echoCancellation: dynamic = undefined, autoGainControl: dynamic =
undefined, noiseSuppression: dynamic = undefined, latency: dynamic = undefined, channelCount: dynamic =
undefined, deviceId: dynamic = undefined, groupId: dynamic = undefined): MediaTrackConstraintSet {\n  val o =
js("{}")\n  o["width"] = width\n  o["height"] = height\n  o["aspectRatio"] = aspectRatio\n
o["frameRate"] = frameRate\n  o["facingMode"] = facingMode\n  o["resizeMode"] = resizeMode\n
o["volume"] = volume\n  o["sampleRate"] = sampleRate\n  o["sampleSize"] = sampleSize\n
o["echoCancellation"] = echoCancellation\n  o["autoGainControl"] = autoGainControl\n
o["noiseSuppression"] = noiseSuppression\n  o["latency"] = latency\n  o["channelCount"] = channelCount\n
o["deviceId"] = deviceId\n  o["groupId"] = groupId\n  return o\n}\n\n**\n * Exposes the JavaScript
[MediaTrackSettings](https://developer.mozilla.org/en/docs/Web/API/MediaTrackSettings)
to Kotlin\n * \npublic external interface MediaTrackSettings {\n  var width: Int?\n    get() = definedExternally\n
set(value) = definedExternally\n  var height: Int?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var aspectRatio: Double?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var frameRate: Double?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var facingMode: String?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var resizeMode: String?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var volume: Double?\n    get() = definedExternally\n    set(value) = definedExternally\n
var sampleRate: Int?\n    get() = definedExternally\n    set(value) = definedExternally\n  var sampleSize:
Int?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var echoCancellation: Boolean?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var autoGainControl: Boolean?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var noiseSuppression: Boolean?\n    get() = definedExternally\n    set(value) =
definedExternally\n  var latency: Double?\n    get() = definedExternally\n    set(value) = definedExternally\n
var channelCount: Int?\n    get() = definedExternally\n    set(value) = definedExternally\n  var deviceId:
String?\n    get() = definedExternally\n    set(value) = definedExternally\n  var groupId: String?\n    get() =
definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun MediaTrackSettings(width: Int? =
undefined, height: Int? = undefined, aspectRatio: Double? = undefined, frameRate: Double? = undefined,
facingMode: String? = undefined, resizeMode: String? = undefined, volume: Double? = undefined, sampleRate:
Int? = undefined, sampleSize: Int? = undefined, echoCancellation: Boolean? = undefined, autoGainControl:
Boolean? = undefined, noiseSuppression: Boolean? = undefined, latency: Double? = undefined, channelCount: Int?
= undefined, deviceId: String? = undefined, groupId: String? = undefined): MediaTrackSettings {\n  val o =
js("{}")\n  o["width"] = width\n  o["height"] = height\n  o["aspectRatio"] = aspectRatio\n
o["frameRate"] = frameRate\n  o["facingMode"] = facingMode\n  o["resizeMode"] = resizeMode\n
o["volume"] = volume\n  o["sampleRate"] = sampleRate\n  o["sampleSize"] = sampleSize\n
o["echoCancellation"] = echoCancellation\n  o["autoGainControl"] = autoGainControl\n
o["noiseSuppression"] = noiseSuppression\n  o["latency"] = latency\n  o["channelCount"] = channelCount\n
o["deviceId"] = deviceId\n  o["groupId"]
= groupId\n  return o\n}\n\n**\n * Exposes the JavaScript
[MediaStreamTrackEvent](https://developer.mozilla.org/en/docs/Web/API/MediaStreamTrackEvent) to Kotlin\n
* \npublic external open class MediaStreamTrackEvent(type: String, eventInitDict: MediaStreamTrackEventInit) :
Event {\n  open val track: MediaStreamTrack\n\n  companion object {\n    val NONE: Short\n    val
CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n
}\n\n\npublic external interface MediaStreamTrackEventInit : EventInit {\n  var track:
MediaStreamTrack?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun MediaStreamTrackEventInit(track:

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MediaStreamTrack?, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
MediaStreamTrackEventInit {\n  val o = js("{}")\n  o["track"] = track\n  o["bubbles"] = bubbles\n  o["cancelable"] = cancelable\n  o["composed"]
= composed\n  return o\n}\n\npublic external open class OverconstrainedErrorEvent(type: String, eventInitDict:
OverconstrainedErrorEventInit) : Event {\n  open val error: dynamic\n\n  companion object {\n    val NONE:
Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE:
Short\n  }\n}\n\npublic external interface OverconstrainedErrorEventInit : EventInit {\n  var error: dynamic /* =
null */\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun OverconstrainedErrorEventInit(error:
dynamic = null, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
OverconstrainedErrorEventInit {\n  val o = js("{}")\n  o["error"] = error\n  o["bubbles"] = bubbles\n
o["cancelable"] = cancelable\n  o["composed"] = composed\n  return o\n}\n\n/**\n * Exposes the JavaScript [MediaDevices](https://developer.mozilla.org/en/docs/Web/API/MediaDevices) to
Kotlin\n */\npublic external abstract class MediaDevices : EventTarget {\n  open var ondevicechange: ((Event) ->
dynamic)?\n  fun enumerateDevices(): Promise<Array<MediaDeviceInfo>>\n  fun getSupportedConstraints():
MediaTrackSupportedConstraints\n  fun getUserMedia(constraints: MediaStreamConstraints = definedExternally):
Promise<MediaStream>\n}\n\n/**\n * Exposes the JavaScript
[MediaDeviceInfo](https://developer.mozilla.org/en/docs/Web/API/MediaDeviceInfo) to Kotlin\n */\npublic
external abstract class MediaDeviceInfo {\n  open val deviceId: String\n  open val kind: MediaDeviceKind\n
open val label: String\n  open val groupId: String\n  fun toJSON(): dynamic\n}\n\npublic external abstract class
InputDeviceInfo : MediaDeviceInfo {\n  fun getCapabilities(): MediaTrackCapabilities\n}\n\n/**\n * Exposes the
JavaScript [MediaStreamConstraints](https://developer.mozilla.org/en/docs/Web/API/MediaStreamConstraints)
to Kotlin\n */\npublic external interface MediaStreamConstraints {\n  var video: dynamic /* = false */\n  get()
= definedExternally\n  set(value) = definedExternally\n  var audio: dynamic /* = false */\n  get() =
definedExternally\n  set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun MediaStreamConstraints(video:
dynamic = false, audio: dynamic = false): MediaStreamConstraints {\n  val o = js("{}")\n  o["video"] =
video\n  o["audio"] = audio\n  return o\n}\n\npublic external interface ConstrainingPattern {\n  var
onoverconstrained: ((Event) -> dynamic)?\n  get() = definedExternally\n  set(value) = definedExternally\n
fun getCapabilities(): Capabilities\n  fun getConstraints(): Constraints\n  fun getSettings(): Settings\n  fun
applyConstraints(constraints: Constraints = definedExternally):
Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript
[DoubleRange](https://developer.mozilla.org/en/docs/Web/API/DoubleRange) to Kotlin\n */\npublic external
interface DoubleRange {\n  var max: Double?\n  get() = definedExternally\n  set(value) =
definedExternally\n  var min: Double?\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun DoubleRange(max: Double? =
undefined, min: Double? = undefined): DoubleRange {\n  val o = js("{}")\n  o["max"] = max\n  o["min"] =
min\n  return o\n}\n\npublic external interface ConstrainDoubleRange : DoubleRange {\n  var exact: Double?\n
get() = definedExternally\n  set(value) = definedExternally\n  var ideal: Double?\n  get() =
definedExternally\n  set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic
inline fun ConstrainDoubleRange(exact: Double? = undefined, ideal: Double? = undefined, max: Double? =
undefined, min: Double? = undefined): ConstrainDoubleRange {\n  val o = js("{}")\n  o["exact"] = exact\n
o["ideal"] = ideal\n  o["max"] = max\n  o["min"] = min\n  return o\n}\n\npublic external interface
ULongRange {\n  var max: Int?\n  get() = definedExternally\n  set(value) = definedExternally\n  var min:
Int?\n  get() = definedExternally\n  set(value) =

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definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ULongRange(max: Int? = undefined,
min: Int? = undefined): ULongRange {\n    val o = js(\"({})\")\n    o[\"max\"] = max\n    o[\"min\"] = min\n    return
o\n}\n\npublic external interface ConstrainULongRange : ULongRange {\n    var exact: Int?\n    get() =
definedExternally\n    set(value) = definedExternally\n    var ideal:
Int?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstrainULongRange(exact: Int? =
undefined, ideal: Int? = undefined, max: Int? = undefined, min: Int? = undefined): ConstrainULongRange {\n    val o
= js(\"({})\")\n    o[\"exact\"] = exact\n    o[\"ideal\"] = ideal\n    o[\"max\"] = max\n    o[\"min\"] = min\n    return
o\n}\n\n/**\n * Exposes the JavaScript
[ConstrainBooleanParameters](https://developer.mozilla.org/en/docs/Web/API/ConstrainBooleanParameters) to
Kotlin\n *\npublic external interface ConstrainBooleanParameters {\n    var exact: Boolean?\n    get() =
definedExternally\n    set(value) = definedExternally\n    var ideal: Boolean?\n    get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstrainBooleanParameters(exact:
Boolean? = undefined, ideal: Boolean? = undefined): ConstrainBooleanParameters {\n    val o = js(\"({})\")\n
o[\"exact\"] = exact\n    o[\"ideal\"] = ideal\n    return o\n}\n\n/**\n * Exposes the JavaScript
[ConstrainDOMStringParameters](https://developer.mozilla.org/en/docs/Web/API/ConstrainDOMStringParameters)
to Kotlin\n *\npublic external interface ConstrainDOMStringParameters {\n    var exact: dynamic\n    get() =
definedExternally\n    set(value) = definedExternally\n    var ideal: dynamic\n    get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun
ConstrainDOMStringParameters(exact: dynamic = undefined, ideal: dynamic = undefined):
ConstrainDOMStringParameters {\n    val o = js(\"({})\")\n    o[\"exact\"] = exact\n    o[\"ideal\"] = ideal\n    return
o\n}\n\npublic external interface Capabilities\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun Capabilities(): Capabilities {\n    val o
= js(\"({})\")\n    return o\n}\n\npublic external interface Settings\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun Settings(): Settings {\n    val o =
js(\"({})\")\n    return o\n}\n\npublic external interface ConstraintSet\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ConstraintSet(): ConstraintSet {\n
val o = js(\"({})\")\n    return o\n}\n\npublic external interface Constraints : ConstraintSet {\n    var advanced:
Array<ConstraintSet>?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun Constraints(advanced:
Array<ConstraintSet>? = undefined): Constraints {\n    val o = js(\"({})\")\n    o[\"advanced\"]
= advanced\n    return o\n}\n\n/* please, don't implement this interface!
*\n\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external
interface MediaStreamTrackState {\n    companion object\n}\n\npublic inline val
MediaStreamTrackState.Companion.LIVE: MediaStreamTrackState get() =
\"live\".asDynamic().unsafeCast<MediaStreamTrackState>()\n\npublic inline val
MediaStreamTrackState.Companion.ENDED: MediaStreamTrackState get() =
\"ended\".asDynamic().unsafeCast<MediaStreamTrackState>()\n\n/* please, don't implement this interface!
*\n\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\npublic external
interface VideoFacingModeEnum {\n    companion object\n}\n\npublic inline val
VideoFacingModeEnum.Companion.USER: VideoFacingModeEnum get() =
\"user\".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\npublic inline val
VideoFacingModeEnum.Companion.ENVIRONMENT: VideoFacingModeEnum get() =

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"environment".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\npublic
inline val VideoFacingModeEnum.Companion.LEFT: VideoFacingModeEnum get() =
"left".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\npublic inline val
VideoFacingModeEnum.Companion.RIGHT: VideoFacingModeEnum get() =
"right".asDynamic().unsafeCast<VideoFacingModeEnum>()\n\n/* please, don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external
interface VideoResizeModeEnum {\n    companion object\n}\n\npublic inline val
VideoResizeModeEnum.Companion.NONE: VideoResizeModeEnum get() =
"none".asDynamic().unsafeCast<VideoResizeModeEnum>()\n\npublic inline val
VideoResizeModeEnum.Companion.CROP_AND_SCALE: VideoResizeModeEnum get() = "crop-and-
scale".asDynamic().unsafeCast<VideoResizeModeEnum>()\n\n/* please, don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external
interface MediaDeviceKind {\n    companion object\n}\n\npublic inline val
MediaDeviceKind.Companion.AUDIOINPUT:
MediaDeviceKind get() = "audioinput".asDynamic().unsafeCast<MediaDeviceKind>()\n\npublic inline val
MediaDeviceKind.Companion.AUDIOOUTPUT: MediaDeviceKind get() =
"audiooutput".asDynamic().unsafeCast<MediaDeviceKind>()\n\npublic inline val
MediaDeviceKind.Companion.VIDEOINPUT: MediaDeviceKind get() =
"videoinput".asDynamic().unsafeCast<MediaDeviceKind>())"/*\n * Copyright 2010-2021 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT
EDIT!\n\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.mediasource\n\nimport
kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\n/**\n * Exposes
the JavaScript [MediaSource](https://developer.mozilla.org/en/docs/Web/API/MediaSource) to Kotlin\n */\n\npublic
external open class MediaSource
: EventTarget, MediaProvider {\n    open val sourceBuffers: SourceBufferList\n    open val activeSourceBuffers:
SourceBufferList\n    open val readyState: ReadyState\n    var duration: Double\n    var onsourceopen: ((Event) ->
dynamic)?\n    var onsourceended: ((Event) -> dynamic)?\n    var onsourceclose: ((Event) -> dynamic)?\n    fun
addSourceBuffer(type: String): SourceBuffer\n    fun removeSourceBuffer(sourceBuffer: SourceBuffer)\n    fun
endOfStream(error: EndOfStreamError = definedExternally)\n    fun setLiveSeekableRange(start: Double, end:
Double)\n    fun clearLiveSeekableRange()\n\n    companion object {\n        fun isTypeSupported(type: String):
Boolean\n    }\n}\n\n/**\n * Exposes the JavaScript
[SourceBuffer](https://developer.mozilla.org/en/docs/Web/API/SourceBuffer) to Kotlin\n */\n\npublic external
abstract class SourceBuffer : EventTarget {\n    open var mode: AppendMode\n    open val updating: Boolean\n
open val buffered: TimeRanges\n    open var timestampOffset:
Double\n    open val audioTracks: AudioTrackList\n    open val videoTracks: VideoTrackList\n    open val
textTracks: TextTrackList\n    open var appendWindowStart: Double\n    open var appendWindowEnd: Double\n
open var onupdatestart: ((Event) -> dynamic)?\n    open var onupdate: ((Event) -> dynamic)?\n    open var
onupdateend: ((Event) -> dynamic)?\n    open var onerror: ((Event) -> dynamic)?\n    open var onabort: ((Event) ->
dynamic)?\n    fun appendBuffer(data: dynamic)\n    fun abort()\n    fun remove(start: Double, end:
Double)\n}\n\n/**\n * Exposes the JavaScript
[SourceBufferList](https://developer.mozilla.org/en/docs/Web/API/SourceBufferList) to Kotlin\n */\n\npublic
external abstract class SourceBufferList : EventTarget {\n    open val length: Int\n    open var onaddsourcebuffer:
((Event) -> dynamic)?\n    open var onremovesourcebuffer: ((Event) ->
dynamic)?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\n\npublic inline operator
fun SourceBufferList.get(index: Int): SourceBuffer? = asDynamic()[index]\n\n/* please, don't implement this
interface! *\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic

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external interface ReadyState {\n  companion object\n}\n\npublic inline val ReadyState.Companion.CLOSED:
ReadyState get() = \"closed\".asDynamic().unsafeCast<ReadyState>()\n\npublic inline val
ReadyState.Companion.OPEN: ReadyState get() = \"open\".asDynamic().unsafeCast<ReadyState>()\n\npublic
inline val ReadyState.Companion.ENDED: ReadyState get() =
\"ended\".asDynamic().unsafeCast<ReadyState>()\n\n/* please, don't implement this interface!
*\n\n@JsName(\"null\")\n\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface EndOfStreamError {\n  companion object\n}\n\npublic inline val
EndOfStreamError.Companion.NETWORK: EndOfStreamError get() =
\"network\".asDynamic().unsafeCast<EndOfStreamError>()\n\npublic inline val
EndOfStreamError.Companion.DECODE: EndOfStreamError
get() = \"decode\".asDynamic().unsafeCast<EndOfStreamError>()\n\n/* please, don't implement this interface!
*\n\n@JsName(\"null\")\n\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface AppendMode {\n  companion object\n}\n\npublic inline val AppendMode.Companion.SEGMENTS:
AppendMode get() = \"segments\".asDynamic().unsafeCast<AppendMode>()\n\npublic inline val
AppendMode.Companion.SEQUENCE: AppendMode get() =
\"sequence\".asDynamic().unsafeCast<AppendMode>()\"/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n\n//
See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.pointerevents\n\nimport kotlin.js.*\nimport
org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\n\npublic external interface
PointerEventInit : MouseEventInit
{\n  var pointerId: Int? /* = 0 */\n    get() = definedExternally\n    set(value) = definedExternally\n  var
width: Double? /* = 1.0 */\n    get() = definedExternally\n    set(value) = definedExternally\n  var height:
Double? /* = 1.0 */\n    get() = definedExternally\n    set(value) = definedExternally\n  var pressure: Float? /*
= 0f */\n    get() = definedExternally\n    set(value) = definedExternally\n  var tangentialPressure: Float? /*
= 0f */\n    get() = definedExternally\n    set(value) = definedExternally\n  var tiltX: Int? /* = 0 */\n    get() =
definedExternally\n    set(value) = definedExternally\n  var tiltY: Int? /* = 0 */\n    get() = definedExternally\n
    set(value) = definedExternally\n  var twist: Int? /* = 0 */\n    get() = definedExternally\n    set(value) =
definedExternally\n  var pointerType: String? /* = \"\" */\n    get() = definedExternally\n    set(value) =
definedExternally\n
    var isPrimary: Boolean? /* = false */\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun PointerEventInit(pointerId: Int? = 0,
width: Double? = 1.0, height: Double? = 1.0, pressure: Float? = 0f, tangentialPressure: Float? = 0f, tiltX: Int? = 0,
tiltY: Int? = 0, twist: Int? = 0, pointerType: String? = \"\", isPrimary: Boolean? = false, screenX: Int? = 0, screenY:
Int? = 0, clientX: Int? = 0, clientY: Int? = 0, button: Short? = 0, buttons: Short? = 0, relatedTarget: EventTarget? =
null, region: String? = null, ctrlKey: Boolean? = false, shiftKey: Boolean? = false, altKey: Boolean? = false,
metaKey: Boolean? = false, modifierAltGraph: Boolean? = false, modifierCapsLock: Boolean? = false, modifierFn:
Boolean? = false, modifierFnLock: Boolean? = false, modifierHyper: Boolean? = false, modifierNumLock:
Boolean? = false, modifierScrollLock: Boolean?
= false, modifierSuper: Boolean? = false, modifierSymbol: Boolean? = false, modifierSymbolLock: Boolean? =
false, view: Window? = null, detail: Int? = 0, bubbles: Boolean? = false, cancelable: Boolean? = false, composed:
Boolean? = false): PointerEventInit {\n  val o = js(\"({})\")\n  o[\"pointerId\"] = pointerId\n  o[\"width\"] =
width\n  o[\"height\"] = height\n  o[\"pressure\"] = pressure\n  o[\"tangentialPressure\"] = tangentialPressure\n
o[\"tiltX\"] = tiltX\n  o[\"tiltY\"] = tiltY\n  o[\"twist\"] = twist\n  o[\"pointerType\"] = pointerType\n
o[\"isPrimary\"] = isPrimary\n  o[\"screenX\"] = screenX\n  o[\"screenY\"] = screenY\n  o[\"clientX\"] =
clientX\n  o[\"clientY\"] = clientY\n  o[\"button\"] = button\n  o[\"buttons\"] = buttons\n  o[\"relatedTarget\"] =
relatedTarget\n  o[\"region\"] = region\n  o[\"ctrlKey\"] = ctrlKey\n  o[\"shiftKey\"] = shiftKey\n  o[\"altKey\"]

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= altKey\n  o["metaKey"] = metaKey\n  o["modifierAltGraph"]
= modifierAltGraph\n  o["modifierCapsLock"] = modifierCapsLock\n  o["modifierFn"] = modifierFn\n
o["modifierFnLock"] = modifierFnLock\n  o["modifierHyper"] = modifierHyper\n  o["modifierNumLock"] =
modifierNumLock\n  o["modifierScrollLock"] = modifierScrollLock\n  o["modifierSuper"] = modifierSuper\n
o["modifierSymbol"] = modifierSymbol\n  o["modifierSymbolLock"] = modifierSymbolLock\n  o["view"] =
view\n  o["detail"] = detail\n  o["bubbles"] = bubbles\n  o["cancelable"] = cancelable\n  o["composed"] =
composed\n  return o\n}\n\n/**\n * Exposes the JavaScript
[PointerEvent](https://developer.mozilla.org/en/docs/Web/API/PointerEvent) to Kotlin\n */\npublic external open
class PointerEvent(type: String, eventInitDict: PointerEventInit = definedExternally) : MouseEvent {\n  open val
pointerId: Int\n  open val width: Double\n  open val height: Double\n  open val pressure: Float\n  open val
tangentialPressure: Float\n
  open val tiltX: Int\n  open val tiltY: Int\n  open val twist: Int\n  open val pointerType: String\n  open val
isPrimary: Boolean\n\n  companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n
val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n  }\n},"/*\n * Copyright 2010-2021 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\n// NOTE: THIS FILE IS AUTO-GENERATED,
DO NOT EDIT!\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.dom.svg\n\nimport
kotlin.js.*\nimport org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.css.*\n\n/**\n * Exposes the
JavaScript [SVGElement](https://developer.mozilla.org/en/docs/Web/API/SVGElement) to Kotlin\n */\npublic
external abstract class SVGElement : Element, ElementCSSInlineStyle, GlobalEventHandlers, SVGElementInstance
{\n  open val dataset:
DOMStringMap\n  open val ownerSVGElement: SVGSVGElement?\n  open val viewportElement:
SVGElement?\n  open var tabIndex: Int\n  fun focus()\n  fun blur()\n\n  companion object {\n    val
ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n  }\n}\n\npublic external interface
SVGBoundingBoxOptions
{\n  var fill: Boolean? /* = true */\n    get() = definedExternally\n    set(value) = definedExternally\n  var
stroke: Boolean? /* = false */\n    get() = definedExternally\n    set(value) = definedExternally\n  var markers:
Boolean? /* = false */\n    get() = definedExternally\n    set(value) = definedExternally\n  var clipped:
Boolean? /* = false */\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\npublic inline fun SVGBoundingBoxOptions(fill:
Boolean? = true, stroke: Boolean? = false, markers: Boolean? = false, clipped: Boolean? = false):
SVGBoundingBoxOptions {\n  val o = js("{}")\n  o["fill"] = fill\n  o["stroke"] = stroke\n  o["markers"]
= markers\n  o["clipped"] = clipped\n  return o\n}\n\n/**\n * Exposes the JavaScript
[SVGGraphicsElement](https://developer.mozilla.org/en/docs/Web/API/SVGGraphicsElement)
to Kotlin\n */\npublic external abstract class SVGGraphicsElement : SVGElement, SVGTTests {\n  open val
transform: SVGAnimatedTransformList\n  fun getBBox(options: SVGBoundingBoxOptions = definedExternally):
DOMRect\n  fun getCTM(): DOMMatrix?\n  fun getScreenCTM(): DOMMatrix?\n\n  companion object {\n
val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:

```

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Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n
        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the
JavaScript [SVGGeometryElement](https://developer.mozilla.org/en/docs/Web/API/SVGGeometryElement) to
Kotlin\n */\npublic external abstract class SVGGeometryElement : SVGGraphicsElement {\n    open val
pathLength: SVGAnimatedNumber\n    fun isPointInFill(point: DOMPoint): Boolean\n    fun isPointInStroke(point:
DOMPoint): Boolean\n    fun getTotalLength(): Float\n    fun getPointAtLength(distance: Float): DOMPoint\n\n
companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val
TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED:
Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n        val
DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGNumber](https://developer.mozilla.org/en/docs/Web/API/SVGNumber) to Kotlin\n */\npublic external
abstract class SVGNumber {\n    open var value: Float\n}\n\n/**\n * Exposes the JavaScript
[SVGLength](https://developer.mozilla.org/en/docs/Web/API/SVGLength) to Kotlin\n */\npublic external abstract
class SVGLength {\n    open val unitType: Short\n    open var value: Float\n    open var valueInSpecifiedUnits:
Float\n    open var valueAsString: String\n    fun newValueSpecifiedUnits(unitType: Short, valueInSpecifiedUnits:
Float)\n    fun convertToSpecifiedUnits(unitType: Short)\n\n    companion object {\n        val
SVG_LENGTHTYPE_UNKNOWN: Short\n        val SVG_LENGTHTYPE_NUMBER:
Short\n        val SVG_LENGTHTYPE_PERCENTAGE: Short\n        val SVG_LENGTHTYPE_EMS: Short\n
        val SVG_LENGTHTYPE_EXS: Short\n        val SVG_LENGTHTYPE_PX: Short\n        val
SVG_LENGTHTYPE_CM: Short\n        val SVG_LENGTHTYPE_MM: Short\n        val
SVG_LENGTHTYPE_IN: Short\n        val SVG_LENGTHTYPE_PT: Short\n        val SVG_LENGTHTYPE_PC:
Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGAngle](https://developer.mozilla.org/en/docs/Web/API/SVGAngle) to Kotlin\n */\npublic external abstract
class SVGAngle {\n    open val unitType: Short\n    open var value: Float\n    open var valueInSpecifiedUnits:
Float\n    open var valueAsString: String\n    fun newValueSpecifiedUnits(unitType: Short, valueInSpecifiedUnits:
Float)\n    fun convertToSpecifiedUnits(unitType: Short)\n\n    companion object {\n        val
SVG_ANGLETYPE_UNKNOWN: Short\n        val SVG_ANGLETYPE_UNSPECIFIED: Short\n        val
SVG_ANGLETYPE_DEG: Short\n        val SVG_ANGLETYPE_RAD: Short\n
        val SVG_ANGLETYPE_GRAD: Short\n    }\n}\n\npublic external abstract class SVGNameList {\n    open val
length: Int\n    open val numberOfItems: Int\n    fun clear()\n    fun initialize(newItem: dynamic): dynamic\n    fun
insertItemBefore(newItem: dynamic, index: Int): dynamic\n    fun replaceItem(newItem: dynamic, index: Int):
dynamic\n    fun removeItem(index: Int): dynamic\n    fun appendItem(newItem: dynamic): dynamic\n    fun
getItem(index: Int): dynamic\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNameList.get(index: Int):
dynamic = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNameList.set(index: Int,
newItem: dynamic) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript

```



[SVGNumberList](https://developer.mozilla.org/en/docs/Web/API/SVGNumberList) to Kotlin\n \*^/npublic external abstract

```

class SVGNumberList {\n  open val length: Int\n  open val numberOfItems: Int\n  fun clear()\n  fun initialize(newItem: SVGNumber): SVGNumber\n  fun insertItemBefore(newItem: SVGNumber, index: Int): SVGNumber\n  fun replaceItem(newItem: SVGNumber, index: Int): SVGNumber\n  fun removeItem(index: Int): SVGNumber\n  fun appendItem(newItem: SVGNumber): SVGNumber\n  fun getItem(index: Int): SVGNumber\n}\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNumberList.get(index: Int): SVGNumber? = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGNumberList.set(index: Int, newItem: SVGNumber) { asDynamic()[index] = newItem }\n\n/**\n * Exposes the JavaScript

```

[SVGLengthList](https://developer.mozilla.org/en/docs/Web/API/SVGLengthList) to Kotlin\n \*^/npublic external abstract class SVGLengthList {\n open val length: Int\n open val numberOfItems: Int\n fun clear()\n fun initialize(newItem: SVGLength): SVGLength\n fun insertItemBefore(newItem: SVGLength, index: Int): SVGLength\n fun replaceItem(newItem: SVGLength, index: Int): SVGLength\n fun removeItem(index: Int): SVGLength\n fun appendItem(newItem: SVGLength): SVGLength\n fun getItem(index: Int): SVGLength\n}\n\n@Suppress("INVISIBLE\_REFERENCE", "INVISIBLE\_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGLengthList.get(index: Int): SVGLength? = asDynamic()[index]\n\n@Suppress("INVISIBLE\_REFERENCE", "INVISIBLE\_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGLengthList.set(index: Int, newItem: SVGLength) { asDynamic()[index] = newItem }\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedBoolean](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedBoolean) to Kotlin\n \*^/npublic external abstract class SVGAnimatedBoolean {\n open var baseVal: Boolean\n open val animVal: Boolean\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedEnumeration](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedEnumeration) to Kotlin\n \*^/npublic external abstract class SVGAnimatedEnumeration {\n open var baseVal: Short\n open val animVal: Short\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedInteger](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedInteger) to Kotlin\n \*^/npublic external abstract class SVGAnimatedInteger {\n open var baseVal: Int\n open val animVal: Int\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedNumber](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedNumber) to Kotlin\n \*^/npublic external abstract class SVGAnimatedNumber {\n open var baseVal: Float\n open val animVal: Float\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedLength](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedLength) to Kotlin\n \*^/npublic external abstract class SVGAnimatedLength {\n open val baseVal: SVGLength\n open val animVal: SVGLength\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedAngle](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedAngle) to Kotlin\n \*^/npublic external abstract class SVGAnimatedAngle {\n open val baseVal: SVGAngle\n open val animVal: SVGAngle\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedString](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedString) to Kotlin\n \*^/npublic external abstract class SVGAnimatedString {\n open var baseVal: String\n open val animVal: String\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedRect](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedRect) to Kotlin\n \*^/npublic external abstract class SVGAnimatedRect {\n open val baseVal: DOMRect\n open val animVal: DOMRectReadOnly\n}\n\n/\*\*\n \* Exposes the JavaScript

[SVGAnimatedNumberList](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedNumberList) to Kotlin\n \*^/npublic external abstract class SVGAnimatedNumberList {\n open val baseVal: SVGNumberList\n}

```

    open val animVal: SVGNumberList\n\n\n**\n * Exposes the JavaScript
[SVGAnimatedLengthList](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedLengthList) to Kotlin\n
*\n\npublic external abstract class SVGAnimatedLengthList {\n    open val baseVal: SVGLengthList\n    open val
animVal: SVGLengthList\n\n\n**\n * Exposes the JavaScript
[SVGStringList](https://developer.mozilla.org/en/docs/Web/API/SVGStringList) to Kotlin\n\n*\n\npublic external
abstract class SVGStringList {\n    open val length: Int\n    open val numberOfItems: Int\n    fun clear()\n    fun
initialize(newItem: String): String\n    fun insertItemBefore(newItem: String, index: Int): String\n    fun
replaceItem(newItem: String, index: Int): String\n    fun removeItem(index: Int): String\n    fun
appendItem(newItem: String): String\n    fun getItem(index: Int):
String\n\n\n\n@Suppress(\\"INVISIBLE_REFERENCE\\",
\\"INVISIBLE_MEMBER\\")\n\n@kotlin.internal.InlineOnly\n\npublic inline operator fun SVGStringList.get(index:
Int):
String? = asDynamic()[index]\n\n\n@Suppress(\\"INVISIBLE_REFERENCE\\",
\\"INVISIBLE_MEMBER\\")\n\n@kotlin.internal.InlineOnly\n\npublic inline operator fun SVGStringList.set(index: Int,
newItem: String) { asDynamic()[index] = newItem }\n\n\n**\n * Exposes the JavaScript
[SVGUnitTypes](https://developer.mozilla.org/en/docs/Web/API/SVGUnitTypes) to Kotlin\n
*\n\n@Suppress(\\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\\")\n\npublic external interface SVGUnitTypes
{\n    companion object {\n        val SVG_UNIT_TYPE_UNKNOWN: Short\n        val
SVG_UNIT_TYPE_USERSPACEONUSE: Short\n        val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX:
Short\n    }\n\n\n**\n * Exposes the JavaScript
[SVGTests](https://developer.mozilla.org/en/docs/Web/API/SVGTests) to Kotlin\n\n*\n\npublic external interface
SVGTests {\n    val requiredExtensions: SVGStringList\n    val systemLanguage: SVGStringList\n\n\n\npublic
external interface SVGFitToViewBox {\n    val viewBox: SVGAnimatedRect\n    val preserveAspectRatio:
SVGAnimatedPreserveAspectRatio\n\n\n\n**\n
* Exposes the JavaScript [SVGZoomAndPan](https://developer.mozilla.org/en/docs/Web/API/SVGZoomAndPan)
to Kotlin\n\n*\n\n@Suppress(\\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\\")\n\npublic external interface
SVGZoomAndPan {\n    var zoomAndPan: Short\n\n    companion object {\n        val
SVG_ZOOMANDPAN_UNKNOWN: Short\n        val SVG_ZOOMANDPAN_DISABLE: Short\n        val
SVG_ZOOMANDPAN_MAGNIFY: Short\n    }\n\n\n**\n * Exposes the JavaScript
[SVGURIReference](https://developer.mozilla.org/en/docs/Web/API/SVGURIReference) to Kotlin\n\n*\n\npublic
external interface SVGURIReference {\n    val href: SVGAnimatedString\n\n\n\n**\n * Exposes the JavaScript
[SVGSVGElement](https://developer.mozilla.org/en/docs/Web/API/SVGSVGElement) to Kotlin\n\n*\n\npublic
external abstract class SVGSVGElement : SVGGraphicsElement, SVGFitToViewBox, SVGZoomAndPan,
WindowEventHandlers {\n    open val x: SVGAnimatedLength\n    open val y: SVGAnimatedLength\n    open val
width: SVGAnimatedLength\n    open val
height: SVGAnimatedLength\n    open var currentScale: Float\n    open val currentTranslate:
DOMPointReadOnly\n    fun getIntersectionList(rect: DOMRectReadOnly, referenceElement: SVGElement?):
NodeList\n    fun getEnclosureList(rect: DOMRectReadOnly, referenceElement: SVGElement?): NodeList\n    fun
checkIntersection(element: SVGElement, rect: DOMRectReadOnly): Boolean\n    fun checkEnclosure(element:
SVGElement, rect: DOMRectReadOnly): Boolean\n    fun deselectAll()\n    fun createSVGNumber():
SVGNumber\n    fun createSVGLength(): SVGLength\n    fun createSVGAngle(): SVGAngle\n    fun
createSVGPoint(): DOMPoint\n    fun createSVGMatrix(): DOMMatrix\n    fun createSVGRect(): DOMRect\n    fun
createSVGTransform(): SVGTransform\n    fun createSVGTransformFromMatrix(matrix:
DOMMatrixReadOnly): SVGTransform\n    fun getElementById(elementId: String): Element\n    fun
suspendRedraw(maxWaitMilliseconds: Int): Int\n    fun unsuspendRedraw(suspendHandleID: Int)\n    fun
unsuspendRedrawAll()\n
    fun forceRedraw()\n\n    companion object {\n        val SVG_ZOOMANDPAN_UNKNOWN: Short\n        val
SVG_ZOOMANDPAN_DISABLE: Short\n        val SVG_ZOOMANDPAN_MAGNIFY: Short\n        val

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```

ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGGElement](https://developer.mozilla.org/en/docs/Web/API/SVGGElement)
to Kotlin\n *\npublic external abstract class SVGGElement : SVGGraphicsElement {\n    companion object {\n
val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external abstract class
SVGUnknownElement : SVGGraphicsElement {\n    companion
object {\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE:
Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val
ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGDefsElement](https://developer.mozilla.org/en/docs/Web/API/SVGDefsElement) to Kotlin\n *\npublic
external abstract class SVGDefsElement : SVGGraphicsElement {\n    companion object {\n    val
ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGDescElement](https://developer.mozilla.org/en/docs/Web/API/SVGDescElement) to Kotlin\n *\npublic
external abstract class SVGDescElement : SVGElement {\n    companion object {\n    val ELEMENT_NODE:
Short\n
Short\n
    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n
    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val

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DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the JavaScript
[SVGMetadataElement](https://developer.mozilla.org/en/docs/Web/API/SVGMetadataElement) to Kotlin \n
*\npublic external abstract class SVGMetadataElement : SVGElement { \n    companion object { \n    val
ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE:
Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the JavaScript
[SVGTitleElement](https://developer.mozilla.org/en/docs/Web/API/SVGTitleElement) to Kotlin \n
*\npublic
external abstract class SVGTitleElement : SVGElement { \n    companion object { \n    val ELEMENT_NODE:
Short\n    val ATTRIBUTE_NODE: Short\n
    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE:
Short\n    val ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val
COMMENT_NODE: Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n
    val DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the JavaScript
[SVGSymbolElement](https://developer.mozilla.org/en/docs/Web/API/SVGSymbolElement) to Kotlin \n
*\npublic
external abstract class SVGSymbolElement : SVGGraphicsElement, SVGFitToViewBox { \n    companion object
{ \n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n
    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n } \n \n /** \n * Exposes the JavaScript
[SVGUseElement](https://developer.mozilla.org/en/docs/Web/API/SVGUseElement) to Kotlin \n
*\npublic external
abstract class SVGUseElement : SVGGraphicsElement, SVGURIReference { \n    open val x:
SVGAnimatedLength \n    open val y: SVGAnimatedLength \n    open val width: SVGAnimatedLength \n
    open val height: SVGAnimatedLength \n    open val instanceRoot: SVGElement? \n    open val
animatedInstanceRoot: SVGElement? \n \n    companion object { \n    val ELEMENT_NODE: Short\n    val
ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val CDATA_SECTION_NODE: Short\n    val
ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE: Short\n    val
PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val

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DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external open class
SVGUseElementShadowRoot : ShadowRoot {\n    companion
    object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE:
Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n        }\n}\n\npublic external interface
SVGElementInstance {\n    val correspondingElement: SVGElement?\n        get() = definedExternally\n    val
correspondingUseElement: SVGUseElement?\n        get() = definedExternally\n}\n\npublic external
open class ShadowAnimation(source: dynamic, newTarget: dynamic) {\n    open val sourceAnimation:
dynamic\n}\n\n/**\n * Exposes the JavaScript
[SVGSwitchElement](https://developer.mozilla.org/en/docs/Web/API/SVGSwitchElement) to Kotlin\n */\n\npublic
external abstract class SVGSwitchElement : SVGGraphicsElement {\n    companion object {\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE:
Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external
interface GetSVGDocument {\n    fun getSVGDocument(): Document\n}\n\n/**\n * Exposes the JavaScript
[SVGStyleElement](https://developer.mozilla.org/en/docs/Web/API/SVGStyleElement) to Kotlin\n */\n\npublic
external abstract class SVGStyleElement : SVGElement, LinkStyle {\n    open var type: String\n    open var media:
String\n    open var title: String\n\n    companion object {\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n
        val DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
        val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [SVGTransform](https://developer.mozilla.org/en/docs/Web/API/SVGTransform) to Kotlin\n
*/\n\npublic external abstract class SVGTransform {\n    open val type: Short\n    open val matrix: DOMMatrix\n
open val angle: Float\n    fun setMatrix(matrix: DOMMatrixReadOnly)\n    fun setTranslate(tx: Float, ty: Float)\n
fun setScale(sx: Float, sy: Float)\n    fun setRotate(angle: Float, cx: Float, cy: Float)\n    fun setSkewX(angle:

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Float\n fun setSkewY(angle: Float)\n\n companion object {\n    val SVG_TRANSFORM_UNKNOWN:
Short\n    val SVG_TRANSFORM_MATRIX: Short\n    val SVG_TRANSFORM_TRANSLATE: Short\n
val SVG_TRANSFORM_SCALE: Short\n    val SVG_TRANSFORM_ROTATE: Short\n
    val SVG_TRANSFORM_SKEWX: Short\n    val SVG_TRANSFORM_SKEWY: Short\n } \n\n/**\n *
Exposes the JavaScript [SVGTransformList](https://developer.mozilla.org/en/docs/Web/API/SVGTransformList) to
Kotlin\n */\npublic external abstract class SVGTransformList {\n    open val length: Int\n    open val
numberOfItems: Int\n    fun clear()\n    fun initialize(newItem: SVGTransform): SVGTransform\n    fun
insertItemBefore(newItem: SVGTransform, index: Int): SVGTransform\n    fun replaceItem(newItem:
SVGTransform, index: Int): SVGTransform\n    fun removeItem(index: Int): SVGTransform\n    fun
appendItem(newItem: SVGTransform): SVGTransform\n    fun createSVGTransformFromMatrix(matrix:
DOMMatrixReadOnly): SVGTransform\n    fun consolidate(): SVGTransform?\n    fun getItem(index: Int):
SVGTransform\n} \n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGTransformList.get(index:
Int): SVGTransform? = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGTransformList.set(index:
Int, newItem: SVGTransform) { asDynamic()[index] = newItem } \n\n/**\n * Exposes the JavaScript
[SVGAnimatedTransformList](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedTransformList) to
Kotlin\n */\npublic external abstract class SVGAnimatedTransformList {\n    open val baseVal:
SVGTransformList\n    open val animVal: SVGTransformList\n} \n\n/**\n * Exposes the JavaScript
[SVGPreserveAspectRatio](https://developer.mozilla.org/en/docs/Web/API/SVGPreserveAspectRatio) to Kotlin\n
*/\npublic external abstract class SVGPreserveAspectRatio {\n    open var align: Short\n    open var meetOrSlice:
Short\n\n    companion object {\n        val SVG_PRESERVEASPECTRATIO_UNKNOWN: Short\n        val
SVG_PRESERVEASPECTRATIO_NONE: Short\n        val SVG_PRESERVEASPECTRATIO_XMINYMIN:
Short\n        val SVG_PRESERVEASPECTRATIO_XMIDYMIN: Short\n
        val SVG_PRESERVEASPECTRATIO_XMAXYMIN: Short\n        val
SVG_PRESERVEASPECTRATIO_XMINYMID: Short\n        val
SVG_PRESERVEASPECTRATIO_XMIDYMID: Short\n        val
SVG_PRESERVEASPECTRATIO_XMAXYMID: Short\n        val
SVG_PRESERVEASPECTRATIO_XMINYMAX: Short\n        val
SVG_PRESERVEASPECTRATIO_XMIDYMAX: Short\n        val
SVG_PRESERVEASPECTRATIO_XMAXYMAX: Short\n        val SVG_MEETORSLICE_UNKNOWN: Short\n
        val SVG_MEETORSLICE_MEET: Short\n        val SVG_MEETORSLICE_SLICE: Short\n    } \n} \n\n/**\n *
Exposes the JavaScript
[SVGAnimatedPreserveAspectRatio](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedPreserveAspect
Ratio) to Kotlin\n */\npublic external abstract class SVGAnimatedPreserveAspectRatio {\n    open val baseVal:
SVGPreserveAspectRatio\n    open val animVal: SVGPreserveAspectRatio\n} \n\n/**\n * Exposes the JavaScript
[SVGPathElement](https://developer.mozilla.org/en/docs/Web/API/SVGPathElement) to Kotlin\n */\npublic
external abstract class SVGPathElement : SVGGeometryElement
{\n    companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val
TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    } \n} \n\n/**\n * Exposes the JavaScript
[SVGRectElement](https://developer.mozilla.org/en/docs/Web/API/SVGRectElement) to Kotlin\n */\npublic

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external abstract class SVGRectElement : SVGGeometryElement {
    open val x: SVGAnimatedLength
    open val y: SVGAnimatedLength
    open val width: SVGAnimatedLength
    open val height: SVGAnimatedLength
    open val rx: SVGAnimatedLength
    open val ry: SVGAnimatedLength
    companion object {
        val ELEMENT_NODE: Short
        val ATTRIBUTE_NODE: Short
        val TEXT_NODE: Short
        val CDATA_SECTION_NODE: Short
        val ENTITY_REFERENCE_NODE: Short
        val ENTITY_NODE: Short
        val PROCESSING_INSTRUCTION_NODE: Short
        val COMMENT_NODE: Short
        val DOCUMENT_NODE: Short
        val DOCUMENT_TYPE_NODE: Short
        val DOCUMENT_FRAGMENT_NODE: Short
        val NOTATION_NODE: Short
        val DOCUMENT_POSITION_DISCONNECTED: Short
        val DOCUMENT_POSITION_PRECEDING: Short
        val DOCUMENT_POSITION_FOLLOWING: Short
        val DOCUMENT_POSITION_CONTAINS: Short
        val DOCUMENT_POSITION_CONTAINED_BY: Short
        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short
    }
}

* Exposes the JavaScript [SVGCircleElement](https://developer.mozilla.org/en/docs/Web/API/SVGCircleElement) to Kotlin
public external abstract class SVGCircleElement : SVGGeometryElement {
    open val cx: SVGAnimatedLength
    open val cy: SVGAnimatedLength
    open val r: SVGAnimatedLength
    companion object {
        val ELEMENT_NODE: Short
        val ATTRIBUTE_NODE: Short
        val TEXT_NODE: Short
        val CDATA_SECTION_NODE: Short
        val ENTITY_REFERENCE_NODE: Short
        val ENTITY_NODE: Short
        val PROCESSING_INSTRUCTION_NODE: Short
        val COMMENT_NODE: Short
        val DOCUMENT_NODE: Short
        val DOCUMENT_TYPE_NODE: Short
        val DOCUMENT_FRAGMENT_NODE: Short
        val NOTATION_NODE: Short
        val DOCUMENT_POSITION_DISCONNECTED: Short
        val DOCUMENT_POSITION_PRECEDING: Short
        val DOCUMENT_POSITION_FOLLOWING: Short
        val DOCUMENT_POSITION_CONTAINS: Short
        val DOCUMENT_POSITION_CONTAINED_BY: Short
        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short
    }
}

* Exposes the JavaScript [SVGEllipseElement](https://developer.mozilla.org/en/docs/Web/API/SVGEllipseElement) to Kotlin
public external abstract class SVGEllipseElement : SVGGeometryElement {
    open val cx: SVGAnimatedLength
    open val cy: SVGAnimatedLength
    open val rx: SVGAnimatedLength
    open val ry: SVGAnimatedLength
    companion object {
        val ELEMENT_NODE: Short
        val ATTRIBUTE_NODE: Short
        val TEXT_NODE: Short
        val CDATA_SECTION_NODE: Short
        val ENTITY_REFERENCE_NODE: Short
        val ENTITY_NODE: Short
        val PROCESSING_INSTRUCTION_NODE: Short
        val COMMENT_NODE: Short
        val DOCUMENT_NODE: Short
        val DOCUMENT_TYPE_NODE: Short
        val DOCUMENT_FRAGMENT_NODE: Short
        val NOTATION_NODE: Short
        val DOCUMENT_POSITION_DISCONNECTED: Short
        val DOCUMENT_POSITION_PRECEDING: Short
        val DOCUMENT_POSITION_FOLLOWING: Short
        val DOCUMENT_POSITION_CONTAINS: Short
        val DOCUMENT_POSITION_CONTAINED_BY: Short
        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short
    }
}

* Exposes the JavaScript [SVGLineElement](https://developer.mozilla.org/en/docs/Web/API/SVGLineElement) to Kotlin
public external abstract class SVGLineElement : SVGGeometryElement {
    open val x1: SVGAnimatedLength
    open val y1: SVGAnimatedLength
    open val x2: SVGAnimatedLength
    open val y2: SVGAnimatedLength
    companion object {
        val ELEMENT_NODE: Short
        val ATTRIBUTE_NODE: Short
        val TEXT_NODE: Short
        val CDATA_SECTION_NODE: Short
        val ENTITY_REFERENCE_NODE: Short
        val ENTITY_NODE: Short
        val PROCESSING_INSTRUCTION_NODE: Short
        val COMMENT_NODE: Short
        val DOCUMENT_NODE: Short
        val DOCUMENT_TYPE_NODE: Short
        val DOCUMENT_FRAGMENT_NODE: Short
    }
}

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Short\n    val NOTATION_NODE: Short\n    val DOCUMENT_POSITION_DISCONNECTED: Short\n
val DOCUMENT_POSITION_PRECEDING: Short\n    val DOCUMENT_POSITION_FOLLOWING: Short\n
    val DOCUMENT_POSITION_CONTAINS: Short\n    val DOCUMENT_POSITION_CONTAINED_BY:
Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [SVGMeshElement](https://developer.mozilla.org/en/docs/Web/API/SVGMeshElement) to Kotlin\n
*/\npublic external abstract class SVGMeshElement : SVGGeometryElement, SVGURIReference {\n    companion
object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE:
Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE:
Short\n        val NOTATION_NODE: Short\n        val DOCUMENT_POSITION_DISCONNECTED: Short\n
val DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
        val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [SVGAnimatedPoints](https://developer.mozilla.org/en/docs/Web/API/SVGAnimatedPoints) to
Kotlin\n
*/\npublic external interface SVGAnimatedPoints {\n    val points: SVGPointList\n    val animatedPoints:
SVGPointList\n}\n\npublic external abstract class SVGPointList {\n    open val length: Int\n    open val
numberOfItems: Int\n    fun clear()\n    fun initialize(newItem: DOMPoint): DOMPoint\n    fun
insertItemBefore(newItem: DOMPoint, index: Int): DOMPoint\n    fun replaceItem(newItem: DOMPoint, index:
Int): DOMPoint\n    fun removeItem(index: Int): DOMPoint\n    fun appendItem(newItem: DOMPoint):
DOMPoint\n
    fun getItem(index: Int): DOMPoint\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGPointList.get(index: Int):
DOMPoint? = asDynamic()[index]\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline operator fun SVGPointList.set(index: Int,
newItem: DOMPoint) { asDynamic()[index] = newItem }\n}\n\n/**\n * Exposes the JavaScript
[SVGPolylineElement](https://developer.mozilla.org/en/docs/Web/API/SVGPolylineElement) to Kotlin\n
*/\npublic external abstract class SVGPolylineElement : SVGGeometryElement, SVGAnimatedPoints {\n
companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val
TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n
        val DOCUMENT_TYPE_NODE: Short\n        val DOCUMENT_FRAGMENT_NODE: Short\n        val
NOTATION_NODE: Short\n        val DOCUMENT_POSITION_DISCONNECTED: Short\n        val
DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
        val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript [SVGPolygonElement](https://developer.mozilla.org/en/docs/Web/API/SVGPolygonElement) to
Kotlin\n
*/\npublic external abstract class SVGPolygonElement : SVGGeometryElement, SVGAnimatedPoints {\n
companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val
TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE:
Short\n        val DOCUMENT_TYPE_NODE: Short\n        val DOCUMENT_FRAGMENT_NODE: Short\n
val NOTATION_NODE: Short\n        val DOCUMENT_POSITION_DISCONNECTED: Short\n        val
DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
        val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:

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Short\n    val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes
the JavaScript
[SVGTextContentElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextContentElement) to Kotlin\n
*/\npublic external abstract class SVGTextContentElement : SVGGraphicsElement {\n    open val textLength:
SVGAnimatedLength\n    open val lengthAdjust: SVGAnimatedEnumeration\n    fun getNumberOfChars(): Int\n
fun getComputedTextLength(): Float\n    fun getSubStringLength(charnum: Int, nchars: Int): Float\n    fun
getStartPositionOfChar(charnum: Int): DOMPoint\n    fun getEndPositionOfChar(charnum: Int): DOMPoint\n
    fun getExtentOfChar(charnum: Int): DOMRect\n    fun getRotationOfChar(charnum: Int): Float\n    fun
getCharNumAtPosition(point: DOMPoint): Int\n    fun selectSubString(charnum: Int, nchars: Int)\n\n    companion
object {\n        val LENGTHADJUST_UNKNOWN: Short\n        val LENGTHADJUST_SPACING: Short\n
        val LENGTHADJUST_SPACINGANDGLYPHS: Short\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGTextPositioningElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextPositioningElement) to
Kotlin\n
*/\npublic external abstract class SVGTextPositioningElement : SVGTextContentElement {\n    open val x:
SVGAnimatedLengthList\n    open val y: SVGAnimatedLengthList\n    open val dx: SVGAnimatedLengthList\n
open val dy: SVGAnimatedLengthList\n    open val rotate: SVGAnimatedNumberList\n\n    companion object {\n
        val LENGTHADJUST_UNKNOWN: Short\n        val LENGTHADJUST_SPACING: Short\n        val
LENGTHADJUST_SPACINGANDGLYPHS: Short\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGTextElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextElement) to Kotlin\n
*/\npublic external abstract class SVGTextElement : SVGTextPositioningElement {\n    companion object {\n
        val LENGTHADJUST_UNKNOWN: Short\n        val LENGTHADJUST_SPACING: Short\n        val
LENGTHADJUST_SPACINGANDGLYPHS: Short\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n}\n\n/**\n * Exposes the JavaScript

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[SVGTSpanElement](https://developer.mozilla.org/en/docs/Web/API/SVGTSpanElement) to Kotlin\n \* public external abstract class SVGTSpanElement : SVGTextPositioningElement {\n companion object {\n val LENGTHADJUST\_UNKNOWN: Short\n val LENGTHADJUST\_SPACING: Short\n val LENGTHADJUST\_SPACINGANDGLYPHS: Short\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }}\n\n/\*\*\n \* Exposes the JavaScript [SVGTextPathElement](https://developer.mozilla.org/en/docs/Web/API/SVGTextPathElement) to Kotlin\n \* public external abstract class SVGTextPathElement : SVGTextContentElement, SVGURIReference {\n open val startOffset: SVGAnimatedLength\n open val method: SVGAnimatedEnumeration\n open val spacing: SVGAnimatedEnumeration\n\n companion object {\n val TEXTPATH\_METHODTYPE\_UNKNOWN: Short\n val TEXTPATH\_METHODTYPE\_ALIGN: Short\n val TEXTPATH\_METHODTYPE\_STRETCH: Short\n val TEXTPATH\_SPACINGTYPE\_UNKNOWN: Short\n val TEXTPATH\_SPACINGTYPE\_AUTO: Short\n val TEXTPATH\_SPACINGTYPE\_EXACT: Short\n val LENGTHADJUST\_UNKNOWN: Short\n val LENGTHADJUST\_SPACING: Short\n val LENGTHADJUST\_SPACINGANDGLYPHS: Short\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }}\n\n/\*\*\n \* Exposes the JavaScript [SVGImageElement](https://developer.mozilla.org/en/docs/Web/API/SVGImageElement) to Kotlin\n \* public external abstract class SVGImageElement : SVGGraphicsElement, SVGURIReference, HTMLOrSVGImageElement {\n open val x: SVGAnimatedLength\n open val y: SVGAnimatedLength\n open val width: SVGAnimatedLength\n open val height: SVGAnimatedLength\n open val preserveAspectRatio: SVGAnimatedPreserveAspectRatio\n open var crossOrigin: String?\n\n companion object {\n val ELEMENT\_NODE: Short\n val ATTRIBUTE\_NODE: Short\n val TEXT\_NODE: Short\n val CDATA\_SECTION\_NODE: Short\n val ENTITY\_REFERENCE\_NODE: Short\n val ENTITY\_NODE: Short\n val PROCESSING\_INSTRUCTION\_NODE: Short\n val COMMENT\_NODE: Short\n val DOCUMENT\_NODE: Short\n val DOCUMENT\_TYPE\_NODE: Short\n val DOCUMENT\_FRAGMENT\_NODE: Short\n val NOTATION\_NODE: Short\n val DOCUMENT\_POSITION\_DISCONNECTED: Short\n val DOCUMENT\_POSITION\_PRECEDING: Short\n val DOCUMENT\_POSITION\_FOLLOWING: Short\n val DOCUMENT\_POSITION\_CONTAINS: Short\n val DOCUMENT\_POSITION\_CONTAINED\_BY: Short\n val DOCUMENT\_POSITION\_IMPLEMENTATION\_SPECIFIC: Short\n }}\n\n/\*\*\n \* Exposes the JavaScript [SVGForeignObjectElement](https://developer.mozilla.org/en/docs/Web/API/SVGForeignObjectElement) to Kotlin\n \* public external abstract class SVGForeignObjectElement : SVGGraphicsElement {\n open val x:

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SVGAnimatedLength\n open val y: SVGAnimatedLength\n open val width: SVGAnimatedLength\n open val
height: SVGAnimatedLength\n\n companion object {\n val ELEMENT_NODE: Short\n
val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n
val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val
PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED: Short\n val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\npublic external abstract class
SVGMarkerElement : SVGElement, SVGFitToViewBox {\n open val refX: SVGAnimatedLength\n open val
refY: SVGAnimatedLength\n open val markerUnits: SVGAnimatedEnumeration\n open val markerWidth:
SVGAnimatedLength\n open val markerHeight:
SVGAnimatedLength\n open val orientType: SVGAnimatedEnumeration\n open val orientAngle:
SVGAnimatedAngle\n open var orient: String\n fun setOrientToAuto()\n fun setOrientToAngle(angle:
SVGAngle)\n\n companion object {\n val SVG_MARKERUNITS_UNKNOWN: Short\n val
SVG_MARKERUNITS_USERSPACEONUSE: Short\n val SVG_MARKERUNITS_STROKEWIDTH:
Short\n val SVG_MARKER_ORIENT_UNKNOWN: Short\n val SVG_MARKER_ORIENT_AUTO:
Short\n val SVG_MARKER_ORIENT_ANGLE: Short\n val ELEMENT_NODE: Short\n val
ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val CDATA_SECTION_NODE: Short\n val
ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE: Short\n val
PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED:
Short\n val DOCUMENT_POSITION_PRECEDING: Short\n val
DOCUMENT_POSITION_FOLLOWING: Short\n val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript
[SVGSolidcolorElement](https://developer.mozilla.org/en/docs/Web/API/SVGSolidcolorElement) to Kotlin\n
*\n\npublic external abstract class SVGSolidcolorElement : SVGElement {\n companion object {\n val
ELEMENT_NODE: Short\n val ATTRIBUTE_NODE: Short\n val TEXT_NODE: Short\n val
CDATA_SECTION_NODE: Short\n val ENTITY_REFERENCE_NODE: Short\n val ENTITY_NODE:
Short\n val PROCESSING_INSTRUCTION_NODE: Short\n val COMMENT_NODE: Short\n val
DOCUMENT_NODE: Short\n val DOCUMENT_TYPE_NODE: Short\n val
DOCUMENT_FRAGMENT_NODE: Short\n val NOTATION_NODE: Short\n val
DOCUMENT_POSITION_DISCONNECTED: Short\n
val DOCUMENT_POSITION_PRECEDING: Short\n val DOCUMENT_POSITION_FOLLOWING:
Short\n val DOCUMENT_POSITION_CONTAINS: Short\n val
DOCUMENT_POSITION_CONTAINED_BY: Short\n val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n }\n}\n\n/**\n * Exposes the JavaScript
[SVGGradientElement](https://developer.mozilla.org/en/docs/Web/API/SVGGradientElement) to Kotlin\n
*\n\npublic external abstract class SVGGradientElement : SVGElement, SVGURIReference, SVGUnitTypes {\n
open val gradientUnits: SVGAnimatedEnumeration\n open val gradientTransform: SVGAnimatedTransformList\n
open val spreadMethod: SVGAnimatedEnumeration\n\n companion object {\n val
SVG_SPREADMETHOD_UNKNOWN: Short\n val SVG_SPREADMETHOD_PAD: Short\n val
SVG_SPREADMETHOD_REFLECT: Short\n val SVG_SPREADMETHOD_REPEAT: Short\n val

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SVG_UNIT_TYPE_UNKNOWN: Short\n    val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n    val
SVG_UNIT_TYPE_OBJECTBOUNDINGBOX: Short\n
    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n    val
CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val ENTITY_NODE:
Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE: Short\n    val
DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGLinearGradientElement](https://developer.mozilla.org/en/docs/Web/API/SVGLinearGradientElement) to
Kotlin\n */\npublic external abstract class SVGLinearGradientElement : SVGGradientElement {\n    open val
x1: SVGAnimatedLength\n    open val y1: SVGAnimatedLength\n    open val x2: SVGAnimatedLength\n    open
val y2: SVGAnimatedLength\n\n    companion object {\n        val SVG_SPREADMETHOD_UNKNOWN: Short\n
        val SVG_SPREADMETHOD_PAD: Short\n        val SVG_SPREADMETHOD_REFLECT: Short\n        val
SVG_SPREADMETHOD_REPEAT: Short\n        val SVG_UNIT_TYPE_UNKNOWN: Short\n        val
SVG_UNIT_TYPE_USERSPACEONUSE: Short\n        val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX:
Short\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n
        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING:
Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n        val
DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY: Short\n
        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the
JavaScript
[SVGRadialGradientElement](https://developer.mozilla.org/en/docs/Web/API/SVGRadialGradientElement) to
Kotlin\n */\npublic external abstract class SVGRadialGradientElement : SVGGradientElement {\n    open val cx:
SVGAnimatedLength\n    open val cy: SVGAnimatedLength\n    open val r: SVGAnimatedLength\n    open val fx:
SVGAnimatedLength\n    open val fy: SVGAnimatedLength\n    open val fr: SVGAnimatedLength\n\n    companion
object {\n        val SVG_SPREADMETHOD_UNKNOWN: Short\n        val SVG_SPREADMETHOD_PAD:
Short\n        val SVG_SPREADMETHOD_REFLECT: Short\n        val SVG_SPREADMETHOD_REPEAT:
Short\n        val SVG_UNIT_TYPE_UNKNOWN: Short\n        val SVG_UNIT_TYPE_USERSPACEONUSE:
Short\n        val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX:
Short\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n
        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
        val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
        val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external abstract class
SVGMeshGradientElement : SVGGradientElement {\n    companion object {\n        val
SVG_SPREADMETHOD_UNKNOWN: Short\n        val SVG_SPREADMETHOD_PAD: Short\n        val
SVG_SPREADMETHOD_REFLECT:

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Short\n    val SVG_SPREADMETHOD_REPEAT: Short\n    val SVG_UNIT_TYPE_UNKNOWN: Short\n
val SVG_UNIT_TYPE_USERSPACEONUSE: Short\n    val SVG_UNIT_TYPE_OBJECTBOUNDINGBOX:
Short\n    val ELEMENT_NODE: Short\n    val ATTRIBUTE_NODE: Short\n    val TEXT_NODE: Short\n
val CDATA_SECTION_NODE: Short\n    val ENTITY_REFERENCE_NODE: Short\n    val
ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external abstract class
SVGMeshrowElement
: SVGElement {\n    companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE:
Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\npublic external abstract class
SVGMeshpatchElement : SVGElement {\n    companion object {\n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n
        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val
ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE:
Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGStopElement](https://developer.mozilla.org/en/docs/Web/API/SVGStopElement) to Kotlin\n */\n\npublic
external abstract class SVGStopElement : SVGElement {\n    open val offset: SVGAnimatedNumber\n\n    companion object {\n        val ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val
TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE:
Short\n        val ENTITY_NODE: Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val
COMMENT_NODE: Short\n        val DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
        val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n    }\n}\n\n/**\n * Exposes the JavaScript
[SVGPatternElement](https://developer.mozilla.org/en/docs/Web/API/SVGPatternElement) to Kotlin\n */\n\npublic
external abstract class SVGPatternElement : SVGElement, SVGFitToViewBox, SVGURIReference,
SVGUnitTypes {\n    open val patternUnits: SVGAnimatedEnumeration\n    open val patternContentUnits:
SVGAnimatedEnumeration\n    open val patternTransform: SVGAnimatedTransformList\n    open val x:
SVGAnimatedLength\n    open val y: SVGAnimatedLength\n    open val width: SVGAnimatedLength\n    open val

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ENTITY_NODE: Short\n    val PROCESSING_INSTRUCTION_NODE: Short\n    val COMMENT_NODE:
Short\n    val DOCUMENT_NODE: Short\n    val DOCUMENT_TYPE_NODE: Short\n    val
DOCUMENT_FRAGMENT_NODE: Short\n    val NOTATION_NODE: Short\n    val
DOCUMENT_POSITION_DISCONNECTED: Short\n    val DOCUMENT_POSITION_PRECEDING: Short\n
    val DOCUMENT_POSITION_FOLLOWING: Short\n    val DOCUMENT_POSITION_CONTAINS: Short\n
    val DOCUMENT_POSITION_CONTAINED_BY: Short\n    val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC:
Short\n } \n} \n \n /** \n * Exposes the JavaScript
[SVGElement](https://developer.mozilla.org/en/docs/Web/API/SVGElement) to Kotlin \n * \n public external
abstract class SVGElement : SVGGraphicsElement, SVGURIReference { \n    open val target:
SVGAnimatedString \n    open val download: SVGAnimatedString \n    open val rel: SVGAnimatedString \n    open
val relList: SVGAnimatedString \n    open val hreflang: SVGAnimatedString \n    open val type:
SVGAnimatedString \n \n    companion object { \n        val ELEMENT_NODE: Short\n        val
ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val CDATA_SECTION_NODE: Short\n        val
ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE: Short\n        val
PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n        val
DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val
DOCUMENT_POSITION_PRECEDING: Short\n        val DOCUMENT_POSITION_FOLLOWING: Short\n
val DOCUMENT_POSITION_CONTAINS: Short\n        val DOCUMENT_POSITION_CONTAINED_BY:
Short\n        val DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n } \n} \n \n /** \n * Exposes
the JavaScript [SVGViewElement](https://developer.mozilla.org/en/docs/Web/API/SVGViewElement) to Kotlin \n * \n public external abstract class SVGViewElement : SVGElement, SVGFitToViewBox, SVGZoomAndPan { \n
    companion object { \n        val SVG_ZOOMANDPAN_UNKNOWN: Short\n        val
SVG_ZOOMANDPAN_DISABLE: Short\n        val SVG_ZOOMANDPAN_MAGNIFY: Short\n        val
ELEMENT_NODE: Short\n        val ATTRIBUTE_NODE: Short\n        val TEXT_NODE: Short\n        val
CDATA_SECTION_NODE: Short\n        val ENTITY_REFERENCE_NODE: Short\n        val ENTITY_NODE:
Short\n        val PROCESSING_INSTRUCTION_NODE: Short\n        val COMMENT_NODE: Short\n        val
DOCUMENT_NODE: Short\n        val DOCUMENT_TYPE_NODE: Short\n
val DOCUMENT_FRAGMENT_NODE: Short\n        val NOTATION_NODE: Short\n        val
DOCUMENT_POSITION_DISCONNECTED: Short\n        val DOCUMENT_POSITION_PRECEDING: Short\n
val DOCUMENT_POSITION_FOLLOWING: Short\n        val DOCUMENT_POSITION_CONTAINS: Short\n
val DOCUMENT_POSITION_CONTAINED_BY: Short\n        val
DOCUMENT_POSITION_IMPLEMENTATION_SPECIFIC: Short\n } \n} \n \n /** \n * Copyright 2010-2021
JetBrains s.r.o. and Kotlin Programming Language contributors. \n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file. \n * \n \n // NOTE: THIS FILE IS AUTO-
GENERATED, DO NOT EDIT! \n // See github.com/kotlin/dukat for details \n \n package org.w3c.files \n \n import
kotlin.js.* \n import org.khronos.webgl.* \n import org.w3c.dom.* \n import org.w3c.dom.events.* \n import
org.w3c.xhr.* \n \n /** \n * Exposes the JavaScript [Blob](https://developer.mozilla.org/en/docs/Web/API/Blob) to
Kotlin \n * \n public external open class Blob(blobParts: Array<dynamic>
= definedExternally, options: BlobPropertyBag = definedExternally) : MediaProvider, ImageBitmapSource { \n
    open val size: Number \n    open val type: String \n    open val isClosed: Boolean \n    fun slice(start: Int =
definedExternally, end: Int = definedExternally, contentType: String = definedExternally): Blob \n    fun
close() \n} \n \n public external interface BlobPropertyBag { \n    var type: String? /* = \"\" */ \n    get() =
definedExternally \n    set(value) = definedExternally \n} \n \n @Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\") \n @kotlin.internal.InlineOnly \n public inline fun BlobPropertyBag(type: String? = \"\"):
BlobPropertyBag { \n    val o = js(\"({})\") \n    o[\"type\"] = type \n    return o \n} \n \n /** \n * Exposes the JavaScript

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[File](https://developer.mozilla.org/en/docs/Web/API/File) to Kotlin\n *\npublic external open class File(fileBits:
Array<dynamic>, fileName: String, options: FilePropertyBag = definedExternally) : Blob {\n  open val name:
String\n  open val lastModified: Int\n}\n\npublic external interface FilePropertyBag : BlobPropertyBag {\n  var
lastModified: Int?\n  get() = definedExternally\n  set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun FilePropertyBag(lastModified: Int? =
undefined, type: String? = \"\"): FilePropertyBag {\n  val o = js(\"({})\")\n  o[\"lastModified\"] = lastModified\n  o[\"type\"] = type\n  return o\n}\n\n**\n * Exposes the JavaScript
[FileList](https://developer.mozilla.org/en/docs/Web/API/FileList) to Kotlin\n *\npublic external abstract class
FileList : ItemArrayLike<File> {\n  override fun item(index: Int):
File?\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline operator fun FileList.get(index: Int): File?
= asDynamic()[index]\n\n**\n * Exposes the JavaScript
[FileReader](https://developer.mozilla.org/en/docs/Web/API/FileReader)
to Kotlin\n *\npublic external open class FileReader : EventTarget {\n  open val readyState: Short\n  open val
result: dynamic\n  open val error: dynamic\n  var onloadstart: ((ProgressEvent) -> dynamic)?\n  var onprogress:
((ProgressEvent) -> dynamic)?\n  var onload: ((Event) -> dynamic)?\n  var onabort: ((Event) -> dynamic)?\n  var
onerror: ((Event) -> dynamic)?\n  var onloadend: ((Event) -> dynamic)?\n  fun readAsArrayBuffer(blob: Blob)\n
fun readAsBinaryString(blob: Blob)\n  fun readAsText(blob: Blob, label: String = definedExternally)\n  fun
readAsDataURL(blob: Blob)\n  fun abort()\n\n  companion object {\n    val EMPTY: Short\n    val
LOADING: Short\n    val DONE: Short\n  }\n}\n\n**\n * Exposes the JavaScript
[FileReaderSync](https://developer.mozilla.org/en/docs/Web/API/FileReaderSync) to Kotlin\n *\npublic external
open class FileReaderSync {\n  fun readAsArrayBuffer(blob: Blob): ArrayBuffer\n  fun readAsBinaryString(blob:
Blob): String\n  fun readAsText(blob: Blob, label: String = definedExternally): String\n  fun
readAsDataURL(blob: Blob): String\n}\n\n**\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n *\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n\n// See
github.com/kotlin/dukat for details\n\npackage org.w3c.notifications\n\nimport kotlin.js.*\nimport
org.khronos.webgl.*\nimport org.w3c.dom.events.*\nimport org.w3c.workers.*\n\n**\n * Exposes the JavaScript
[Notification](https://developer.mozilla.org/en/docs/Web/API/Notification) to Kotlin\n *\npublic external open
class Notification(title: String, options: NotificationOptions = definedExternally) : EventTarget {\n  var onclick:
((MouseEvent) -> dynamic)?\n  var onerror: ((Event) -> dynamic)?\n  open val title: String\n  open val dir:
NotificationDirection\n
  open val lang: String\n  open val body: String\n  open val tag: String\n  open val image: String\n  open val
icon: String\n  open val badge: String\n  open val sound: String\n  open val vibrate: Array<out Int>\n  open val
timestamp: Number\n  open val renotify: Boolean\n  open val silent: Boolean\n  open val noscreen: Boolean\n
open val requireInteraction: Boolean\n  open val sticky: Boolean\n  open val data: Any?\n  open val actions:
Array<out NotificationAction>\n  fun close()\n\n  companion object {\n    val permission:
NotificationPermission\n    val maxActions: Int\n    fun requestPermission(deprecatedCallback:
(NotificationPermission) -> Unit = definedExternally): Promise<NotificationPermission>\n  }\n}\n\npublic
external interface NotificationOptions {\n  var dir: NotificationDirection? /* = NotificationDirection.AUTO */\n
get() = definedExternally\n  set(value) = definedExternally\n  var lang: String? /* =
\"\" */\n  get() = definedExternally\n  set(value) = definedExternally\n  var body: String? /* = \"\" */\n
get() = definedExternally\n  set(value) = definedExternally\n  var tag: String? /* = \"\" */\n  get() =
definedExternally\n  set(value) = definedExternally\n  var image: String?\n  get() = definedExternally\n
set(value) = definedExternally\n  var icon: String?\n  get() = definedExternally\n  set(value) =
definedExternally\n  var badge: String?\n  get() = definedExternally\n  set(value) = definedExternally\n
var sound: String?\n  get() = definedExternally\n  set(value) = definedExternally\n  var vibrate: dynamic\n

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    get() = definedExternally\n    set(value) = definedExternally\n    var timestamp: Number?\n    get() =
definedExternally\n    set(value) = definedExternally\n    var renotify: Boolean? /* = false */\n    get() =
definedExternally\n    set(value)
= definedExternally\n    var silent: Boolean? /* = false */\n    get() = definedExternally\n    set(value) =
definedExternally\n    var noscreen: Boolean? /* = false */\n    get() = definedExternally\n    set(value) =
definedExternally\n    var requireInteraction: Boolean? /* = false */\n    get() = definedExternally\n    set(value)
= definedExternally\n    var sticky: Boolean? /* = false */\n    get() = definedExternally\n    set(value) =
definedExternally\n    var data: Any? /* = null */\n    get() = definedExternally\n    set(value) =
definedExternally\n    var actions: Array<NotificationAction>? /* = arrayOf() */\n    get() = definedExternally\n
    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun NotificationOptions(dir:
NotificationDirection? = NotificationDirection.AUTO, lang: String? = "", body: String? = "", tag: String? = "",
image:
String? = undefined, icon: String? = undefined, badge: String? = undefined, sound: String? = undefined, vibrate:
dynamic = undefined, timestamp: Number? = undefined, renotify: Boolean? = false, silent: Boolean? = false,
noscreen: Boolean? = false, requireInteraction: Boolean? = false, sticky: Boolean? = false, data: Any? = null,
actions: Array<NotificationAction>? = arrayOf()): NotificationOptions {\n    val o = js("{}")\n    o["dir"] = dir\n
    o["lang"] = lang\n    o["body"] = body\n    o["tag"] = tag\n    o["image"] = image\n    o["icon"] = icon\n
    o["badge"] = badge\n    o["sound"] = sound\n    o["vibrate"] = vibrate\n    o["timestamp"] = timestamp\n
    o["renotify"] = renotify\n    o["silent"] = silent\n    o["noscreen"] = noscreen\n    o["requireInteraction"] =
requireInteraction\n    o["sticky"] = sticky\n    o["data"] = data\n    o["actions"] = actions\n    return
o\n}\n\npublic external interface NotificationAction {\n    var action: String?\n
    var title: String?\n    var icon: String?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun NotificationAction(action: String?,
title: String?, icon: String? = undefined): NotificationAction {\n    val o = js("{}")\n    o["action"] = action\n
    o["title"] = title\n    o["icon"] = icon\n    return o\n}\n\npublic external interface GetNotificationOptions {\n    var
tag: String? /* = "" */\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun GetNotificationOptions(tag: String? =
 ""): GetNotificationOptions {\n    val o = js("{}")\n    o["tag"] = tag\n    return o\n}\n\n/** Exposes the
JavaScript [NotificationEvent](https://developer.mozilla.org/en/docs/Web/API/NotificationEvent) to Kotlin\n
*/\n\npublic external open class NotificationEvent(type: String, eventInitDict: NotificationEventInit) :
ExtendableEvent {\n    open val notification: Notification\n    open val action: String\n\n    companion object {\n
val NONE: Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val
BUBBLING_PHASE: Short\n    }\n}\n\npublic external interface NotificationEventInit : ExtendableEventInit {\n
var notification: Notification?\n    var action: String? /* = "" */\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun NotificationEventInit(notification:
Notification?, action: String? = "", bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? =
false): NotificationEventInit {\n    val o = js("{}")\n    o["notification"] = notification\n    o["action"] =
action\n    o["bubbles"] = bubbles\n
    o["cancelable"] = cancelable\n    o["composed"] = composed\n    return o\n}\n\n/* please, don't implement this
interface! */\n\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic
external interface NotificationPermission {\n    companion object\n}\n\npublic inline val
NotificationPermission.Companion.DEFAULT: NotificationPermission get() =
"default".asDynamic().unsafeCast<NotificationPermission>()\n\npublic inline val
NotificationPermission.Companion.DENIED: NotificationPermission get() =

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\"denied\".asDynamic().unsafeCast<NotificationPermission>()\n\npublic inline val
NotificationPermission.Companion.GRANTED: NotificationPermission get() =
\"granted\".asDynamic().unsafeCast<NotificationPermission>()\n\n/* please, don't implement this interface!
*\n@JsName(\"null\")\n@Suppress(\"NESTED_CLASS_IN_EXTERNAL_INTERFACE\")\n\npublic external
interface NotificationDirection {\n    companion object\n}\n\npublic inline val
NotificationDirection.Companion.AUTO: NotificationDirection
get() = \"auto\".asDynamic().unsafeCast<NotificationDirection>()\n\npublic inline val
NotificationDirection.Companion.LTR: NotificationDirection get() =
\"ltr\".asDynamic().unsafeCast<NotificationDirection>()\n\npublic inline val
NotificationDirection.Companion.RTL: NotificationDirection get() =
\"rtl\".asDynamic().unsafeCast<NotificationDirection>()\", /*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT EDIT!\n\n//
See github.com/kotlin/dukat for details\n\npackage org.w3c.workers\n\nimport kotlin.js.*\nimport
org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\nimport org.w3c.fetch.*\nimport
org.w3c.notifications.*\n\n/**\n * Exposes the JavaScript
[ServiceWorker](https://developer.mozilla.org/en/docs/Web/API/ServiceWorker) to Kotlin\n *\n\npublic
external abstract class ServiceWorker : EventTarget, AbstractWorker, UnionMessagePortOrServiceWorker,
UnionClientOrMessagePortOrServiceWorker {\n    open val scriptURL: String\n    open val state:
ServiceWorkerState\n    open var onstatechange: ((Event) -> dynamic)?\n    fun postMessage(message: Any?,
transfer: Array<dynamic> = definedExternally)\n}\n\n/**\n * Exposes the JavaScript
[ServiceWorkerRegistration](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerRegistration) to
Kotlin\n *\n\npublic external abstract class ServiceWorkerRegistration : EventTarget {\n    open val installing:
ServiceWorker?\n    open val waiting: ServiceWorker?\n    open val active: ServiceWorker?\n    open val scope:
String\n    open var onupdatefound: ((Event) -> dynamic)?\n    open val APISpace: dynamic\n    fun update():
Promise<Unit>\n    fun unregister(): Promise<Boolean>\n    fun showNotification(title: String, options:
NotificationOptions = definedExternally): Promise<Unit>\n    fun getNotifications(filter:
GetNotificationOptions = definedExternally): Promise<Array<Notification>>\n    fun methodName():
Promise<dynamic>\n}\n\n/**\n * Exposes the JavaScript
[ServiceWorkerContainer](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerContainer) to Kotlin\n
*\n\npublic external abstract class ServiceWorkerContainer : EventTarget {\n    open val controller:
ServiceWorker?\n    open val ready: Promise<ServiceWorkerRegistration>\n    open var oncontrollerchange:
((Event) -> dynamic)?\n    open var onmessage: ((MessageEvent) -> dynamic)?\n    fun register(scriptURL: String,
options: RegistrationOptions = definedExternally): Promise<ServiceWorkerRegistration>\n    fun
getRegistration(clientURL: String = definedExternally): Promise<Any?>\n    fun getRegistrations():
Promise<Array<ServiceWorkerRegistration>>\n    fun startMessages()\n}\n\n\npublic external interface
RegistrationOptions {\n    var scope: String?\n    get() = definedExternally\n    set(value) = definedExternally\n
    var type: WorkerType? /* = WorkerType.CLASSIC */\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun RegistrationOptions(scope: String? =
undefined, type: WorkerType? = WorkerType.CLASSIC): RegistrationOptions {\n    val o = js(\"({})\")\n
o[\"scope\"] = scope\n o[\"type\"] = type\n return o\n}\n\n/**\n * Exposes the JavaScript
[ServiceWorkerMessageEvent](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerMessageEvent) to
Kotlin\n *\n\npublic external open class ServiceWorkerMessageEvent(type: String, eventInitDict:
ServiceWorkerMessageEventInit = definedExternally) : Event {\n    open val data: Any?\n    open val origin:
String\n    open val lastEventId: String\n    open val source: UnionMessagePortOrServiceWorker?\n    open val
ports: Array<out MessagePort?>\n    companion object {\n        val NONE: Short\n        val
CAPTURING_PHASE:

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Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n    }\n}\n\npublic external interface
ServiceWorkerMessageEventInit : EventInit {\n    var data: Any?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var origin: String?\n    get() = definedExternally\n    set(value) = definedExternally\n
var lastEventId: String?\n    get() = definedExternally\n    set(value) = definedExternally\n    var source:
UnionMessagePortOrServiceWorker?\n    get() = definedExternally\n    set(value) = definedExternally\n    var
ports: Array<MessagePort>?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ServiceWorkerMessageEventInit(data:
Any? = undefined, origin: String? = undefined, lastEventId: String? = undefined, source:
UnionMessagePortOrServiceWorker? = undefined, ports: Array<MessagePort>?
= undefined, bubbles: Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false):
ServiceWorkerMessageEventInit {\n    val o = js(\"({})\")\n    o[\"data\"] = data\n    o[\"origin\"] = origin\n
o[\"lastEventId\"] = lastEventId\n    o[\"source\"] = source\n    o[\"ports\"] = ports\n    o[\"bubbles\"] = bubbles\n
o[\"cancelable\"] = cancelable\n    o[\"composed\"] = composed\n    return o\n}\n\n/**\n * Exposes the JavaScript
[ServiceWorkerGlobalScope](https://developer.mozilla.org/en/docs/Web/API/ServiceWorkerGlobalScope) to
Kotlin\n\n * \npublic external abstract class ServiceWorkerGlobalScope : WorkerGlobalScope {\n    open val clients:
Clients\n    open val registration: ServiceWorkerRegistration\n    open var oninstall: ((Event) -> dynamic)?\n    open
var onactivate: ((Event) -> dynamic)?\n    open var onfetch: ((FetchEvent) -> dynamic)?\n    open var
onforeignfetch: ((Event) -> dynamic)?\n    open var onmessage: ((MessageEvent) -> dynamic)?\n    open
var onnotificationclick: ((NotificationEvent) -> dynamic)?\n    open var onnotificationclose: ((NotificationEvent) ->
dynamic)?\n    open var onfunctionalevent: ((Event) -> dynamic)?\n    fun skipWaiting():
Promise<Unit>\n}\n\n/**\n * Exposes the JavaScript
[Client](https://developer.mozilla.org/en/docs/Web/API/Client) to Kotlin\n\n * \npublic external abstract class Client :
UnionClientOrMessagePortOrServiceWorker {\n    open val url: String\n    open val frameType: FrameType\n
open val id: String\n    fun postMessage(message: Any?, transfer: Array<dynamic> = definedExternally)\n}\n\n/**\n * Exposes the JavaScript [WindowClient](https://developer.mozilla.org/en/docs/Web/API/WindowClient) to
Kotlin\n\n * \npublic external abstract class WindowClient : Client {\n    open val visibilityState: dynamic\n    open
val focused: Boolean\n    fun focus(): Promise<WindowClient>\n    fun navigate(url: String):
Promise<WindowClient>\n}\n\n/**\n * Exposes the JavaScript
[Clients](https://developer.mozilla.org/en/docs/Web/API/Clients)
to Kotlin\n\n * \npublic external abstract class Clients {\n    fun get(id: String): Promise<Any?>\n    fun
matchAll(options: ClientQueryOptions = definedExternally): Promise<Array<Client>>\n    fun openWindow(url:
String): Promise<WindowClient?>\n    fun claim(): Promise<Unit>\n}\n\npublic external interface
ClientQueryOptions {\n    var includeUncontrolled: Boolean? /* = false */\n    get() = definedExternally\n
set(value) = definedExternally\n    var type: ClientType? /* = ClientType.WINDOW */\n    get() =
definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun
ClientQueryOptions(includeUncontrolled: Boolean? = false, type: ClientType? = ClientType.WINDOW):
ClientQueryOptions {\n    val o = js(\"({})\")\n    o[\"includeUncontrolled\"] = includeUncontrolled\n    o[\"type\"] =
type\n    return o\n}\n\n/**\n * Exposes the
JavaScript [ExtendableEvent](https://developer.mozilla.org/en/docs/Web/API/ExtendableEvent) to Kotlin\n\n * \npublic external open class ExtendableEvent(type: String, eventInitDict: ExtendableEventInit =
definedExternally) : Event {\n    fun waitUntil(f: Promise<Any?>)\n\n    companion object {\n        val NONE:
Short\n        val CAPTURING_PHASE: Short\n        val AT_TARGET: Short\n        val BUBBLING_PHASE:
Short\n    }\n}\n\npublic external interface ExtendableEventInit :
EventInit\n\n@Suppress(\"INVISIBLE_REFERENCE\",
\"INVISIBLE_MEMBER\")\n@kotlin.internal.InlineOnly\npublic inline fun ExtendableEventInit(bubbles:
Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ExtendableEventInit {\n    val o =

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js("{}")\n o["bubbles"] = bubbles\n o["cancelable"] = cancelable\n o["composed"] = composed\n
return o\n}\n\n/**\n * Exposes the JavaScript
[InstallEvent](https://developer.mozilla.org/en/docs/Web/API/InstallEvent) to Kotlin\n *\npublic
external open class InstallEvent(type: String, eventInitDict: ExtendableEventInit = definedExternally) :
ExtendableEvent {\n fun registerForeignFetch(options: ForeignFetchOptions)\n\n companion object {\n val
NONE: Short\n val CAPTURING_PHASE: Short\n val AT_TARGET: Short\n val
BUBBLING_PHASE: Short\n }\n}\n\npublic external interface ForeignFetchOptions {\n var scopes:
Array<String>?\n var origins: Array<String>?\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun ForeignFetchOptions(scopes:
Array<String>?, origins: Array<String>?): ForeignFetchOptions {\n val o = js("{}")\n o["scopes"] =
scopes\n o["origins"] = origins\n return o\n}\n\n/**\n * Exposes the JavaScript
[FetchEvent](https://developer.mozilla.org/en/docs/Web/API/FetchEvent) to Kotlin\n *\npublic external open class
FetchEvent(type: String, eventInitDict: FetchEventInit) : ExtendableEvent {\n open val
request: Request\n open val clientId: String?\n open val isReload: Boolean\n fun respondWith(r:
Promise<Response>)\n\n companion object {\n val NONE: Short\n val CAPTURING_PHASE: Short\n
val AT_TARGET: Short\n val BUBBLING_PHASE: Short\n }\n}\n\npublic external interface
FetchEventInit : ExtendableEventInit {\n var request: Request?\n var clientId: String? /* = null */\n get() =
definedExternally\n set(value) = definedExternally\n var isReload: Boolean? /* = false */\n get() =
definedExternally\n set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun FetchEventInit(request: Request?,
clientId: String? = null, isReload: Boolean? = false, bubbles: Boolean? = false, cancelable: Boolean? = false,
composed: Boolean? = false): FetchEventInit {\n val o = js("{}")\n o["request"] = request\n o["clientId"]
= clientId\n
o["isReload"] = isReload\n o["bubbles"] = bubbles\n o["cancelable"] = cancelable\n o["composed"] =
composed\n return o\n}\n\npublic external open class ForeignFetchEvent(type: String, eventInitDict:
ForeignFetchEventInit) : ExtendableEvent {\n open val request: Request\n open val origin: String\n fun
respondWith(r: Promise<ForeignFetchResponse>)\n\n companion object {\n val NONE: Short\n val
CAPTURING_PHASE: Short\n val AT_TARGET: Short\n val BUBBLING_PHASE: Short\n
}\n}\n\npublic external interface ForeignFetchEventInit : ExtendableEventInit {\n var request: Request?\n var
origin: String? /* = "null" */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun ForeignFetchEventInit(request:
Request?, origin: String? = "null", bubbles: Boolean? = false, cancelable: Boolean? = false,
composed: Boolean? = false): ForeignFetchEventInit {\n val o = js("{}")\n o["request"] = request\n
o["origin"] = origin\n o["bubbles"] = bubbles\n o["cancelable"] = cancelable\n o["composed"] =
composed\n return o\n}\n\npublic external interface ForeignFetchResponse {\n var response: Response?\n var
origin: String?\n get() = definedExternally\n set(value) = definedExternally\n var headers:
Array<String>?\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun ForeignFetchResponse(response:
Response?, origin: String? = undefined, headers: Array<String>? = undefined): ForeignFetchResponse {\n val o =
js("{}")\n o["response"] = response\n o["origin"] = origin\n o["headers"] = headers\n return
o\n}\n\n/**\n * Exposes the JavaScript
[ExtendableMessageEvent](https://developer.mozilla.org/en/docs/Web/API/ExtendableMessageEvent)
to Kotlin\n *\npublic external open class ExtendableMessageEvent(type: String, eventInitDict:
ExtendableMessageEventInit = definedExternally) : ExtendableEvent {\n open val data: Any?\n open val origin:
String\n open val lastEventId: String\n open val source: UnionClientOrMessagePortOrServiceWorker?\n open
val ports: Array<out MessagePort>?\n\n companion object {\n val NONE: Short\n val

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CAPTURING_PHASE: Short\n    val AT_TARGET: Short\n    val BUBBLING_PHASE: Short\n
}\n}\n\npublic external interface ExtendableMessageEventInit : ExtendableEventInit {\n    var data: Any?\n
get() = definedExternally\n    set(value) = definedExternally\n    var origin: String?\n    get() =
definedExternally\n    set(value) = definedExternally\n    var lastEventId: String?\n    get() =
definedExternally\n    set(value) = definedExternally\n    var source:
UnionClientOrMessagePortOrServiceWorker?\n
    get() = definedExternally\n    set(value) = definedExternally\n    var ports: Array<MessagePort>?\n    get()
= definedExternally\n    set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun ExtendableMessageEventInit(data:
Any? = undefined, origin: String? = undefined, lastEventId: String? = undefined, source:
UnionClientOrMessagePortOrServiceWorker? = undefined, ports: Array<MessagePort>? = undefined, bubbles:
Boolean? = false, cancelable: Boolean? = false, composed: Boolean? = false): ExtendableMessageEventInit {\n
val o = js("{}")\n    o["data"] = data\n    o["origin"] = origin\n    o["lastEventId"] = lastEventId\n
o["source"] = source\n    o["ports"] = ports\n    o["bubbles"] = bubbles\n    o["cancelable"] = cancelable\n
o["composed"] = composed\n    return o\n}\n\n/**\n * Exposes the JavaScript
[Cache](https://developer.mozilla.org/en/docs/Web/API/Cache)
to Kotlin\n *\npublic external abstract class Cache {\n    fun match(request: dynamic, options: CacheQueryOptions
= definedExternally): Promise<Any?>\n    fun matchAll(request: dynamic = definedExternally, options:
CacheQueryOptions = definedExternally): Promise<Array<Response>>\n    fun add(request: dynamic):
Promise<Unit>\n    fun addAll(requests: Array<dynamic>): Promise<Unit>\n    fun put(request: dynamic, response:
Response): Promise<Unit>\n    fun delete(request: dynamic, options: CacheQueryOptions = definedExternally):
Promise<Boolean>\n    fun keys(request: dynamic = definedExternally, options: CacheQueryOptions =
definedExternally): Promise<Array<Request>>\n}\n\npublic external interface CacheQueryOptions {\n    var
ignoreSearch: Boolean? /* = false */\n    get() = definedExternally\n    set(value) = definedExternally\n    var
ignoreMethod: Boolean? /* = false */\n    get() = definedExternally\n    set(value) = definedExternally\n    var
ignoreVary:
Boolean? /* = false */\n    get() = definedExternally\n    set(value) = definedExternally\n    var cacheName:
String?\n    get() = definedExternally\n    set(value) =
definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun CacheQueryOptions(ignoreSearch:
Boolean? = false, ignoreMethod: Boolean? = false, ignoreVary: Boolean? = false, cacheName: String? = undefined):
CacheQueryOptions {\n    val o = js("{}")\n    o["ignoreSearch"] = ignoreSearch\n    o["ignoreMethod"] =
ignoreMethod\n    o["ignoreVary"] = ignoreVary\n    o["cacheName"] = cacheName\n    return o\n}\n\npublic
external interface CacheBatchOperation {\n    var type: String?\n    get() = definedExternally\n    set(value) =
definedExternally\n    var request: Request?\n    get() = definedExternally\n    set(value) = definedExternally\n
var response: Response?\n    get() = definedExternally\n
    set(value) = definedExternally\n    var options: CacheQueryOptions?\n    get() = definedExternally\n
set(value) = definedExternally\n}\n\n@Suppress("INVISIBLE_REFERENCE",
"INVISIBLE_MEMBER")\n@kotlin.internal.InlineOnly\npublic inline fun CacheBatchOperation(type: String? =
undefined, request: Request? = undefined, response: Response? = undefined, options: CacheQueryOptions? =
undefined): CacheBatchOperation {\n    val o = js("{}")\n    o["type"] = type\n    o["request"] = request\n
o["response"] = response\n    o["options"] = options\n    return o\n}\n\n/**\n * Exposes the JavaScript
[CacheStorage](https://developer.mozilla.org/en/docs/Web/API/CacheStorage) to Kotlin\n *\npublic external
abstract class CacheStorage {\n    fun match(request: dynamic, options: CacheQueryOptions = definedExternally):
Promise<Any?>\n    fun has(cacheName: String): Promise<Boolean>\n    fun open(cacheName: String):
Promise<Cache>\n    fun delete(cacheName: String): Promise<Boolean>\n
    fun keys(): Promise<Array<String>>\n}\n\npublic external open class FunctionalEvent : ExtendableEvent {\n
companion object {\n    val NONE: Short\n    val CAPTURING_PHASE: Short\n    val AT_TARGET:

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Short\n    val BUBBLING_PHASE: Short\n    }\n}\n\npublic external interface
UnionMessagePortOrServiceWorker\n\npublic external interface
UnionClientOrMessagePortOrServiceWorker\n\n/* please, don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external
interface ServiceWorkerState {\n    companion object\n}\n\npublic inline val
ServiceWorkerState.Companion.INSTALLING: ServiceWorkerState get() =
"installing".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val
ServiceWorkerState.Companion.INSTALLED: ServiceWorkerState get() =
"installed".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val
ServiceWorkerState.Companion.ACTIVATING: ServiceWorkerState get() =
"activating".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic
inline val ServiceWorkerState.Companion.ACTIVATED: ServiceWorkerState get() =
"activated".asDynamic().unsafeCast<ServiceWorkerState>()\n\npublic inline val
ServiceWorkerState.Companion.REDUNDANT: ServiceWorkerState get() =
"redundant".asDynamic().unsafeCast<ServiceWorkerState>()\n\n/* please, don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external
interface FrameType {\n    companion object\n}\n\npublic inline val FrameType.Companion.AUXILIARY:
FrameType get() = "auxiliary".asDynamic().unsafeCast<FrameType>()\n\npublic inline val
FrameType.Companion.TOP_LEVEL: FrameType get() = "top-
level".asDynamic().unsafeCast<FrameType>()\n\npublic inline val FrameType.Companion.NESTED: FrameType
get() = "nested".asDynamic().unsafeCast<FrameType>()\n\npublic inline val FrameType.Companion.NONE:
FrameType get() = "none".asDynamic().unsafeCast<FrameType>()\n\n/* please,
don't implement this interface!
*\n@JsName("null")\n@Suppress("NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external
interface ClientType {\n    companion object\n}\n\npublic inline val ClientType.Companion.WINDOW: ClientType
get() = "window".asDynamic().unsafeCast<ClientType>()\n\npublic inline val ClientType.Companion.WORKER:
ClientType get() = "worker".asDynamic().unsafeCast<ClientType>()\n\npublic inline val
ClientType.Companion.SHAREDWORKER: ClientType get() =
"sharedworker".asDynamic().unsafeCast<ClientType>()\n\npublic inline val ClientType.Companion.ALL:
ClientType get() = "all".asDynamic().unsafeCast<ClientType>()"/\n\n * Copyright 2010-2021 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n *\n\n// NOTE: THIS FILE IS AUTO-GENERATED, DO NOT
EDIT!\n\n// See github.com/kotlin/dukat for details\n\npackage org.w3c.xhr\n\nimport kotlin.js.*\nimport
org.khronos.webgl.*\nimport org.w3c.dom.*\nimport org.w3c.dom.events.*\nimport org.w3c.files.*\n\n/**\n *
Exposes the JavaScript
[XMLHttpRequestEventTarget](https://developer.mozilla.org/en/docs/Web/API/XMLHttpRequestEventTarget) to
Kotlin\n *\n\npublic external abstract class XMLHttpRequestEventTarget : EventTarget {\n    open var onloadstart:
((ProgressEvent) -> dynamic)?\n    open var onprogress: ((ProgressEvent) -> dynamic)?\n    open var onabort:
((Event) -> dynamic)?\n    open var onerror: ((Event) -> dynamic)?\n    open var onload: ((Event) -> dynamic)?\n
open var ontimeout: ((Event) -> dynamic)?\n    open var onloadend: ((Event) -> dynamic)?\n}\n\n\npublic external
abstract class XMLHttpRequestUpload : XMLHttpRequestEventTarget\n\n/**\n * Exposes the JavaScript
[XMLHttpRequest](https://developer.mozilla.org/en/docs/Web/API/XMLHttpRequest) to Kotlin\n *\n\npublic
external open class XMLHttpRequest : XMLHttpRequestEventTarget {\n    var onreadystatechange: ((Event) ->
dynamic)?\n
open val readyState: Short\n    var timeout: Int\n    var withCredentials: Boolean\n    open val upload:
XMLHttpRequestUpload\n    open val responseURL: String\n    open val status: Short\n    open val statusText:
String\n    var responseType: XMLHttpRequestResponseType\n    open val response: Any?\n    open val
responseText: String\n    open val responseXML: Document?\n    fun open(method: String, url: String)\n    fun

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open(method: String, url: String, async: Boolean, username: String? = definedExternally, password: String? =
definedExternally)\n fun setRequestHeader(name: String, value: String)\n fun send(body: dynamic =
definedExternally)\n fun abort()\n fun getResponseHeader(name: String): String?\n fun
getAllResponseHeaders(): String\n fun overrideMimeType(mime: String)\n\n companion object {\n val
UNSENT: Short\n val OPENED: Short\n val HEADERS_RECEIVED: Short\n val LOADING:
Short\n val DONE: Short\n }\n}\n\n/**\n
* Exposes the JavaScript [FormData](https://developer.mozilla.org/en/docs/Web/API/FormData) to Kotlin\n
*\n\npublic external open class FormData(form: HTMLFormElement = definedExternally) {\n fun append(name:
String, value: String)\n fun append(name: String, value: Blob, filename: String = definedExternally)\n fun
delete(name: String)\n fun get(name: String): dynamic\n fun getAll(name: String): Array<dynamic>\n fun
has(name: String): Boolean\n fun set(name: String, value: String)\n fun set(name: String, value: Blob, filename:
String = definedExternally)\n}\n\n/**\n
* Exposes the JavaScript
[ProgressEvent](https://developer.mozilla.org/en/docs/Web/API/ProgressEvent) to Kotlin\n
*\n\npublic external open
class ProgressEvent(type: String, eventInitDict: ProgressEventInit = definedExternally) : Event {\n open val
lengthComputable: Boolean\n open val loaded: Number\n open val total: Number\n\n companion object {\n
val NONE: Short\n val CAPTURING_PHASE:
Short\n val AT_TARGET: Short\n val BUBBLING_PHASE: Short\n }\n}\n\npublic external interface
ProgressEventInit : EventInit {\n var lengthComputable: Boolean? /* = false */\n get() = definedExternally\n
set(value) = definedExternally\n var loaded: Number? /* = 0 */\n get() = definedExternally\n set(value)
= definedExternally\n var total: Number? /* = 0 */\n get() = definedExternally\n set(value) =
definedExternally\n}\n\n@Suppress("\INVISIBLE_REFERENCE",
\INVISIBLE_MEMBER")\n\n@kotlin.internal.InlineOnly\n\npublic inline fun ProgressEventInit(lengthComputable:
Boolean? = false, loaded: Number? = 0, total: Number? = 0, bubbles: Boolean? = false, cancelable: Boolean? =
false, composed: Boolean? = false): ProgressEventInit {\n val o = js("{}")\n o["lengthComputable"] =
lengthComputable\n o["loaded"] = loaded\n o["total"] = total\n o["bubbles"] = bubbles\n
o["cancelable"] = cancelable\n
o["composed"] = composed\n return o\n}\n\n/* please, don't implement this interface!
*\n\n@JsName("null")\n\n@Suppress("\NESTED_CLASS_IN_EXTERNAL_INTERFACE")\n\npublic external
interface XMLHttpRequestResponseType {\n companion object\n}\n\npublic inline val
XMLHttpRequestResponseType.Companion.EMPTY: XMLHttpRequestResponseType get() =
\`\`.asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val
XMLHttpRequestResponseType.Companion.ARRAYBUFFER: XMLHttpRequestResponseType get() =
\`arraybuffer\`.asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val
XMLHttpRequestResponseType.Companion.BLOB: XMLHttpRequestResponseType get() =
\`blob\`.asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val
XMLHttpRequestResponseType.Companion.DOCUMENT: XMLHttpRequestResponseType get() =
\`document\`.asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val
XMLHttpRequestResponseType.Companion.JSON: XMLHttpRequestResponseType
get() = \`json\`.asDynamic().unsafeCast<XMLHttpRequestResponseType>()\n\npublic inline val
XMLHttpRequestResponseType.Companion.TEXT: XMLHttpRequestResponseType get() =
\`text\`.asDynamic().unsafeCast<XMLHttpRequestResponseType>()"/*\n
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that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin\n\nimport
kotlin.annotation.AnnotationRetention.BINARY\n\nimport kotlin.annotation.AnnotationRetention.SOURCE\n\nimport
kotlin.annotation.AnnotationTarget.*\n\nimport kotlin.internal.RequireKotlin\n\nimport
kotlin.internal.RequireKotlinVersionKind\n\nimport kotlin.reflect.KClass\n\n\n/**\n
* Signals that the annotated
annotation class is a marker of an experimental API.\n
*\n
* Any declaration annotated with that marker is
considered an experimental declaration\n
* and its call sites should accept the experimental aspect of it either

```





the type argument of the resulting sequence is inferred to `String` from the argument of the [SequenceScope.yield] function, that is called inside the lambda passed to [sequence].

\* Note: this annotation is experimental, see [ExperimentalTypeInference] on how to opt-in for it.

```

@Target(VALUE_PARAMETER, FUNCTION, PROPERTY)
@Retention(AnnotationRetention.BINARY)
@SinceKotlin("1.3")
@ExperimentalTypeInference
public annotation class BuilderInference

```

\* Enables overload selection based on the type of the value returned from lambda argument.

\* When two or more function overloads have otherwise the same parameter lists that differ only in the return type of a functional parameter, this annotation enables overload selection by the type of the value returned from the lambda function passed to this functional parameter.

\* Example:

```

@OverloadResolutionByLambdaReturnType
fun create(intProducer: () -> Int): Int
fun create(doubleProducer: () -> Double): Double
val newValue = create { 3.14 }

```

\* The annotation being applied to one of overloads allows to resolve this ambiguity by analyzing what value is returned from the lambda function.

\* This annotation is also used to discriminate the annotated overloads in case if overload selection still cannot choose one of them even taking in account the result of lambda parameter analysis. In that case a warning is reported.

\* Note: this annotation is experimental, see [ExperimentalTypeInference] on how to opt-in for it.

```

@Target(FUNCTION)
@Retention(AnnotationRetention.BINARY)
@SinceKotlin("1.4")
@ExperimentalTypeInference
public annotation class OverloadResolutionByLambdaReturnType

```

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```

package kotlin
import kotlin.annotation.AnnotationTarget
import kotlin.internal.RequireKotlin
import kotlin.internal.RequireKotlinVersionKind

```

\* The experimental multiplatform support API marker.

\* Any usage of a declaration annotated with `@ExperimentalMultiplatform` must be accepted either by annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalMultiplatform::class)`, or by using the compiler argument `-opt-in=kotlin.ExperimentalMultiplatform`.

```

@RequiresOptIn
@MustBeDocumented
@Target(CLASS, ANNOTATION_CLASS, PROPERTY, FIELD, LOCAL_VARIABLE, VALUE_PARAMETER, CONSTRUCTOR, FUNCTION, PROPERTY_GETTER, PROPERTY_SETTER, TYPEALIAS)
@Retention(AnnotationRetention.BINARY)
@RequireKotlin("1.2.50", versionKind = RequireKotlinVersionKind.COMPILER_VERSION)
public annotation class ExperimentalMultiplatform

```

\* Marks an expected annotation class that it isn't required to have actual counterparts in all platforms.

\* This annotation is only applicable to `expect` annotation classes in multi-platform projects and marks that class as "optional".

\* Optional expected class is allowed to have no corresponding actual class on the platform. Optional annotations can only be used to annotate something, not as types in signatures. If an optional annotation has no corresponding actual class on a platform, the annotation entries where it's used are simply erased when compiling code on that platform.

\* Note: this annotation is experimental, see [ExperimentalMultiplatform] on how to opt-in for it.

```

@Target(ANNOTATION_CLASS)
@Retention(AnnotationRetention.BINARY)
@ExperimentalMultiplatform
@RequireKotlin("1.2.50", versionKind = RequireKotlinVersionKind.COMPILER_VERSION)
public annotation class OptionalExpectation

```

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```

package kotlin
import kotlin.annotation.AnnotationRetention.BINARY
import kotlin.annotation.AnnotationRetention.SOURCE
import kotlin.annotation.AnnotationTarget
import kotlin.internal.RequireKotlin
import kotlin.internal.RequireKotlinVersionKind
import kotlin.reflect.KClass

```

\* Signals that the annotated annotation class is a marker of an API that requires an explicit opt-in.

\* Call sites of any declaration annotated with that marker should opt in to the API either by using [OptIn], or by being annotated with that marker themselves, effectively causing further propagation of the

opt-in requirement.  
 \* This class requires opt-in itself and can only be used with the compiler argument `-opt-in=kotlin.RequiresOptIn``.  
 \* @property message message to be reported on usages of API without an explicit opt-in, or empty string for the default message.  
 \* The default message is: `"This declaration is experimental and its usage should be marked with 'Marker' or '@OptIn(Marker::class)'"`, where ``Marker`` is the opt-in requirement marker.  
 \* @property level specifies how usages of API without an explicit opt-in are reported in code.

```
*\n@Target(ANNOTATION_CLASS)\n@Retention(BINARY)\n@SinceKotlin("1.3")\n@RequireKotlin("1.3.70",
```

```
versionKind = RequireKotlinVersionKind.COMPILER_VERSION)\npublic annotation class RequiresOptIn(\n    val message: String = "",\n    val level: Level = Level.ERROR) {\n    /**\n     * Severity of the diagnostic that should be reported on usages which did not explicitly opt into\n     * the API either by using [OptIn] or by being annotated with the corresponding marker annotation.\n     */\n    public enum class Level {\n        /** Specifies that a warning should be reported on incorrect usages of this API. */\n        WARNING,\n        /** Specifies that an error should be reported on incorrect usages of this API. */\n        ERROR,\n    }\n}\n/**\n * Allows to use the API denoted by the given markers in the annotated file, declaration, or expression.\n * If a declaration is annotated with [OptIn], its usages are **not** required to opt in to that API.\n * This class requires opt-in itself and can only be used with the compiler argument -opt-in=kotlin.RequiresOptIn`.  

  * @Target(\n    CLASS,\n    PROPERTY, LOCAL_VARIABLE, VALUE_PARAMETER, CONSTRUCTOR, FUNCTION,\n    PROPERTY_GETTER, PROPERTY_SETTER, EXPRESSION, FILE,
```

```
TYPEALIAS)\n)\n@Retention(SOURCE)\n@SinceKotlin("1.3")\n@RequireKotlin("1.3.70", versionKind = RequireKotlinVersionKind.COMPILER_VERSION)\npublic annotation class OptIn(\n    vararg val markerClass: KClass<out Annotation>)\n}\n"/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.collections\nimport kotlin.js.JsName\n/**\n * Provides a skeletal implementation of the read-only [Collection] interface.\n * @param E the type of elements contained in the collection. The collection is covariant in its element type.\n */\n@SinceKotlin("1.1")\npublic abstract class AbstractCollection<out
```

```
E> protected constructor() : Collection<E> {\n    abstract override val size: Int\n    abstract override fun iterator(): Iterator<E>\n    override fun contains(element: @UnsafeVariance E): Boolean = any { it == element }\n    override fun containsAll(elements: Collection<@UnsafeVariance E>): Boolean =\n        elements.all { contains(it) }\n    // use when js will support bound refs: elements.all(this::contains)\n    override fun isEmpty(): Boolean = size == 0\n    override fun toString(): String = joinToString(", ", "[", "]") {\n        if (it === this) "(this Collection)"\n        else it.toString()\n    }\n    /**\n     * Returns new array of type `Array<Any?` with the elements of this collection.\n     */\n    @JsName("toArray")\n    protected open fun toArray(): Array<Any?> =\n        copyToArrayImpl(this)\n    /**\n     * Fills the provided [array] or creates new array of the same type\n     * and fills it with the elements of this collection.\n     */\n    protected open fun <T>
```

```
toArray(array: Array<T>): Array<T> = copyToArrayImpl(this, array)\n}\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\npackage kotlin.collections\nprivate enum class State {\n    Ready,\n    NotReady,\n    Done,\n    Failed\n}\n/**\n * A base class to simplify implementing iterators so that implementations only have to implement [computeNext]\n * to implement the iterator, calling [done] when the iteration is complete.\n */\npublic abstract class AbstractIterator<T> : Iterator<T> {\n    private var state = State.NotReady\n    private var nextValue: T? = null\n    override fun hasNext(): Boolean {\n        require(state != State.Failed)\n        return when (state) {\n            State.Done -> false\n            State.Ready -> true\n            else -> tryToComputeNext()\n        }\n    }\n    override fun next():\n        T {\n        if (!hasNext()) throw NoSuchElementException()\n        state = State.NotReady\n        @Suppress("UNCHECKED_CAST")\n        return nextValue as T\n    }\n    private fun tryToComputeNext():\n        Boolean {\n        state = State.Failed\n        computeNext()\n        return state == State.Ready\n    }\n    /**\n     *
```

```

Computes the next item in the iterator.\n
 * This callback method should call one of these two methods:\n
 * [setNext] with the next value of the iteration\n
 * [done] to indicate there are no more elements\n
 * Failure to call either method will result in the iteration terminating with a failed state\n
 abstract\n
 protected fun computeNext(): Unit\n
 /**\n
 * Sets the next value in the iteration, called from the\n
 [computeNext] function\n
 ^\n
 protected fun setNext(value: T): Unit {\n
 nextValue = value\n
 state =\n
 State.Ready\n
 }\n
 /**\n
 * Sets the state to done so that\n
 the iteration terminates.\n
 ^\n
 protected fun done() {\n
 state = State.Done\n
 }\n
}\n
"/\n
 *
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 ^\n
"/\n
 * Based on GWT\n
 AbstractList\n
 * Copyright 2007 Google Inc.\n
 ^\n
package kotlin.collections\n
"/\n
/**\n
 * Provides a skeletal\n
 implementation of the read-only [List] interface.\n
 *\n
 * This class is intended to help implementing read-only lists\n
 so it doesn't support concurrent modification tracking.\n
 *\n
 * @param E the type of elements contained in the list.\n
 The list is covariant in its element type.\n
 ^\n
@SinceKotlin("1.1")\n
public abstract class AbstractList<out E>\n
 protected constructor(): AbstractCollection<E>(), List<E> {\n
 abstract override val size: Int\n
 abstract override\n
 fun get(index: Int): E\n
 override fun iterator(): Iterator<E> = IteratorImpl()\n
\n
 override fun indexOf(element: @UnsafeVariance E): Int = indexOfFirst { it == element }\n
\n
 override fun\n
 lastIndexOf(element: @UnsafeVariance E): Int = indexOfLast { it == element }\n
\n
 override fun listIterator():\n
 ListIterator<E> = ListIteratorImpl(0)\n
\n
 override fun listIterator(index: Int): ListIterator<E> =\n
 ListIteratorImpl(index)\n
\n
 override fun subList(fromIndex: Int, toIndex: Int): List<E> = SubList(this, fromIndex,\n
 toIndex)\n
\n
 private class SubList<out E>(private val list: AbstractList<E>, private val fromIndex: Int, toIndex:\n
 Int) : AbstractList<E>(), RandomAccess {\n
 private var _size: Int = 0\n
 init {\n
 checkRangeIndexes(fromIndex, toIndex, list.size)\n
 this._size = toIndex - fromIndex\n
 }\n
\n
 override fun get(index: Int): E {\n
 checkElementIndex(index, _size)\n
 return list[fromIndex +\n
 index]\n
 }\n
\n
 override val size: Int get() = _size\n
 }\n
 /**\n
 * Compares this list with other list instance with the ordered structural equality.\n
 *\n
 * @return true, if\n
 [other] instance is a [List] of the same size, which contains the same elements in the same order.\n
 ^\n
 override\n
 fun equals(other: Any?): Boolean {\n
 if (other === this) return true\n
 if (other !is List<*>) return false\n
\n
 return orderedEquals(this, other)\n
 }\n
 /**\n
 * Returns the hash code value for this list.\n
 ^\n
 override\n
 fun hashCode(): Int = orderedHashCode(this)\n
\n
 private open inner class IteratorImpl : Iterator<E> {\n
 /**\n
 the index of the item that will be returned on the next call to [next]()\n
 ^\n
 protected var index = 0\n
\n
 override fun hasNext(): Boolean = index < size\n
\n
 override fun next(): E {\n
 if (!hasNext()) throw\n
 NoSuchElementException()\n
 return get(index++)\n
 }\n
 }\n
 /**\n
 * Implementation of\n
 [ListIterator] for abstract\n
 lists.\n
 ^\n
 private open inner class ListIteratorImpl(index: Int) : IteratorImpl(), ListIterator<E> {\n
 init\n
 {\n
 checkPositionIndex(index, this@AbstractList.size)\n
 this.index = index\n
 }\n
\n
 override\n
 fun hasPrevious(): Boolean = index > 0\n
\n
 override fun nextIndex(): Int = index\n
\n
 override fun\n
 previous(): E {\n
 if (!hasPrevious()) throw NoSuchElementException()\n
 return get(--index)\n
 }\n
\n
 override fun previousIndex(): Int = index - 1\n
 }\n
\n
 internal companion object {\n
 internal fun\n
 checkElementIndex(index: Int, size: Int) {\n
 if (index < 0 || index >= size) {\n
 throw\n
 IndexOutOfBoundsException("index: $index, size: $size")\n
 }\n
 }\n
\n
 internal fun\n
 checkPositionIndex(index: Int, size: Int) {\n
 if (index < 0 || index > size) {\n
 throw\n
 IndexOutOfBoundsException("index: $index, size: $size")\n
 }\n
 }\n
\n
 internal fun checkRangeIndexes(fromIndex: Int, toIndex: Int, size: Int) {\n
 if\n
 (fromIndex < 0 || toIndex > size) {\n
 throw IndexOutOfBoundsException("fromIndex: $fromIndex,\n
 toIndex: $toIndex, size: $size")\n
 }\n
\n
 if (fromIndex > toIndex) {\n
 throw\n
 IllegalArgumentException("fromIndex: $fromIndex > toIndex: $toIndex")\n
 }\n
 }\n
\n
 internal fun\n
 checkBoundsIndexes(startIndex: Int, endIndex: Int, size: Int) {\n
 if (startIndex < 0 || endIndex > size) {\n
 throw IndexOutOfBoundsException("startIndex: $startIndex, endIndex: $endIndex, size: $size")\n
 }\n
 }\n
 }

```

```

        if (startIndex > endIndex) {\n            throw IllegalArgumentException("startIndex: $startIndex > endIndex:\n                $endIndex")\n        }\n    }\n    internal fun orderedHashCode(c: Collection<*>): Int {\n        var\n        hashCode = 1\n        for\n        (e in c) {\n            hashCode = 31 * hashCode + (e?.hashCode() ?: 0)\n        }\n        return hashCode\n    }\n\n    internal fun orderedEquals(c: Collection<*>, other: Collection<*>): Boolean {\n        if (c.size !=\n        other.size) return false\n        val otherIterator = other.iterator()\n        for (elem in c) {\n            val\n            elemOther = otherIterator.next()\n            if (elem != elemOther) {\n                return false\n            }\n        }\n        return true\n    }\n}\n}"/**\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming\nLanguage contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the\nlicense/LICENSE.txt file.\n */\n\n/**\n * Based on GWT AbstractMap\n * Copyright 2007 Google Inc.\n */\n\npackage kotlin.collections\n\n/**\n * Provides a skeletal implementation of the read-only [Map] interface.\n */\n * The implementor is required to\nimplement [entries] property, which should return read-only set of map entries.\n */\n * @param K the type of map\nkeys. The map is invariant in its key type.\n */\n * @param V the type of map values. The map is covariant in its value\n type.\n */\n @SinceKotlin("1.1")\n public abstract class AbstractMap<K, out V> protected constructor() : Map<K,\n V> {\n\n    override fun containsKey(key: K): Boolean {\n        return implFindEntry(key) != null\n    }\n\n    override fun containsValue(value: @UnsafeVariance V): Boolean = entries.any { it.value == value }\n\n    internal\n    fun containsEntry(entry: Map.Entry<*, *>?): Boolean {\n        // since entry comes from @UnsafeVariance\n        parameters it can be virtually anything\n        if (entry !is Map.Entry<*, *>) return false\n        val key = entry.key\n        val value = entry.value\n        val ourValue = get(key)\n        if (value != ourValue) {\n            return false\n        }\n        // Perhaps it was null and we don't contain the key?\n        if (ourValue == null && !containsKey(key)) {\n            return false\n        }\n        return true\n    }\n\n    /**\n     * Compares this map with other instance with the ordered structural equality.\n     */\n     * @return true, if\n [other] instance is a [Map] of the same size, all entries of which are contained in the [entries] set of this map.\n */\n\n    override fun equals(other: Any?): Boolean {\n        if (other === this) return true\n        if (other !is Map<*,\n *>) return false\n        if (size != other.size) return false\n        return other.entries.all { containsEntry(it) }\n    }\n\n    override operator fun get(key: K): V? = implFindEntry(key)?.value\n\n    /**\n     * Returns the hash code value\n for this map.\n     */\n     * It is the same as the hashCode of [entries] set.\n     */\n     * override fun hashCode(): Int =\n entries.hashCode()\n\n    override fun isEmpty(): Boolean = size == 0\n\n    override val size: Int get() =\n entries.size\n\n    /**\n     * Returns a read-only [Set] of all keys in this map.\n     */\n     * Accessing this property first time creates a keys\n view from [entries].\n     * All subsequent accesses just return the created instance.\n     */\n     * override val keys:\n Set<K>\n\n    get() {\n        if (_keys == null) {\n            _keys = object : AbstractSet<K>() {\n\n                override operator fun contains(element: K): Boolean = containsKey(element)\n\n                override operator fun\n                iterator(): Iterator<K> {\n                    val entryIterator = entries.iterator()\n                    return object :\n                    Iterator<K> {\n                        override fun hasNext(): Boolean = entryIterator.hasNext()\n\n                        override fun\n                        next(): K = entryIterator.next().key\n                    }\n                }\n\n                override val size:\n                Int get() = this@AbstractMap.size\n            }\n            return _keys!!\n        }\n        @kotlin.jvm.Volatile\n        private var _keys: Set<K>? = null\n\n        override fun toString(): String =\n        entries.joinToString(", ", "{", "}") { toString(it) }\n\n        private fun toString(entry: Map.Entry<K, V>): String =\n        toString(entry.key) + "=" + toString(entry.value)\n\n        private fun toString(o: Any?): String = if (o === this) \"(this\n        Map)\" else o.toString()\n    }\n\n    /**\n     * Returns a read-only [Collection] of all values in this map.\n     */\n     * Accessing this property first time creates a values view from [entries].\n     * All subsequent accesses just return the\n created instance.\n     */\n     * override val values: Collection<V>\n\n    get() {\n        if (_values == null) {\n            _values = object : AbstractCollection<V>() {\n\n                override operator fun\n                contains(element:\n                @UnsafeVariance V): Boolean = containsValue(element)\n\n                override operator fun\n                iterator():\n                Iterator<V> {\n                    val entryIterator

```



```

is too big.\") // overflow\n    if (minCapacity <= elementData.size) return\n    if (elementData ===
emptyElementData) {\n        elementData = arrayOfNulls(minCapacity.coerceAtLeast(defaultMinCapacity))\n
    return\n    }\n\n    val newCapacity = newCapacity(elementData.size, minCapacity)\n
copyElements(newCapacity)\n }\n\n /**\n  * Creates a new array with the specified [newCapacity] size and
copies elements in the [elementData] array to it.\n  */\n private fun copyElements(newCapacity: Int) {\n    val
newElements = arrayOfNulls<Any?>(newCapacity)\n    elementData.copyInto(newElements, 0, head,
elementData.size)\n    elementData.copyInto(newElements, elementData.size - head, 0, head)\n    head = 0\n
elementData = newElements\n }\n\n @kotlin.internal.InlineOnly\n private inline fun
internalGet(internalIndex: Int): E {\n    @Suppress("UNCHECKED_CAST")\n    return
elementData[internalIndex]
as E\n }\n\n private fun positiveMod(index: Int): Int = if (index >= elementData.size) index - elementData.size
else index\n\n private fun negativeMod(index: Int): Int = if (index < 0) index + elementData.size else index\n\n
@kotlin.internal.InlineOnly\n private inline fun internalIndex(index: Int): Int = positiveMod(head + index)\n\n
private fun incremented(index: Int): Int = if (index == elementData.lastIndex) 0 else index + 1\n\n private fun
decremented(index: Int): Int = if (index == 0) elementData.lastIndex else index - 1\n\n override fun isEmpty():
Boolean = size == 0\n\n /**\n  * Returns the first element, or throws [NoSuchElementException] if this deque is
empty.\n  */\n public fun first(): E = if (isEmpty()) throw NoSuchElementException("ArrayDeque is empty.")
else internalGet(head)\n\n /**\n  * Returns the first element, or `null` if this deque is empty.\n  */\n public
fun firstOrNull(): E? = if (isEmpty()) null
else internalGet(head)\n\n /**\n  * Returns the last element, or throws [NoSuchElementException] if this deque
is empty.\n  */\n public fun last(): E = if (isEmpty()) throw NoSuchElementException("ArrayDeque is empty.")
else internalGet(internalIndex(lastIndex))\n\n /**\n  * Returns the last element, or `null` if this deque is empty.\n
*/\n public fun lastOrNull(): E? = if (isEmpty()) null else internalGet(internalIndex(lastIndex))\n\n /**\n  *
Prepends the specified [element] to this deque.\n  */\n public fun addFirst(element: E) {\n
ensureCapacity(size + 1)\n    head = decremented(head)\n    elementData[head] = element\n    size += 1\n
}\n\n /**\n  * Appends the specified [element] to this deque.\n  */\n public fun addLast(element: E) {\n
ensureCapacity(size + 1)\n    elementData[internalIndex(size)] = element\n    size += 1\n }\n\n /**\n  *
Removes the first element from this deque
and returns that removed element, or throws [NoSuchElementException] if this deque is empty.\n  */\n public
fun removeFirst(): E {\n    if (isEmpty()) throw NoSuchElementException("ArrayDeque is empty.")\n    val
element = internalGet(head)\n    elementData[head] = null\n    head = incremented(head)\n    size -= 1\n
return element\n }\n\n /**\n  * Removes the first element from this deque and returns that removed element, or
returns `null` if this deque is empty.\n  */\n public fun removeFirstOrNull(): E? = if (isEmpty()) null else
removeFirst()\n\n /**\n  * Removes the last element from this deque and returns that removed element, or
throws [NoSuchElementException] if this deque is empty.\n  */\n public fun removeLast(): E {\n    if
(isEmpty()) throw NoSuchElementException("ArrayDeque is empty.")\n    val internalLastIndex =
internalIndex(lastIndex)\n    val element = internalGet(internalLastIndex)\n
elementData[internalLastIndex] = null\n    size -= 1\n    return element\n }\n\n /**\n  * Removes the
last element from this deque and returns that removed element, or returns `null` if this deque is empty.\n  */\n
public fun removeLastOrNull(): E? = if (isEmpty()) null else removeLast()\n\n // MutableList,
MutableCollection\n public override fun add(element: E): Boolean {\n    addLast(element)\n    return true\n
}\n\n public override fun add(index: Int, element: E) {\n    AbstractList.checkPositionIndex(index, size)\n\n
if (index == size) {\n        addLast(element)\n        return\n    } else if (index == 0) {\n
addFirst(element)\n        return\n    }\n\n    ensureCapacity(size + 1)\n\n    // Elements in circular array lay
in 2 ways:\n    // 1. `head` is less than `tail`:    [#, #, e1, e2, e3, #]\n    // 2. `head` is greater than `tail`:    [e3,
#, #, #, e1, e2]\n\n    //
where head is the index of the first element in the circular array,\n    // and tail is the index following the last
element.\n    //\n    // At this point the insertion index is not equal to head or tail.\n    // Also the circular array

```

```

can store at least one more element.\n    /\n    // Depending on where the given element must be inserted the
preceding or the succeeding\n    // elements will be shifted to make room for the element to be inserted.\n    /\n    // In case the preceding elements are shifted:\n    // * if the insertion index is greater than the head (regardless
of circular array form)\n    // -> shift the preceding elements\n    // * otherwise, the circular array has (2)
form and the insertion index is less than tail\n    // -> shift all elements in the back of the array\n    // ->
shift preceding elements in the front of the array\n    // In case the succeeding elements are shifted:\n
    // * if the insertion index is less than the tail (regardless of circular array form)\n    // -> shift the succeeding
elements\n    // * otherwise, the circular array has (2) form and the insertion index is greater than head\n    //
-> shift all elements in the front of the array\n    // -> shift succeeding elements in the back of the array\n\n
val internalIndex = internalIndex(index)\n\n    if (index < (size + 1) shr 1) {\n        // closer to the first element -
> shift preceding elements\n        val decrementedInternalIndex = decremented(internalIndex)\n        val
decrementedHead = decremented(head)\n\n        if (decrementedInternalIndex >= head) {\n
elementData[decrementedHead] = elementData[head] // head can be zero\n
elementData.copyInto(elementData, head, head + 1, decrementedInternalIndex + 1)\n        } else { // head > tail\n
    elementData.copyInto(elementData, head
- 1, head, elementData.size) // head can't be zero\n        elementData[elementData.size - 1] = elementData[0]\n
    elementData.copyInto(elementData, 0, 1, decrementedInternalIndex + 1)\n        }\n\n
elementData[decrementedInternalIndex] = element\n        head = decrementedHead\n    } else {\n        //
closer to the last element -> shift succeeding elements\n        val tail = internalIndex(size)\n\n        if
(internalIndex < tail) {\n            elementData.copyInto(elementData, internalIndex + 1, internalIndex, tail)\n
        } else { // head > tail\n            elementData.copyInto(elementData, 1, 0, tail)\n            elementData[0] =
elementData[elementData.size - 1]\n            elementData.copyInto(elementData, internalIndex + 1, internalIndex,
elementData.size - 1)\n        }\n        elementData[internalIndex] = element\n    }\n    size += 1\n }\n\n
private fun copyCollectionElements(internalIndex:
Int, elements: Collection<E>) {\n    val iterator = elements.iterator()\n\n    for (index in internalIndex until
elementData.size) {\n        if (!iterator.hasNext()) break\n        elementData[index] = iterator.next()\n    }\n
for (index in 0 until head) {\n        if (!iterator.hasNext()) break\n        elementData[index] = iterator.next()\n
    }\n\n    size += elements.size\n }\n\n    public override fun addAll(elements: Collection<E>): Boolean {\n
if (elements.isEmpty()) return false\n    ensureCapacity(this.size + elements.size)\n
copyCollectionElements(internalIndex(size), elements)\n    return true\n }\n\n    public override fun
addAll(index: Int, elements: Collection<E>): Boolean {\n    AbstractList.checkPositionIndex(index, size)\n\n
if (elements.isEmpty()) {\n        return false\n    } else if (index == size) {\n        return addAll(elements)\n
    }\n\n        ensureCapacity(this.size + elements.size)\n\n        val tail = internalIndex(size)\n        val internalIndex =
internalIndex(index)\n        val elementsSize = elements.size\n\n        if (index < (size + 1) shr 1) {\n            // closer
to the first element -> shift preceding elements\n            var shiftedHead = head - elementsSize\n\n            if
(internalIndex >= head) {\n                if (shiftedHead >= 0) {\n                    elementData.copyInto(elementData,
shiftedHead, head, internalIndex)\n                } else { // head < tail, insertion leads to head >= tail\n
shiftedHead += elementData.size\n                    val elementsToShift = internalIndex - head\n                    val
shiftToBack = elementData.size - shiftedHead\n                    if (shiftToBack >= elementsToShift) {\n
elementData.copyInto(elementData, shiftedHead, head, internalIndex)\n                    } else {\n
elementData.copyInto(elementData,
shiftedHead, head, head + shiftToBack)\n                    elementData.copyInto(elementData, 0, head +
shiftToBack, internalIndex)\n                    }\n                } else { // head > tail, internalIndex < tail\n
elementData.copyInto(elementData, shiftedHead, head, elementData.size)\n                    if (elementsSize >=
internalIndex) {\n                        elementData.copyInto(elementData, elementData.size - elementsSize, 0,
internalIndex)\n                    } else {\n                        elementData.copyInto(elementData, elementData.size -
elementsSize, 0, elementsSize)\n                        elementData.copyInto(elementData, 0, elementsSize, internalIndex)\n
                    }\n                }\n            }\n        }\n    }\n}

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        }\n        }\n        head = shiftedHead\n        copyCollectionElements(negativeMod(internalIndex -
elementsSize), elements)\n        } else {\n        // closer to the last element -> shift succeeding elements\n\n
val
    shiftedInternalIndex = internalIndex + elementsSize\n\n        if (internalIndex < tail) {\n        if (tail +
elementsSize <= elementData.size) {\n        elementData.copyInto(elementData, shiftedInternalIndex,
internalIndex, tail)\n        } else { // head < tail, insertion leads to head >= tail\n        if
(shiftedInternalIndex >= elementData.size) {\n        elementData.copyInto(elementData,
shiftedInternalIndex - elementData.size, internalIndex, tail)\n        } else {\n        val shiftToFront =
tail + elementsSize - elementData.size\n        elementData.copyInto(elementData, 0, tail - shiftToFront,
tail)\n        elementData.copyInto(elementData, shiftedInternalIndex, internalIndex, tail - shiftToFront)\n
        }\n        }\n        } else { // head > tail, internalIndex > head\n
elementData.copyInto(elementData, elementsSize,
0, tail)\n        if (shiftedInternalIndex >= elementData.size) {\n        elementData.copyInto(elementData,
shiftedInternalIndex - elementData.size, internalIndex, elementData.size)\n        } else {\n
elementData.copyInto(elementData, 0, elementData.size - elementsSize, elementData.size)\n
elementData.copyInto(elementData, shiftedInternalIndex, internalIndex, elementData.size - elementsSize)\n
}\n        }\n        copyCollectionElements(internalIndex, elements)\n        }\n\n        return true\n        }\n\n    public
override fun get(index: Int): E {\n        AbstractList.checkElementIndex(index, size)\n\n        return
internalGet(internalIndex(index))\n        }\n\n    public override fun set(index: Int, element: E): E {\n
AbstractList.checkElementIndex(index, size)\n        val internalIndex = internalIndex(index)\n        val oldElement
= internalGet(internalIndex)\n        elementData[internalIndex]
= element\n\n        return oldElement\n        }\n\n    public override fun contains(element: E): Boolean =
indexOf(element) != -1\n\n    public override fun indexOf(element: E): Int {\n        val tail = internalIndex(size)\n
        if (head < tail) {\n        for (index in head until tail) {\n        if (element == elementData[index]) return
index - head\n        }\n        } else if (head >= tail) {\n        for (index in head until elementData.size) {\n
        if (element == elementData[index]) return index - head\n        }\n        for (index in 0 until tail) {\n        if
(element == elementData[index]) return index + elementData.size - head\n        }\n        }\n\n        return -1\n
}\n\n    public override fun lastIndexOf(element: E): Int {\n        val tail = internalIndex(size)\n        if (head < tail)
{\n        for (index in tail - 1 downTo head) {\n        if (element == elementData[index])
return index - head\n        }\n        } else if (head > tail) {\n        for (index in tail - 1 downTo 0) {\n        if
(element == elementData[index]) return index + elementData.size - head\n        }\n        for (index in
elementData.lastIndex downTo head) {\n        if (element == elementData[index]) return index - head\n
        }\n        }\n\n        return -1\n        }\n\n    public override fun remove(element: E): Boolean {\n        val index =
indexOf(element)\n        if (index == -1) return false\n        removeAt(index)\n        return true\n        }\n\n    public
override fun removeAt(index: Int): E {\n        AbstractList.checkElementIndex(index, size)\n\n        if (index ==
lastIndex) {\n        return removeLast()\n        } else if (index == 0) {\n        return removeFirst()\n        }\n\n        val internalIndex = internalIndex(index)\n        val element = internalGet(internalIndex)\n\n        if (index < size shr
1) {\n
        // closer to the first element -> shift preceding elements\n        if (internalIndex >= head) {\n
elementData.copyInto(elementData, head + 1, head, internalIndex)\n        } else { // head > tail, internalIndex <
head\n        elementData.copyInto(elementData, 1, 0, internalIndex)\n        elementData[0] =
elementData[elementData.size - 1]\n        elementData.copyInto(elementData, head + 1, head, elementData.size
- 1)\n        }\n        elementData[head] = null\n        head = incremented(head)\n        } else {\n        //
closer to the last element -> shift succeeding elements\n        val internalLastIndex = internalIndex(lastIndex)\n\n
        if (internalIndex <= internalLastIndex) {\n        elementData.copyInto(elementData, internalIndex,
internalIndex + 1, internalLastIndex + 1)\n        } else { // head > tail, internalIndex > head\n
elementData.copyInto(elementData,

```



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internalIndex, internalIndex + 1, elementData.size)\n        elementData[elementData.size - 1] =
elementData[0]\n        elementData.copyInto(elementData, 0, 1, internalLastIndex + 1)\n        }\n\n    elementData[internalLastIndex] = null\n    }\n    size -= 1\n    return element\n    }\n\n    public override fun
removeAll(elements: Collection<E>): Boolean = filterInPlace { !elements.contains(it) }\n\n    public override fun
retainAll(elements: Collection<E>): Boolean = filterInPlace { elements.contains(it) }\n\n    private inline fun
filterInPlace(predicate: (E) -> Boolean): Boolean {\n        if (this.isEmpty() || elementData.isEmpty())\n            return
false\n\n        val tail = internalIndex(size)\n        var newTail = head\n        var modified = false\n        if (head <
tail) {\n            for (index in head until tail) {\n                val element = elementData[index]\n\n                @Suppress(\"UNCHECKED_CAST\")\n                if (predicate(element as E))\n                    elementData[newTail++] = element\n                    else\n                    modified = true\n            }\n\n            elementData.fill(null, newTail, tail)\n        } else {\n            for (index in head
until elementData.size) {\n                val element = elementData[index]\n                elementData[index] = null\n\n                @Suppress(\"UNCHECKED_CAST\")\n                if (predicate(element as E))\n                    elementData[newTail++] = element\n                    else\n                    modified = true\n            }\n\n            newTail =
positiveMod(newTail)\n            for (index in 0 until tail) {\n                val element = elementData[index]\n                elementData[index] = null\n\n                @Suppress(\"UNCHECKED_CAST\")\n                if (predicate(element as
E)) {\n                    elementData[newTail] = element\n                    newTail = incremented(newTail)\n                } else {\n                    modified = true\n                }\n            }\n            if (modified)\n                size =
negativeMod(newTail - head)\n            return modified\n        }\n\n        public override fun clear() {\n            val tail =
internalIndex(size)\n            if (head < tail) {\n                elementData.fill(null, head, tail)\n            } else if (isNotEmpty())\n                elementData.fill(null, head, elementData.size)\n            elementData.fill(null, 0, tail)\n            head =
0\n            size = 0\n        }\n\n        @Suppress(\"NOTHING_TO_OVERRIDE\")\n        override fun <T> toArray(array:
Array<T>): Array<T> {\n            @Suppress(\"UNCHECKED_CAST\")\n            val dest = (if (array.size >= size) array
else arrayOfNulls(array, size)) as Array<Any?>\n            val tail = internalIndex(size)\n            if (head < tail) {\n                elementData.copyInto(dest, startIndex = head, endIndex = tail)\n            } else if (isNotEmpty()) {\n                elementData.copyInto(dest,
                destinationOffset = 0, startIndex = head, endIndex = elementData.size)\n                elementData.copyInto(dest,
                destinationOffset = elementData.size - head, startIndex = 0, endIndex = tail)\n            }\n            if (dest.size > size) {\n                dest[size] = null // null-terminate\n            }\n\n            @Suppress(\"UNCHECKED_CAST\")\n            return dest as
Array<T>\n        }\n\n        @Suppress(\"NOTHING_TO_OVERRIDE\")\n        override fun toArray(): Array<Any?> {\n            return toArray(arrayOfNulls<Any?>(size))\n        }\n\n        // for testing\n        internal fun <T> testToArray(array:
Array<T>): Array<T> = toArray(array)\n        internal fun testToArray(): Array<Any?> = toArray()\n\n        internal
companion object {\n            private val emptyElementData = emptyArray<Any?>()\n            private const val
maxArraySize = Int.MAX_VALUE - 8\n            private const val defaultMinCapacity = 10\n            internal fun
newCapacity(oldCapacity: Int, minCapacity: Int): Int {\n                // overflow-conscious\n                var newCapacity = oldCapacity + (oldCapacity shr 1)\n                if (newCapacity - minCapacity < 0)\n                    newCapacity = minCapacity\n                if (newCapacity - maxArraySize > 0)\n                    newCapacity = if
(minCapacity > maxArraySize) Int.MAX_VALUE else maxArraySize\n                return newCapacity\n            }\n\n            // For testing only\n            internal fun internalStructure(structure: (head: Int, elements: Array<Any?>) -> Unit)
{\n                val tail = internalIndex(size)\n                val head = if (isEmpty() || head < tail) head else head -
                elementData.size\n                structure(head, toArray())\n            }\n        }, /*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n
*/\n\n        *\n\n        @file:kotlin.jvm.JvmMultifileClass\n        @file:kotlin.jvm.JvmName(\"ArraysKt\")\n\n        package
kotlin.collections\n        import kotlin.contracts.*\n\n        *\n\n        * Returns a single list of all elements from all arrays in the given array.\n        * @sample
samples.collections.Arrays.Transformations.flattenArray\n        *\n        public fun <T> Array<out Array<out T>>.flatten():
List<T> {\n            val result = ArrayList<T>(sumOf { it.size })\n            for (element in this) {\n                result.addAll(element)\n            }\n        }\n    }

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    } \n    return result \n } \n / \n * \n * Returns a pair of lists, where \n * *first* list is built from the first values of each
pair from this array, \n * *second* list is built from the second values of each pair from this array. \n * @sample
samples.collections.Arrays.Transformations.unzipArray \n * \n public fun <T, R> Array<out Pair<T, R>>.unzip():
Pair<List<T>, List<R>> { \n    val listT = ArrayList<T>(size) \n    val listR = ArrayList<R>(size) \n    for (pair in
this) { \n        listT.add(pair.first) \n        listR.add(pair.second) \n    } \n    return listT to listR \n } \n / \n * \n * Returns
`true` if this nullable array is either null or empty. \n * @sample
samples.collections.Arrays.Usage.arrayIsNullOrEmpty \n
* \n @SinceKotlin("1.3") \n @kotlin.internal.InlineOnly \n public inline fun Array<*>?.isNullOrEmpty(): Boolean
{ \n    contract { \n        returns(false) implies (this@isNullOrEmpty != null) \n    } \n    return this == null ||
this.isEmpty() \n } \n / \n * \n * Returns this array if it's not empty \n * or the result of calling [defaultValue] function if
the array is empty. \n * \n * @sample samples.collections.Arrays.Usage.arrayIfEmpty \n
* \n @SinceKotlin("1.3") \n @kotlin.internal.InlineOnly \n @Suppress("UPPER_BOUND_CANNOT_BE_ARRAY") \n public inline fun <C, R> C.ifEmpty(defaultValue: () -> R): R where C : Array<*>, C : R = \n    if (isEmpty())
defaultValue() else
this \n / \n @OptIn(ExperimentalUnsignedTypes::class) \n @SinceKotlin("1.3") \n @PublishedApi \n @kotlin.jvm.Jvm
Name("contentDeepEquals") \n @kotlin.js.JsName("contentDeepEqualsImpl") \n internal fun <T> Array<out
T>?.contentDeepEqualsImpl(other: Array<out T>?): Boolean { \n    if (this === other)
return true \n    if (this == null || other == null || this.size != other.size) return false \n    for (i in indices) { \n        val
v1 = this[i] \n        val v2 = other[i] \n        if (v1 === v2) { \n            continue \n        } else if (v1 == null || v2 ==
null) { \n            return false \n        } \n        when { \n            v1 is Array<*> && v2 is Array<*> -> if
(!v1.contentDeepEquals(v2)) return false \n            v1 is ByteArray && v2 is ByteArray -> if
(!v1.contentEquals(v2)) return false \n            v1 is ShortArray && v2 is ShortArray -> if (!v1.contentEquals(v2))
return false \n            v1 is IntArray && v2 is IntArray -> if (!v1.contentEquals(v2)) return false \n            v1 is
LongArray && v2 is LongArray -> if (!v1.contentEquals(v2)) return false \n            v1 is FloatArray && v2 is
FloatArray -> if (!v1.contentEquals(v2)) return false \n            v1 is DoubleArray && v2 is DoubleArray -> if
(!v1.contentEquals(v2)) return
false \n            v1 is CharArray && v2 is CharArray -> if (!v1.contentEquals(v2)) return false \n            v1 is
BooleanArray && v2 is BooleanArray -> if (!v1.contentEquals(v2)) return false \n            v1 is UByteArray &&
v2 is UByteArray -> if (!v1.contentEquals(v2)) return false \n            v1 is UShortArray && v2 is UShortArray ->
if (!v1.contentEquals(v2)) return false \n            v1 is UIntArray && v2 is UIntArray -> if
(!v1.contentEquals(v2)) return false \n            v1 is ULongArray && v2 is ULongArray -> if
(!v1.contentEquals(v2)) return false \n            else -> if (v1 != v2) return false \n        } \n    } \n    return
true \n } \n / \n @SinceKotlin("1.3") \n @PublishedApi \n @kotlin.jvm.JvmName("contentDeepToString") \n @kotlin.js.
JsName("contentDeepToStringImpl") \n internal fun <T> Array<out T>?.contentDeepToStringImpl(): String { \n    if (this == null) return "null" \n    val length = size.coerceAtMost((Int.MAX_VALUE - 2) / 5) * 5 + 2 // in
order not to overflow Int.MAX_VALUE \n    return buildString(length) { \n        contentDeepToStringInternal(this,
mutableListOf()) \n    } \n } \n / \n @OptIn(ExperimentalUnsignedTypes::class) \n private fun <T> Array<out
T>.contentDeepToStringInternal(result: StringBuilder, processed: MutableList<Array<*>>) { \n    if (this in
processed) { \n        result.append("[...]") \n        return \n    } \n    processed.add(this) \n    result.append("[") \n    for (i
in indices) { \n        if (i != 0) { \n            result.append(", ") \n        } \n        val element = this[i] \n        when
(element) { \n            null -> result.append("null") \n            is Array<*> ->
element.contentDeepToStringInternal(result, processed) \n            is ByteArray ->
result.append(element.contentToString()) \n            is ShortArray -> result.append(element.contentToString()) \n           
is IntArray -> result.append(element.contentToString()) \n            is LongArray ->
result.append(element.contentToString()) \n            is FloatArray -> result.append(element.contentToString()) \n           
is DoubleArray ->
result.append(element.contentToString()) \n            is CharArray -> result.append(element.contentToString()) \n           
is BooleanArray -> result.append(element.contentToString()) \n            is UByteArray ->

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result.append(element.contentToString())\n        is UShortArray -> result.append(element.contentToString())\n
    is UIntArray -> result.append(element.contentToString())\n        is ULongArray ->
result.append(element.contentToString())\n        else -> result.append(element.toString())\n    }\n
}\n\n result.append('')\n processed.removeAt(processed.lastIndex)\n}", "/*\n * Copyright 2010-2021 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**
Returns true if the brittle contains optimization is enabled. See KT-45438. *\ninternal expect fun
brittleContainsOptimizationEnabled(): Boolean\n\n/**\n * Returns true if [brittleContainsOptimizationEnabled] is
true\n * and it's safe to convert this collection to a set without changing contains method behavior.\n */\nprivate fun
<T> Collection<T>.safeToConvertToSet() = brittleContainsOptimizationEnabled() && size > 2 && this is
ArrayList\n\n/**\n * When [brittleContainsOptimizationEnabled] is true:\n * - Converts this [Iterable] to a set if it is
not a [Collection].\n * - Converts this [Collection] to a set, when it's worth so and it doesn't change contains method
behavior.\n * - Otherwise returns this.\n * When [brittleContainsOptimizationEnabled] is false:\n * - Converts this
[Iterable] to a list if it is not a [Collection].\n * - Otherwise returns this.\n */\ninternal fun <T>
Iterable<T>.convertToSetForSetOperationWith(source: Iterable<T>): Collection<T>
=\n when (this) {\n     is Set -> this\n     is Collection ->\n         when {\n             source is Collection &&
source.size < 2 -> this\n             else -> if (this.safeToConvertToSet()) toHashSet() else this\n         }\n     else -
> if (brittleContainsOptimizationEnabled()) toHashSet() else toList()\n } \n\n/**\n * When
[brittleContainsOptimizationEnabled] is true:\n * - Converts this [Iterable] to a set if it is not a [Collection].\n * -
Converts this [Collection] to a set, when it's worth so and it doesn't change contains method behavior.\n * -
Otherwise returns this.\n * When [brittleContainsOptimizationEnabled] is false:\n * - Converts this [Iterable] to a
list if it is not a [Collection].\n * - Otherwise returns this.\n */\ninternal fun <T>
Iterable<T>.convertToSetForSetOperation(): Collection<T> =\n when (this) {\n     is Set -> this\n     is
Collection -> if (this.safeToConvertToSet()) toHashSet() else this\n     else -> if
(brittleContainsOptimizationEnabled())
toHashSet() else toList()\n } \n\n/**\n * Converts this sequence to a set if [brittleContainsOptimizationEnabled] is
true,\n * otherwise converts it to a list.\n */\ninternal fun <T> Sequence<T>.convertToSetForSetOperation():
Collection<T> =\n if (brittleContainsOptimizationEnabled()) toHashSet() else toList()\n\n/**\n * Converts this
array to a set if [brittleContainsOptimizationEnabled] is true,\n * otherwise converts it to a list.\n */\ninternal fun
<T> Array<T>.convertToSetForSetOperation(): Collection<T> =\n if (brittleContainsOptimizationEnabled())
toHashSet() else asList()
", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.collections\n\n/**\n * Data class representing a value from a
collection or sequence, along with its index in that collection or sequence.\n */\n
* @property value the underlying value.\n * @property index the index of the value in the collection or sequence.\n
*/\npublic data class IndexedValue<out T>(public val index: Int, public val value: T)\n", "/*\n * Copyright 2010-
2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmName("MapAccessorsKt")\n\npackage kotlin.collections\n\nimport
kotlin.reflect.KProperty\nimport kotlin.internal.Exact\n\n/**\n * Returns the value of the property for the given
object from this read-only map.\n * @param thisRef the object for which the value is requested (not used).\n *
@param property the metadata for the property, used to get the name of property and lookup the value
corresponding to this name in the map.\n * @return the property value.\n */\n * @throws NoSuchElementException
when the map doesn't contain value for the property name
and doesn't provide an implicit default (see [withDefault]).\n */\n@kotlin.internal.InlineOnly\npublic inline
operator fun <V, V1 : V> Map<in String, @Exact V>.getValue(thisRef: Any?, property: KProperty<*>): V1 =\n
@Suppress("UNCHECKED_CAST") (getOrNull(property.name) as V1)\n\n/**\n * Returns the value
of the property for the given object from this mutable map.\n * @param thisRef the object for which the value is

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requested (not used).\n * @param property the metadata for the property, used to get the name of property and
lookup the value corresponding to this name in the map.\n * @return the property value.\n * \n * @throws
NoSuchElementException when the map doesn't contain value for the property name and doesn't provide an implicit
default (see [withDefault]).\n * \n * @kotlin.jvm.JvmName("\n * getVar")\n * \n * @kotlin.internal.InlineOnly\n * \n * public inline
operator fun <V, V1 : V> MutableMap<in String, out @Exact V>.getValue(thisRef: Any?, property:
KProperty<*>): V1 =\n * @Suppress("\n * UNCHECKED_CAST")
(getOrImplicitDefault(property.name) as V1)\n * \n * \n * Stores the value of the property for the given object in this
mutable map.\n * @param thisRef the object for which the value is requested (not used).\n * @param property the
metadata for the property, used to get the name of property and store the value associated with that name in the
map.\n * @param value the value to set.\n * \n * \n * @kotlin.internal.InlineOnly\n * \n * public inline operator fun <V>
MutableMap<in String, in V>.setValue(thisRef: Any?, property: KProperty<*>, value: V) {\n *
this.put(property.name, value)\n * \n * \n * \n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n *
*\n * \n * @file:kotlin.jvm.JvmMultifileClass\n * @file:kotlin.jvm.JvmName("\n * MapsKt")\n * \n * \n * package
kotlin.collections\n * \n * \n * \n * Returns the value for the given key, or the implicit default value for
this map.\n * By default no implicit value is provided for maps and a [NoSuchElementException] is thrown.\n * To
create a map with implicit default value use [withDefault] method.\n * \n * \n * @throws NoSuchElementException
when the map doesn't contain a value for the specified key and no implicit default was provided for that map.\n *
*\n * \n * @kotlin.jvm.JvmName("\n * getOrImplicitDefaultNullable")\n * \n * @PublishedApi\n * \n * internal fun <K, V> Map<K,
V>.getOrImplicitDefault(key: K): V {\n * if (this is MapWithDefault)\n * return
this.getOrImplicitDefault(key)\n * return getOrElseNullable(key, { throw NoSuchElementException("\n * Key $key
is missing in the map.") })\n * \n * \n * \n * Returns a wrapper of this read-only map, having the implicit default value
provided with the specified function [defaultValue].\n * \n * \n * This implicit default value is used when the original
map doesn't contain a value for the key specified\n * and a value is obtained with [Map.getValue] function, for
example when properties
are delegated to the map.\n * \n * \n * When this map already has an implicit default value provided with a former call to
[withDefault], it is being replaced by this call.\n * \n * \n * public fun <K, V> Map<K, V>.withDefault(defaultValue: (key:
K) -> V): Map<K, V> =\n * when (this) {\n * is MapWithDefault -> this.map.withDefault(defaultValue)\n *
else -> MapWithDefaultImpl(this, defaultValue)\n * }\n * \n * \n * \n * Returns a wrapper of this mutable map, having the
implicit default value provided with the specified function [defaultValue].\n * \n * \n * This implicit default value is used
when the original map doesn't contain a value for the key specified\n * and a value is obtained with [Map.getValue]
function, for example when properties are delegated to the map.\n * \n * \n * When this map already has an implicit
default value provided with a former call to [withDefault], it is being replaced by this call.\n *
*\n * \n * @kotlin.jvm.JvmName("\n * withDefaultMutable")\n * \n * public fun <K, V> MutableMap<K,
V>.withDefault(defaultValue:
(key: K) -> V): MutableMap<K, V> =\n * when (this) {\n * is MutableMapWithDefault ->
this.map.withDefault(defaultValue)\n * else -> MutableMapWithDefaultImpl(this, defaultValue)\n * }\n * \n * \n * \n * private interface MapWithDefault<K, out V> : Map<K, V> {\n * public val map: Map<K, V>\n * public fun
getOrImplicitDefault(key: K): V\n * \n * \n * private interface MutableMapWithDefault<K, V> : MutableMap<K, V>,
MapWithDefault<K, V> {\n * public override val map: MutableMap<K, V>\n * \n * \n * private class
MapWithDefaultImpl<K, out V>(public override val map: Map<K, V>, private val default: (key: K) -> V) :
MapWithDefault<K, V> {\n * override fun equals(other: Any?): Boolean = map.equals(other)\n * override fun
hashCode(): Int = map.hashCode()\n * override fun toString(): String = map.toString()\n * override val size: Int get()
= map.size\n * override fun isEmpty(): Boolean = map.isEmpty()\n * override fun containsKey(key: K): Boolean =
map.containsKey(key)\n * override fun
containsValue(value: @UnsafeVariance V): Boolean = map.containsValue(value)\n * override fun get(key: K): V?
= map.get(key)\n * override val keys: Set<K> get() = map.keys\n * override val values: Collection<V> get() =

```

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map.values\n  override val entries: Set<Map.Entry<K, V>> get() = map.entries\n\n  override fun
getOrDefault(key: K): V = map.getOrElseNullable(key, { default(key) })\n\nprivate class
MutableMapWithDefaultImpl<K, V>(public override val map: MutableMap<K, V>, private val default: (key: K) ->
V) : MutableMapWithDefault<K, V> {\n  override fun equals(other: Any?): Boolean = map.equals(other)\n
override fun hashCode(): Int = map.hashCode()\n  override fun toString(): String = map.toString()\n  override val
size: Int get() = map.size\n  override fun isEmpty(): Boolean = map.isEmpty()\n  override fun containsKey(key:
K): Boolean = map.containsKey(key)\n  override fun containsValue(value: @UnsafeVariance V): Boolean =
map.containsValue(value)\n
  override fun get(key: K): V? = map.get(key)\n  override val keys: MutableSet<K> get() = map.keys\n  override
val values: MutableCollection<V> get() = map.values\n  override val entries:
MutableSet<MutableMap.MutableEntry<K, V>> get() = map.entries\n\n  override fun put(key: K, value: V): V? =
map.put(key, value)\n  override fun remove(key: K): V? = map.remove(key)\n  override fun putAll(from:
Map<out K, V>) = map.putAll(from)\n  override fun clear() = map.clear()\n\n  override fun
getOrDefault(key: K): V = map.getOrElseNullable(key, { default(key) })\n\n"/*\n * Copyright 2010-
2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("CollectionsKt")\n\npackage
kotlin.collections\n\nimport kotlin.random.Random\n\n/**\n * Removes a single instance of the specified
element from this\n * collection, if it is present.\n * \n * Allows to overcome type-safety restriction of `remove` that
requires to pass an element of type `E`. \n * \n * @return `true` if the element has been successfully removed; `false`
if it was not present in the collection.\n */\n@kotlin.internal.InlineOnly\npublic inline fun
<@kotlin.internal.OnlyInputTypes T> MutableCollection<out T>.remove(element: T): Boolean =\n
@Suppress("UNCHECKED_CAST") (this as MutableCollection<T>).remove(element)\n\n/**\n * Removes all of
this collection's elements that are also contained in the specified collection.\n * \n * Allows to overcome type-safety
restriction of `removeAll` that requires to pass a collection of type `Collection<E>`. \n * \n * @return `true` if any of
the specified elements was removed from the collection, `false` if the collection was not modified.\n */\n
@kotlin.internal.InlineOnly\npublic inline fun <@kotlin.internal.OnlyInputTypes T> MutableCollection<out
T>.removeAll(elements:
Collection<T>): Boolean =\n  @Suppress("UNCHECKED_CAST") (this as
MutableCollection<T>).removeAll(elements)\n\n/**\n * Retains only the elements in this collection that are
contained in the specified collection.\n * \n * Allows to overcome type-safety restriction of `retainAll` that requires
to pass a collection of type `Collection<E>`. \n * \n * @return `true` if any element was removed from the collection,
`false` if the collection was not modified.\n */\n@kotlin.internal.InlineOnly\npublic inline fun
<@kotlin.internal.OnlyInputTypes T> MutableCollection<out T>.retainAll(elements: Collection<T>): Boolean =\n
@Suppress("UNCHECKED_CAST") (this as MutableCollection<T>).retainAll(elements)\n\n/**\n * Adds the
specified [element] to this mutable collection.\n */\n@kotlin.internal.InlineOnly\npublic inline operator fun <T>
MutableCollection<in T>.plusAssign(element: T) {\n  this.add(element)\n}\n\n/**\n * Adds all elements of the
given [elements] collection to this mutable collection.\n */\n
@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in T>.plusAssign(elements:
Iterable<T>) {\n  this.addAll(elements)\n}\n\n/**\n * Adds all elements of the given [elements] array to this
mutable collection.\n */\n
@kotlin.internal.InlineOnly\npublic inline operator fun <T> MutableCollection<in
T>.plusAssign(elements: Array<T>) {\n  this.addAll(elements)\n}\n\n/**\n * Adds all elements of the given
[elements] sequence to this mutable collection.\n */\n
@kotlin.internal.InlineOnly\npublic inline operator fun <T>
MutableCollection<in T>.plusAssign(elements: Sequence<T>) {\n  this.addAll(elements)\n}\n\n/**\n * Removes a
single instance of the specified [element] from this mutable collection.\n */\n
@kotlin.internal.InlineOnly\npublic
inline operator fun <T> MutableCollection<in T>.minusAssign(element: T) {\n  this.remove(element)\n}\n\n/**\n
* Removes all elements contained in the given [elements] collection from this mutable collection.\n */\n
@kotlin.internal.InlineOnly\npublic

```

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inline operator fun <T> MutableCollection<in T>.minusAssign(elements: Iterable<T>) {
    this.removeAll(elements)
}

@kotlin.internal.InlineOnly
public inline operator fun <T> MutableCollection<in T>.minusAssign(elements: Array<T>) {
    this.removeAll(elements)
}

@kotlin.internal.InlineOnly
public inline operator fun <T> MutableCollection<in T>.minusAssign(elements: Sequence<T>) {
    this.removeAll(elements)
}

public fun <T> MutableCollection<in T>.addAll(elements: Iterable<T>): Boolean {
    when (elements) {
        is Collection -> return addAll(elements)
        else -> {
            var result: Boolean = false
            for (item in elements)
                if (add(item)) result = true
            return result
        }
    }
}

public fun <T> MutableCollection<in T>.addAll(elements: Sequence<T>): Boolean {
    var result: Boolean = false
    for (item in elements)
        if (add(item)) result = true
    return result
}

public fun <T> MutableCollection<in T>.addAll(elements: Array<out T>): Boolean {
    return addAll(elements.asList())
}

public fun <T> MutableCollection<in T>.removeAll(elements: Iterable<T>): Boolean {
    return removeAll(elements.convertToSetForSetOperationWith(this))
}

public fun <T> MutableCollection<in T>.removeAll(elements: Sequence<T>): Boolean {
    val set = elements.convertToSetForSetOperation()
    return set.isNotEmpty() && removeAll(set)
}

public fun <T> MutableCollection<in T>.removeAll(elements: Array<out T>): Boolean {
    return removeAll(elements.convertToSetForSetOperation())
}

public fun <T> MutableCollection<in T>.retainAll(elements: Iterable<T>): Boolean {
    return retainAll(elements.convertToSetForSetOperationWith(this))
}

public fun <T> MutableCollection<in T>.retainAll(elements: Sequence<T>): Boolean {
    val set = elements.convertToSetForSetOperation()
    if (set.isNotEmpty())
        return retainAll(set)
    else
        return retainNothing()
}

private fun MutableCollection<*>.retainNothing(): Boolean {
    val result = isEmpty()
    clear()
    return result
}

public fun <T> MutableIterable<T>.removeAll(predicate: (T) -> Boolean): Boolean = filterInPlace(predicate, true)

public fun <T> MutableIterable<T>.retainAll(predicate: (T) -> Boolean): Boolean = filterInPlace(predicate, false)

private fun <T> MutableIterable<T>.filterInPlace(predicate: (T) -> Boolean, predicateResultToRemove: Boolean): Boolean {
    var result = false
    with(iterator()) {
        while (hasNext())
            if (predicate(next()) == predicateResultToRemove)
                remove()
            result = true
    }
    return result
}

In Kotlin one should use the [MutableList.removeAt] function instead.
@Deprecated("Use removeAt(index)

```

```

instead.\", ReplaceWith(\"removeAt(index)\"), level =
DeprecationLevel.ERROR)\n@kotlin.internal.InlineOnly\npublic
inline fun <T> MutableList<T>.remove(index: Int): T = removeAt(index)\n\n/**\n * Removes the first element
from this mutable list and returns that removed element, or throws [NoSuchElementException] if this list is empty.\n
*\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeFirst(): T = if (isEmpty()) throw NoSuchElementException(\"List is empty.\") else
removeAt(0)\n\n/**\n * Removes the first element from this mutable list and returns that removed element, or
returns `null` if this list is empty.\n
*\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeFirstOrNull(): T? = if (isEmpty()) null else removeAt(0)\n\n/**\n * Removes the last
element from this mutable list and returns that removed element, or throws [NoSuchElementException] if this list is
empty.\n
*\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic
fun <T> MutableList<T>.removeLast(): T = if (isEmpty()) throw NoSuchElementException(\"List is empty.\") else
removeAt(lastIndex)\n\n/**\n * Removes the last element from this mutable list and returns that removed element,
or returns `null` if this list is empty.\n
*\n@SinceKotlin(\"1.4\")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun <T>
MutableList<T>.removeLastOrNull(): T? = if (isEmpty()) null else removeAt(lastIndex)\n\n/**\n * Removes all
elements from this [MutableList] that match the given [predicate].\n
*\n * @return `true` if any element was removed from this collection, or `false` when no elements were removed and collection was not modified.\n
*\npublic fun <T> MutableList<T>.removeAll(predicate: (T) -> Boolean): Boolean = filterInPlace(predicate,
true)\n\n/**\n * Retains only elements of this [MutableList] that match the given [predicate].\n
*\n * @return `true` if any element was removed from this collection, or `false` when all elements were retained
and collection was not modified.\n
*\npublic fun <T> MutableList<T>.retainAll(predicate: (T) -> Boolean):
Boolean = filterInPlace(predicate, false)\n\nprivate fun <T> MutableList<T>.filterInPlace(predicate: (T) ->
Boolean, predicateResultToRemove: Boolean): Boolean {\n    if (this !is RandomAccess)\n        return (this as
MutableIterable<T>).filterInPlace(predicate, predicateResultToRemove)\n\n    var writeIndex: Int = 0\n    for
(readIndex in 0..lastIndex) {\n        val element = this[readIndex]\n        if (predicate(element) ==
predicateResultToRemove)\n            continue\n\n        if (writeIndex != readIndex)\n            this[writeIndex] =
element\n\n        writeIndex++\n    }\n    if (writeIndex < size) {\n        for (removeIndex in lastIndex downTo
writeIndex)\n            removeAt(removeIndex)\n        return true\n    } else {\n        return false\n    }\n}\n\n\"/>\n\n *
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*\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName(\"CollectionsKt\")\n\npackage
kotlin.collections\n\nprivate open class ReversedListReadOnly<out T>(private val delegate: List<T>) :
AbstractList<T>() {\n    override val size: Int get() = delegate.size\n    override fun get(index: Int): T =
delegate[reverseElementIndex(index)]\n}\n\nprivate class ReversedList<T>(private val delegate: MutableList<T>) :
AbstractMutableList<T>() {\n    override val size: Int get() = delegate.size\n    override fun get(index: Int): T =
delegate[reverseElementIndex(index)]\n\n    override fun clear() = delegate.clear()\n    override fun removeAt(index:
Int): T = delegate.removeAt(reverseElementIndex(index))\n\n    override fun set(index: Int, element: T): T =
delegate.set(reverseElementIndex(index), element)\n\n    override fun add(index: Int, element: T) {\n
delegate.add(reversePositionIndex(index),
element)\n    }\n}\n\nprivate fun List<*>.reverseElementIndex(index: Int) =\n    if (index in 0..lastIndex) lastIndex -
index else throw IndexOutOfBoundsException(\"Element index $index must be in range
[${0..lastIndex}].\")\n\nprivate fun List<*>.reversePositionIndex(index: Int) =\n    if (index in 0..size) size - index
else throw IndexOutOfBoundsException(\"Position index $index must be in range
[${0..size}].\")\n\n\n/**\n * Returns a reversed read-only view of the original List.\n
*\n * All changes made in the original list will be reflected in the reversed one.\n
*\n * @sample samples.collections.ReversedViews.asReversedList\n
*\npublic fun <T>
List<T>.asReversed(): List<T> = ReversedListReadOnly(this)\n\n/**\n * Returns a reversed mutable view of the

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original mutable List.\n * All changes made in the original list will be reflected in the reversed one and vice versa.\n
* @sample samples.collections.ReversedViews.asReversedMutableList\n
*\n@kotlin.jvm.JvmName("\nasReversedMutable")\n\npublic
fun <T> MutableList<T>.asReversed(): MutableList<T> = ReversedList(this)\n\n"/*\n * Copyright 2010-2018
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("\SequencesKt")\n@file:OptIn(Experimenta
lTypeInference::class)\n\npackage kotlin.sequences\n\nimport kotlin.coroutines.*\nimport
kotlin.coroutines.intrinsics.*\nimport kotlin.experimental.ExperimentalTypeInference\n\n/**\n * Builds a
[Sequence] lazily yielding values one by one.\n *\n * @see kotlin.sequences.generateSequence\n *\n * @sample
samples.collections.Sequences.Building.buildSequenceYieldAll\n * @sample
samples.collections.Sequences.Building.buildFibonacciSequence\n *\n@SinceKotlin("1.3")\n\npublic fun <T>
sequence(@BuilderInference block: suspend SequenceScope<T>().() -> Unit): Sequence<T> = Sequence {
iterator(block)
}\n\n/**\n * Builds an [Iterator] lazily yielding values one by one.\n *\n * @sample
samples.collections.Sequences.Building.buildIterator\n * @sample samples.collections.Iterables.Building.iterable\n
*\n@SinceKotlin("1.3")\n\npublic fun <T> iterator(@BuilderInference block: suspend SequenceScope<T>().() ->
Unit): Iterator<T> {\n    val iterator = SequenceBuilderIterator<T>()\n    iterator.nextStep =
block.createCoroutineUnintercepted(receiver = iterator, completion = iterator)\n    return iterator\n}\n\n/**\n * The
scope for yielding values of a [Sequence] or an [Iterator], provides [yield] and [yieldAll] suspension functions.\n *\n
* @see sequence\n * @see iterator\n *\n * @sample
samples.collections.Sequences.Building.buildSequenceYieldAll\n * @sample
samples.collections.Sequences.Building.buildFibonacciSequence\n
*\n@RestrictsSuspension\n@SinceKotlin("1.3")\n\npublic abstract class SequenceScope<in T> internal
constructor() {\n    /**\n     * Yields a value to the [Iterator]
being built and suspends\n     * until the next value is requested.\n     *\n     * @sample
samples.collections.Sequences.Building.buildSequenceYieldAll\n     * @sample
samples.collections.Sequences.Building.buildFibonacciSequence\n     *\n     public abstract suspend fun yield(value:
T)\n     *\n     * Yields all values from the `iterator` to the [Iterator] being built\n     * and suspends until all these
values are iterated and the next one is requested.\n     *\n     * The sequence of values returned by the given iterator
can be potentially infinite.\n     *\n     * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n
*\n     public abstract suspend fun yieldAll(iterator: Iterator<T>)\n     *\n     * Yields a collections of values to
the [Iterator] being built\n     * and suspends until all these values are iterated and the next one is requested.\n
     *\n     * @sample samples.collections.Sequences.Building.buildSequenceYieldAll\n     *\n     public
suspend fun yieldAll(elements: Iterable<T>) {\n        if (elements is Collection && elements.isEmpty()) return\n
        return yieldAll(elements.iterator())\n    }\n}\n\n/**\n * Yields potentially infinite sequence of values to the
[Iterator] being built\n * and suspends until all these values are iterated and the next one is requested.\n *\n *
The sequence can be potentially infinite.\n *\n * @sample
samples.collections.Sequences.Building.buildSequenceYieldAll\n *\n     public suspend fun yieldAll(sequence:
Sequence<T>) = yieldAll(sequence.iterator())\n}\n\nprivate typealias State = Int\nprivate const val
State_NotReady: State = 0\nprivate const val State_ManyNotReady: State = 1\nprivate const val State_ManyReady:
State = 2\nprivate const val State_Ready: State = 3\nprivate const val State_Done: State = 4\nprivate const val
State_Failed: State = 5\nprivate class SequenceBuilderIterator<T> : SequenceScope<T>(), Iterator<T>,
Continuation<Unit> {\n
    private var state = State_NotReady\n    private var nextValue: T? = null\n    private var nextIterator: Iterator<T>?
= null\n    var nextStep: Continuation<Unit>? = null\n\n    override fun hasNext(): Boolean {\n        while (true) {\n
            when (state) {\n                State_NotReady -> {\n                    State_ManyNotReady ->\n                        if
(nextIterator!!.hasNext()) {\n                            state = State_ManyReady\n                            return true\n
                        }\n

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else {\n
    nextIterator = null\n
    State_Done -> return false\n
State_Ready, State_ManyReady -> return true\n
    else -> throw exceptionalState()\n
}\n\n
state = State_Failed\n
    val step = nextStep!!\n
    nextStep = null\n
    step.resume(Unit)\n
}\n
}\n\n
override fun next(): T {\n
    when (state) {\n
        State_NotReady, State_ManyNotReady
    -> return nextNotReady()\n
        State_ManyReady -> {\n
            state = State_ManyNotReady\n
return nextIterator!!.next()\n
        }\n
        State_Ready -> {\n
            state = State_NotReady\n
@Suppress("UNCHECKED_CAST")\n
            val result = nextValue as T\n
            nextValue = null\n
return result\n
        }\n
        else -> throw exceptionalState()\n
    }\n
}\n\n
private fun nextNotReady(): T {\n
    if (!hasNext()) throw NoSuchElementException() else return next()\n
}\n\n
private fun exceptionalState(): Throwable = when (state) {\n
    State_Done -> NoSuchElementException()\n
    State_Failed -> IllegalStateException("Iterator has failed.")\n
    else -> IllegalStateException("Unexpected state of the iterator: $state")\n
}\n\n\n
override suspend fun yield(value: T) {\n
    nextValue = value\n
    state = State_Ready\n
return suspendCoroutineUninterceptedOrReturn { c ->{\n
    nextStep = c\n
    COROUTINE_SUSPENDED\n
}\n
}\n\n
override suspend fun yieldAll(iterator: Iterator<T>) {\n
    if (!iterator.hasNext()) return\n
    nextIterator = iterator\n
    state = State_ManyReady\n
return suspendCoroutineUninterceptedOrReturn { c ->{\n
    nextStep = c\n
    COROUTINE_SUSPENDED\n
}\n
}\n\n
// Completion continuation implementation\n
override fun resumeWith(result: Result<Unit>) {\n
    result.getOrNull() // just rethrow exception if it is there\n
    state = State_Done\n
}\n\n
override val context: CoroutineContext\n
    get() = EmptyCoroutineContext\n
}\n\n
/*\n
 * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n
 * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
 */\n\n
package kotlin.collections\n\n\n
internal fun checkWindowSizeStep(size: Int, step: Int) {\n
    require(size > 0 && step > 0) {\n
        if (size != step)\n
            "Both size $size and step $step must be greater than zero."
        else\n
            "size $size must be greater than zero."
    }\n
}\n\n\n
internal fun <T> Sequence<T>.windowedSequence(size: Int, step: Int, partialWindows: Boolean, reuseBuffer: Boolean): Sequence<List<T>> {\n
    checkWindowSizeStep(size, step)\n
    return Sequence { windowedIterator(iterator(), size, step, partialWindows, reuseBuffer) }\n
}\n\n\n
internal fun <T> windowedIterator(iterator: Iterator<T>, size: Int, step: Int, partialWindows: Boolean, reuseBuffer: Boolean): Iterator<List<T>> {\n
    if (!iterator.hasNext()) return EmptyIterator\n
    return iterator<List<T>> {\n
        val bufferInitialCapacity = size.coerceAtMost(1024)\n
        val gap = step - size\n
        if (gap >= 0) {\n
            var buffer = ArrayList<T>(bufferInitialCapacity)\n
            var skip = 0\n
            for (e in iterator) {\n
                if (skip > 0) { skip -= 1; continue }\n
                buffer.add(e)\n
                if (buffer.size == size) {\n
                    yield(buffer)\n
                    if (reuseBuffer) buffer.clear() else buffer = ArrayList(size)\n
                    skip = gap\n
                }\n
            }\n
            if (buffer.isNotEmpty()) {\n
                if (partialWindows || buffer.size == size)\n
                    yield(buffer)\n
            } else {\n
                var buffer = RingBuffer<T>(bufferInitialCapacity)\n
                for (e in iterator) {\n
                    buffer.add(e)\n
                    if (buffer.isFull()) {\n
                        if (buffer.size < size) {\n
                            buffer = buffer.expanded(maxCapacity = size); continue\n
                        }\n
                        yield(if (reuseBuffer) buffer else ArrayList(buffer))\n
                        buffer.removeFirst(step)\n
                    }\n
                }\n
                if (partialWindows) {\n
                    while (buffer.size > step) {\n
                        yield(if (reuseBuffer) buffer else ArrayList(buffer))\n
                        buffer.removeFirst(step)\n
                    }\n
                }\n
            }\n
        }\n
    }\n
}\n\n\n
internal class MovingSubList<out E>(private val list: List<E>) : AbstractList<E>(), RandomAccess {\n
    private var fromIndex: Int = 0\n
    private var _size: Int = 0\n
    fun move(fromIndex: Int, toIndex: Int) {\n
        checkRangeIndexes(fromIndex, toIndex, list.size)\n
        this.fromIndex = fromIndex\n
        this._size = toIndex - fromIndex\n
    }\n\n
    override fun get(index: Int): E {\n
        checkElementIndex(index, _size)\n
        return list[fromIndex + index]\n
    }\n\n
    override val size: Int get() = _size\n
}\n\n\n
/*\n
 * Provides ring buffer implementation.\n
 * Buffer overflow is not allowed so [add] doesn't overwrite tail but raises an exception.\n
 */\n\n
private class RingBuffer<T>(private val buffer: Array<Any?>, filledSize: Int) : AbstractList<T>(), RandomAccess {\n

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    init {
        require(filledSize >= 0) { "ring buffer filled size should not be negative but it is $filledSize" }
        require(filledSize <= buffer.size) { "ring buffer filled size: $filledSize cannot be larger than the buffer size:
        ${buffer.size}" }
        constructor(capacity: Int) : this(arrayOfNulls<Any?>(capacity), 0)
        private val capacity = buffer.size
        private var startIndex: Int = 0
        override var size: Int = filledSize
        private set
        override fun get(index: Int): T {
            checkElementIndex(index, size)
            @Suppress("UNCHECKED_CAST") return buffer[startIndex.forward(index)] as T
        }
        fun isFull() = size == capacity
        override fun iterator(): Iterator<T> = object : AbstractIterator<T>() {
            private var count = size
            private var index = startIndex
            override fun computeNext() {
                if (count == 0) {
                    done()
                } else {
                    @Suppress("UNCHECKED_CAST") setNext(buffer[index] as T)
                    index = index.forward(1)
                    count--
                }
            }
        }
        @Suppress("UNCHECKED_CAST") override fun <T> toArray(array: Array<T>): Array<T> {
            val result: Array<T?> = if (array.size < this.size) array.copyOf(this.size) else array as Array<T?>
            val size = this.size
            var widx = 0
            var idx = startIndex
            while (widx < size && idx < capacity) {
                result[widx] = buffer[idx] as T
                widx++
                idx++
            }
            idx = 0
            while (widx < size) {
                result[widx] = buffer[idx] as T
                widx++
                idx++
            }
            if (result.size > this.size) result[this.size] = null
            return result as Array<T>
        }
        override fun toArray(): Array<Any?> {
            return toArray(arrayOfNulls(size))
        }
        /**
         * Creates a new ring buffer with the capacity equal to the minimum of [maxCapacity] and 1.5 * [capacity].
         * The returned ring buffer contains the same elements as this ring buffer.
         */
        fun expanded(maxCapacity: Int): RingBuffer<T> {
            val newCapacity = (capacity + (capacity shr 1) + 1).coerceAtMost(maxCapacity)
            val newBuffer = if (startIndex == 0) buffer.copyOf(newCapacity) else toArray(arrayOfNulls(newCapacity))
            return RingBuffer(newBuffer, size)
        }
        /**
         * Add [element] to the buffer or fail with [IllegalStateException] if no free space available in the buffer
         */
        fun add(element: T) {
            if (isFull()) {
                throw IllegalStateException("ring buffer is full")
            }
            buffer[startIndex.forward(size)] = element
            size++
        }
        /**
         * Removes [n] first elements from the buffer or fails with [IllegalArgumentException] if not enough elements in the buffer to remove
         */
        fun removeFirst(n: Int) {
            require(n >= 0) { "n shouldn't be negative but it is $n" }
            require(n <= size) { "n shouldn't be greater than the buffer size: n = $n, size = $size" }
            if (n > 0) {
                val start = startIndex
                val end = start.forward(n)
                if (start > end) {
                    buffer.fill(null, start, capacity)
                } else {
                    buffer.fill(null, 0, end)
                }
                startIndex = end
                size -= n
            }
        }
        @Suppress("NOTHING_TO_INLINE") private inline fun Int.forward(n: Int): Int = (this + n) % capacity
    }
}
/**
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 */
package kotlin.collections
// UByteArray
=====
@ExperimentalUnsignedTypes
private fun partition(
    array: UByteArray, left: Int, right: Int): Int {
    var i = left
    var j = right
    val pivot = array[(left + right) / 2]
    while (i <= j) {
        while (array[i] < pivot) i++
        while (array[j] > pivot) j--
        if (i <= j) {
            val tmp = array[i]
            array[i] = array[j]
            array[j] = tmp
            i++
            j--
        }
    }
    return i
}
@ExperimentalUnsignedTypes
private fun quickSort(
    array: UByteArray, left: Int, right: Int) {
    val index = partition(array, left, right)
    if (left < index - 1) quickSort(array, left, index - 1)
    if (index < right) quickSort(array, index, right)
}
// UShortArray
=====
@ExperimentalUnsignedTypes
private fun partition(
    array: UShortArray, left: Int, right: Int): Int {
    var i = left
    var j = right
    val pivot = array[(left + right) / 2]
    while (i <= j) {
        while (array[i] < pivot) i++
        while (array[j] > pivot) j--
        if (i <= j) {
            val tmp = array[i]
            array[i] = array[j]
            array[j] = tmp
            i++
            j--
        }
    }
    return i
}
@ExperimentalUnsignedTypes
private fun quickSort(
    array: UShortArray, left: Int, right: Int) {
    val

```

```

index = partition(array, left, right)\n  if (left < index - 1)\n    quickSort(array, left, index - 1)\n  if (index <
right)\n    quickSort(array, index, right)\n}\n\n// UIntArray
=====
\n@Exp
erimentalUnsignedTypes\nprivate fun partition(\n  array: UIntArray, left: Int, right: Int): Int {\n  var i = left\n  var j = right\n  val pivot = array[(left + right) / 2]\n  while (i <= j)
{\n  while (array[i] < pivot)\n    i++\n  while (array[j] > pivot)\n    j--\n  if (i <= j) {\n
val tmp = array[i]\n    array[i] = array[j]\n    array[j] = tmp\n    i++\n    j--\n  }\n }\n
return i}\n}\n\n@ExperimentalUnsignedTypes\nprivate fun quickSort(\n  array: UIntArray, left: Int, right: Int) {\n
val index = partition(array, left, right)\n  if (left < index - 1)\n    quickSort(array, left, index - 1)\n  if (index <
right)\n    quickSort(array, index, right)\n}\n\n// ULongArray
=====
\n@Exp
erimentalUnsignedTypes\nprivate fun partition(\n  array: ULongArray, left: Int, right: Int): Int {\n  var i = left\n
var j = right\n  val pivot = array[(left + right) / 2]\n  while (i <= j) {\n  while (array[i] < pivot)\n    i++\n
while (array[j] > pivot)\n    j--\n  if (i
<= j) {\n    val tmp = array[i]\n    array[i] = array[j]\n    array[j] = tmp\n    i++\n    j--\n  }\n }\n
return i}\n}\n\n@ExperimentalUnsignedTypes\nprivate fun quickSort(\n  array: ULongArray, left: Int,
right: Int) {\n  val index = partition(array, left, right)\n  if (left < index - 1)\n    quickSort(array, left, index - 1)\n
if (index < right)\n    quickSort(array, index, right)\n}\n\n\n// Interfaces
=====
\n/**
* Sorts the given array using qsort algorithm.\n */\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array:
UByteArray, fromIndex: Int, toIndex: Int) = quickSort(array, fromIndex, toIndex -
1)\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array: UShortArray, fromIndex: Int, toIndex: Int) =
quickSort(array, fromIndex, toIndex - 1)\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array: UIntArray,
fromIndex: Int, toIndex:
Int) = quickSort(array, fromIndex, toIndex - 1)\n@ExperimentalUnsignedTypes\ninternal fun sortArray(array:
ULongArray, fromIndex: Int, toIndex: Int) = quickSort(array, fromIndex, toIndex - 1),"/**
* Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport
kotlin.internal.InlineOnly\n\n/**
* Compares this object with the specified object for order. Returns zero if this
object is equal\n * to the specified [other] object, a negative number if it's less than [other], or a positive number\n *
if it's greater than [other].\n */\n * This function delegates to [Comparable.compareTo] and allows to call it in infix
form.\n */\n@InlineOnly\n@SinceKotlin("1.6")\npublic inline infix fun <T> Comparable<T>.compareTo(other:
T): Int =\n  this.compareTo(other)\n","/**
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Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.contracts\n\nimport
kotlin.internal.ContractsDsl\n\nimport kotlin.internal.InlineOnly\n\n/**
* This marker distinguishes the
experimental contract declaration API and is used to opt-in for that feature\n * when declaring contracts of user
functions.\n */\n * Any usage of a declaration annotated with `@ExperimentalContracts` must be accepted either
by\n * annotating that usage with the [OptIn] annotation, e.g. `@OptIn(ExperimentalContracts::class)`,\n * or by
using the compiler argument `-opt-in=kotlin.contracts.ExperimentalContracts`.\n
*/\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin("1.3")\n@RequiresOptIn\n@MustBeDocumente
d\npublic annotation class ExperimentalContracts\n\n/**
* Provides a scope, where the functions of the contract
DSL, such as [returns], [callsInPlace], etc.,\n * can be used to
describe the contract of a function.\n */\n * This type is used as a receiver type of the lambda function passed to the
[contract] function.\n */\n * @see contract\n
*/\n@ContractsDsl\n@ExperimentalContracts\n@SinceKotlin("1.3")\npublic interface ContractBuilder {\n  /**
* Describes a situation when a function returns normally, without any exceptions thrown.\n */\n * Use
[SimpleEffect.implies] function to describe a conditional effect that happens in such case.\n */\n * //

```

```

@sample samples.contracts.returnsContract\n @ContractsDsl public fun returns(): Returns\n\n /**\n *
Describes a situation when a function returns normally with the specified return [value].\n *\n * The possible
values of [value] are limited to `true`, `false` or `null`.\n *\n * Use [SimpleEffect.implies] function to describe a
conditional effect that happens in such case.\n *\n */\n // @sample samples.contracts.returnsTrueContract\n
// @sample samples.contracts.returnsFalseContract\n
// @sample samples.contracts.returnsNullContract\n @ContractsDsl public fun returns(value: Any?):
Returns\n\n /**\n * Describes a situation when a function returns normally with any value that is not `null`.\n
*\n * Use [SimpleEffect.implies] function to describe a conditional effect that happens in such case.\n *\n
*/\n // @sample samples.contracts.returnsNotNullContract\n @ContractsDsl public fun returnsNotNull():
ReturnsNotNull\n\n /**\n * Specifies that the function parameter [lambda] is invoked in place.\n *\n * This
contract specifies that:\n * 1. the function [lambda] can only be invoked during the call of the owner function,\n
*\n * and it won't be invoked after that owner function call is completed;\n * 2. _(optionally)_ the function [lambda]
is invoked the amount of times specified by the [kind] parameter,\n * see the [InvocationKind] enum for possible
values.\n *\n *
A function declaring the `callsInPlace` effect must be inline.\n *\n */\n // @sample
samples.contracts.callsInPlaceAtMostOnceContract\n * @sample
samples.contracts.callsInPlaceAtLeastOnceContract\n * @sample
samples.contracts.callsInPlaceExactlyOnceContract\n * @sample
samples.contracts.callsInPlaceUnknownContract\n *\n @ContractsDsl public fun <R> callsInPlace(lambda:
Function<R>, kind: InvocationKind = InvocationKind.UNKNOWN): CallsInPlace\n\n /**\n * Specifies how
many times a function invokes its function parameter in place.\n *\n * See [ContractBuilder.callsInPlace] for the
details of the call-in-place function contract.\n
*/\n @ContractsDsl\n @ExperimentalContracts\n @SinceKotlin("1.3")\n public enum class InvocationKind {\n
/**\n * A function parameter will be invoked one time or not invoked at all.\n *\n */\n // @sample
samples.contracts.callsInPlaceAtMostOnceContract\n @ContractsDsl AT_MOST_ONCE,\n\n /**\n * A
function parameter
will be invoked one or more times.\n *\n */\n // @sample
samples.contracts.callsInPlaceAtLeastOnceContract\n @ContractsDsl AT_LEAST_ONCE,\n\n /**\n * A
function parameter will be invoked exactly one time.\n *\n */\n // @sample
samples.contracts.callsInPlaceExactlyOnceContract\n @ContractsDsl EXACTLY_ONCE,\n\n /**\n * A
function parameter is called in place, but it's unknown how many times it can be called.\n *\n */\n // @sample
samples.contracts.callsInPlaceUnknownContract\n @ContractsDsl UNKNOWN\n\n /**\n * Specifies the
contract of a function.\n *\n * The contract description must be at the beginning of a function and have at least one
effect.\n *\n * Only the top-level functions can have a contract for now.\n *\n * @param builder the lambda where
the contract of a function is described with the help of the [ContractBuilder] members.\n *\n */\n // @sample
samples.contracts.returnsContract\n * @sample samples.contracts.returnsTrueContract\n *
@sample samples.contracts.returnsFalseContract\n * @sample samples.contracts.returnsNullContract\n * @sample
samples.contracts.returnsNotNullContract\n * @sample samples.contracts.callsInPlaceAtMostOnceContract\n *
@sample samples.contracts.callsInPlaceAtLeastOnceContract\n * @sample
samples.contracts.callsInPlaceExactlyOnceContract\n * @sample
samples.contracts.callsInPlaceUnknownContract\n *\n @ContractsDsl\n @ExperimentalContracts\n @InlineOnly\n @
SinceKotlin("1.3")\n @Suppress("UNUSED_PARAMETER")\n public inline fun contract(builder:
ContractBuilder.() -> Unit) { }\n\n /**\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n *\n */\n package kotlin.coroutines\n\n /**\n * Marks coroutine context element that
intercepts coroutine continuations.\n * The coroutines framework uses [ContinuationInterceptor.Key] to retrieve the
interceptor

```

```

and\n * intercepts all coroutine continuations with [interceptContinuation] invocations.\n *\n *
[ContinuationInterceptor] behaves like a [polymorphic element][AbstractCoroutineContextKey], meaning that\n *
its implementation delegates [get][CoroutineContext.Element.get] and
[minusKey][CoroutineContext.Element.minusKey]\n * to [getPolymorphicElement] and [minusPolymorphicKey]
respectively.\n * [ContinuationInterceptor] subtypes can be extracted from the coroutine context using either
[ContinuationInterceptor.Key]\n * or subtype key if it extends [AbstractCoroutineContextKey].\n
*\n *@SinceKotlin("1.3")\npublic interface ContinuationInterceptor : CoroutineContext.Element {\n /**\n *
The key that defines *the* context interceptor.\n * companion object Key :
CoroutineContext.Key<ContinuationInterceptor>\n\n /**\n * Returns continuation that wraps the original
[continuation], thus intercepting all resumptions.\n * This function is invoked by coroutine framework
when needed and the resulting continuations are\n * cached internally per each instance of the original
[continuation].\n *\n * This function may simply return original [continuation] if it does not want to intercept
this particular continuation.\n *\n * When the original [continuation] completes, coroutine framework invokes
[releaseInterceptedContinuation]\n * with the resulting continuation if it was intercepted, that is if
`interceptContinuation` had previously\n * returned a different continuation instance.\n *\n public fun <T>
interceptContinuation(continuation: Continuation<T>): Continuation<T>\n\n /**\n * Invoked for the
continuation instance returned by [interceptContinuation] when the original\n * continuation completes and will
not be used anymore. This function is invoked only if [interceptContinuation]\n * had returned a different
continuation instance from the one it was invoked with.\n *\n * Default implementation
does nothing.\n *\n * @param continuation Continuation instance returned by this interceptor's
[interceptContinuation] invocation.\n *\n public fun releaseInterceptedContinuation(continuation:
Continuation<*>) {\n /** do nothing by default *\n }\n\n public override operator fun <E :
CoroutineContext.Element> get(key: CoroutineContext.Key<E>): E? {\n // getPolymorphicKey specialized for
ContinuationInterceptor key\n @OptIn(ExperimentalStdlibApi::class)\n if (key is
AbstractCoroutineContextKey<*, *>) {\n @Suppress("UNCHECKED_CAST")\n return if
(key.isSubKey(this.key)) key.tryCast(this) as? E else null\n }\n @Suppress("UNCHECKED_CAST")\n
return if (ContinuationInterceptor === key) this as E else null\n }\n\n public override fun minusKey(key:
CoroutineContext.Key<*>): CoroutineContext {\n // minusPolymorphicKey specialized for
ContinuationInterceptor key\n @OptIn(ExperimentalStdlibApi::class)\n
if (key is AbstractCoroutineContextKey<*, *>) {\n return if (key.isSubKey(this.key) &&
key.tryCast(this) != null) EmptyCoroutineContext else this\n }\n return if (ContinuationInterceptor ===
key) EmptyCoroutineContext else this\n }\n}\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n *\n\npackage kotlin.coroutines\n\n/**\n * Persistent context for the
coroutine. It is an indexed set of [Element] instances.\n * An indexed set is a mix between a set and a map.\n *
Every element in this set has a unique [Key].\n *\n *@SinceKotlin("1.3")\npublic interface CoroutineContext {\n\n /**\n * Returns the element with the given [key] from this context or `null`.\n *\n public operator fun <E :
Element> get(key: Key<E>): E?\n\n /**\n * Accumulates entries
of this context starting with [initial] value and applying [operation]\n * from left to right to current accumulator
value and each element of this context.\n *\n public fun <R> fold(initial: R, operation: (R, Element) -> R):
R\n\n /**\n * Returns a context containing elements from this context and elements from other [context].\n *
The elements from this context with the same key as in the other one are dropped.\n *\n public operator fun
plus(context: CoroutineContext): CoroutineContext =\n if (context === EmptyCoroutineContext) this else // fast
path -- avoid lambda creation\n context.fold(this) { acc, element ->\n val removed =
acc.minusKey(element.key)\n if (removed === EmptyCoroutineContext) element else {\n //
make sure interceptor is always last in the context (and thus is fast to get when present)\n val interceptor
= removed[ContinuationInterceptor]\n

```

```

        if (interceptor == null) CombinedContext(removed, element) else {
            removed.minusKey(ContinuationInterceptor)
            CombinedContext(element, interceptor) else {
                if (left == EmptyCoroutineContext)
                    CombinedContext(CombinedContext(left, element),
                    interceptor)
            }
        }
    }

    * Returns a context containing elements from this
    context, but without an element with the specified [key].
    public fun minusKey(key: Key<*>):
    CoroutineContext

    * Key for the elements of [CoroutineContext]. [E] is a type of element with this
    key.
    public interface Key<E : Element>

    * An element of the [CoroutineContext]. An
    element of the coroutine context is a singleton context by itself.
    public interface Element :
    CoroutineContext {

    * A key of this coroutine context element.
    *
    public val key: Key<*>
    public override operator fun <E : Element> get(key: Key<E>): E?

    @Suppress("UNCHECKED_CAST")
    if (this.key == key) this as E else null

    public
    override fun <R> fold(initial: R, operation: (R, Element) -> R): R =
    operation(initial, this)

    public
    override fun minusKey(key: Key<*>): CoroutineContext =
    if (this.key == key) EmptyCoroutineContext
    else this
    }

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    * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.

    package kotlin.coroutines
    import kotlin.coroutines.CoroutineContext.Element
    import
    kotlin.coroutines.CoroutineContext.Key

    * Base class for [CoroutineContext.Element] implementations.
    *
    @SinceKotlin("1.3")
    public abstract class AbstractCoroutineContextElement(
    public
    override val key: Key<*>) : Element {

    * Base class for [CoroutineContext.Key] associated with
    polymorphic [CoroutineContext.Element] implementation.
    * Polymorphic element implementation implies
    delegating its [get][Element.get] and [minusKey][Element.minusKey]
    to [getPolymorphicElement] and [minusPolymorphicKey]
    respectively.
    * Polymorphic elements can be extracted from the coroutine context
    using both element key and its supertype key.
    * Example of polymorphic elements:
    * ```
    * open class
    BaseElement : CoroutineContext.Element {
    *     companion object Key : CoroutineContext.Key<BaseElement>
    *     override val key: CoroutineContext.Key<*> get() = Key
    *     // It is important to use getPolymorphicKey and
    minusPolymorphicKey
    *     override fun <E : CoroutineContext.Element> get(key: CoroutineContext.Key<E>):
    E? = getPolymorphicElement(key)
    *     override fun minusKey(key: CoroutineContext.Key<*>):
    CoroutineContext = minusPolymorphicKey(key)
    }

    * class DerivedElement : BaseElement() {
    *     companion object Key :
    AbstractCoroutineContextKey<BaseElement, DerivedElement>(BaseElement, { it as? DerivedElement })
    * }

    * // Now it is possible to query both `BaseElement` and `DerivedElement`
    * someContext[BaseElement] // Returns
    BaseElement?, non-null both for BaseElement and DerivedElement instances
    * someContext[DerivedElement] //
    Returns DerivedElement?, non-null only for DerivedElement instance
    * ```
    * @param B base class of a
    polymorphic element
    * @param baseKey an instance of base key
    * @param E element type associated with the
    current key
    * @param safeCast a function that can safely cast abstract [CoroutineContext.Element] to the concrete
    [E] type
    *     and return the element if it is a subtype of [E] or `null` otherwise.
    *
    *
    @SinceKotlin("1.3")
    @ExperimentalStdlibApi
    public abstract class AbstractCoroutineContextKey<B :
    Element, E : B>(
    baseKey: Key<B>,
    private val safeCast:
    (element: Element) -> E?) : Key<E> {
    private val topmostKey: Key<*> = if (baseKey is
    AbstractCoroutineContextKey<*, *>) baseKey.topmostKey else baseKey

    internal fun tryCast(element:
    Element): E? = safeCast(element)

    internal fun isSubKey(key: Key<*>): Boolean = key === this || topmostKey
    === key
    }

    * Returns the current element if it is associated with the given [key] in a polymorphic manner
    or `null` otherwise.
    * This method returns non-null value if either [Element.key] is equal to the given [key] or if
    the [key] is associated
    * with [Element.key] via [AbstractCoroutineContextKey].
    * See
    [AbstractCoroutineContextKey] for the example of usage.
    *
    @SinceKotlin("1.3")
    @ExperimentalStdlibApi
    public fun <E : Element>
    Element.getPolymorphicElement(key: Key<E>): E? {
    if (key is AbstractCoroutineContextKey<*, *>) {
    @Suppress("UNCHECKED_CAST")
    return if (key.isSubKey(this.key)) key.tryCast(this) as? E else null
    }
    }
    
```

```

}\n  @Suppress("UNCHECKED_CAST")\n
    return if (this.key === key) this as E else null}\n\n/**\n * Returns empty coroutine context if the element is
associated with the given [key] in a polymorphic manner\n * or `null` otherwise.\n * This method returns empty
context if either [Element.key] is equal to the given [key] or if the [key] is associated\n * with [Element.key] via
[AbstractCoroutineContextKey].\n * See [AbstractCoroutineContextKey] for the example of usage.\n
*/\n@SinceKotlin("1.3")\n@ExperimentalStdlibApi\npublic fun Element.minusPolymorphicKey(key: Key<*>):
CoroutineContext {\n    if (key is AbstractCoroutineContextKey<*, *>) {\n        return if (key.isSubKey(this.key)
&& key.tryCast(this) != null) EmptyCoroutineContext else this\n    }\n    return if (this.key === key)
EmptyCoroutineContext else this}\n\n/**\n * An empty coroutine context.\n */\n@SinceKotlin("1.3")\npublic
object EmptyCoroutineContext : CoroutineContext, Serializable {\n    private const val serialVersionUID:
Long = 0\n    private fun readResolve(): Any = EmptyCoroutineContext\n    public override fun <E : Element>
get(key: Key<E>): E? = null\n    public override fun <R> fold(initial: R, operation: (R, Element) -> R): R = initial\n
public override fun plus(context: CoroutineContext): CoroutineContext = context\n    public override fun
minusKey(key: Key<*>): CoroutineContext = this\n    public override fun hashCode(): Int = 0\n    public override
fun toString(): String = "EmptyCoroutineContext"\n}\n\n//----- internal impl -----}\n\n//
this class is not exposed, but is hidden inside implementations\n// this is a left-biased list, so that `plus` works
naturally\n@SinceKotlin("1.3")\ninternal class CombinedContext(\n    private val left: CoroutineContext,\n
private val element: Element\n) : CoroutineContext, Serializable {\n    override fun <E : Element> get(key:
Key<E>): E? {\n        var cur = this\n        while (true) {\n            cur.element[key]?.let
{\n                return it\n            }\n            val next = cur.left\n            if (next is CombinedContext) {\n
                cur = next\n            }\n            else {\n                return next[key]\n            }\n        }\n
}\n\n    public override fun <R> fold(initial: R, operation:
(R, Element) -> R): R =\n        operation(left.fold(initial, operation), element)\n    public override fun
minusKey(key: Key<*>): CoroutineContext {\n        element[key]?.let {\n            return left\n        }\n        val newLeft =
left.minusKey(key)\n        return when {\n            newLeft === left -> this\n            newLeft ===
EmptyCoroutineContext -> element\n            else -> CombinedContext(newLeft, element)\n        }\n    }\n\n
private fun size(): Int {\n        var cur = this\n        var size = 2\n        while (true) {\n            cur = cur.left as?
CombinedContext?: return size\n            size++\n        }\n    }\n\n    private fun contains(element: Element): Boolean
= \n        get(element.key)\n        == element\n    private fun containsAll(context: CombinedContext): Boolean {\n        var cur = context\n
while (true) {\n            if (!contains(cur.element)) return false\n            val next = cur.left\n            if (next is
CombinedContext) {\n                cur = next\n            }\n            else {\n                return contains(next as Element)\n
            }\n        }\n    }\n\n    override fun equals(other: Any?): Boolean = \n        this === other || other is CombinedContext
&& other.size() == size() && other.containsAll(this)\n\n    override fun hashCode(): Int = left.hashCode() +
element.hashCode()\n\n    override fun toString(): String = \n        "[" + fold("") { acc, element ->\n            if
(acc.isEmpty()) element.toString() else "$acc, $element"\n        } + "]\n\n    private fun writeReplace(): Any {\n
        val n = size()\n        val elements = arrayOfNulls<CoroutineContext>(n)\n        var index = 0\n        fold(Unit) { _,
element -> elements[index++]\n        = element }\n        check(index == n)\n        @Suppress("UNCHECKED_CAST")\n        return
Serialized(elements as Array<CoroutineContext>)\n    }\n\n    private class Serialized(val elements:
Array<CoroutineContext>) : Serializable {\n        companion object {\n            private const val serialVersionUID:
Long = 0L\n        }\n        private fun readResolve(): Any = elements.fold(EmptyCoroutineContext,
CoroutineContext::plus)\n    }\n}\n\n"/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmName("IntrinsicsKt")\n@file:kotlin.jvm.JvmMultifileClass\n\npackage
kotlin.coroutines.intrinsics\n\nimport kotlin.contracts.*\nimport kotlin.coroutines.*\nimport
kotlin.internal.InlineOnly\n\n/**\n * Obtains the current continuation instance inside suspend functions and either
suspends\n * currently running

```

coroutine or returns result immediately without suspension. If the [block] returns the special [COROUTINE\_SUSPENDED] value, it means that suspend function did suspend the execution and will not return any result immediately. In this case, the [Continuation] provided to the [block] shall be resumed by invoking [Continuation.resumeWith] at some moment in the future when the result becomes available to resume the computation. Otherwise, the return value of the [block] must have a type assignable to [T] and represents the result of this suspend function. It means that the execution was not suspended and the [Continuation] provided to the [block] shall not be invoked. As the result type of the [block] is declared as `Any?` and cannot be correctly type-checked, its proper return type remains on the conscience of the suspend function's author. Invocation of [Continuation.resumeWith] resumes coroutine directly in the invoker's thread without going through the [ContinuationInterceptor] that might be present in the coroutine's [CoroutineContext]. It is the invoker's responsibility to ensure that a proper invocation context is established. [Continuation.intercepted] can be used to acquire the intercepted continuation. Note that it is not recommended to call either [Continuation.resume] nor [Continuation.resumeWithException] functions synchronously in the same stackframe where suspension function is run. Use [suspendCoroutine] as a safer way to obtain current continuation instance.

```

@SinceKotlin("1.3")@InlineOnly@Suppress("UNUSED_PARAMETER",
"RedundantSuspendModifier")
public suspend inline fun <T>
suspendCoroutineUninterceptedOrReturn(crossinline block: (Continuation<T>) -> Any?): T {
    contract {
        callsInPlace(block, InvocationKind.EXACTLY_ONCE)
    }
    throw NotImplementedError("Implementation of
suspendCoroutineUninterceptedOrReturn is intrinsic")
}

```

This value is used as a return value of [suspendCoroutineUninterceptedOrReturn] `block` argument to state that the execution was suspended and will not return any result immediately. Note: this value should not be used in general code. Using it outside of the context of `suspendCoroutineUninterceptedOrReturn` function return value (including, but not limited to, storing this value in other properties, returning it from other functions, etc) can lead to unspecified behavior of the code. It is implemented as property with getter to avoid ProGuard <clinit> problem with multifile IntrinsicKt class

```

@SinceKotlin("1.3")
public val COROUTINE_SUSPENDED:
Any get() = CoroutineSingletons.COROUTINE_SUSPENDED

```

Using enum here ensures two important properties:

1. It makes SafeContinuation serializable with all kinds of serialization frameworks (since all of them natively support enums)
2. It improves debugging experience, since you clearly see toString() value of those objects and what package they come from

```

@SinceKotlin("1.3")
@PublishedApi // This class is
Published API via serialized representation of SafeContinuation, don't rename/move
internal enum class
CoroutineSingletons { COROUTINE_SUSPENDED, UNDECIDED, RESUMED }

```

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```

package kotlin.experimental

/**
 * Performs a bitwise AND operation between the two values.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline infix fun Byte.and(other: Byte): Byte =
    (this.toInt() and other.toInt()).toByte()

/**
 * Performs a bitwise OR operation between the two values.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline infix fun Byte.or(other: Byte): Byte =
    (this.toInt() or other.toInt()).toByte()

/**
 * Performs a bitwise XOR operation between
 * the two values.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline infix fun Byte.xor(other:
Byte): Byte = (this.toInt() xor other.toInt()).toByte()

/**
 * Inverts the bits in this value.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline fun Byte.inv(): Byte =
    (this.toInt().inv()).toByte()

/**
 * Performs a bitwise AND operation between the two values.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline infix fun Short.and(other: Short): Short =
    (this.toInt() and other.toInt()).toShort()

/**
 * Performs a bitwise OR operation between the two values.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline infix fun Short.or(other: Short): Short =
    (this.toInt() or other.toInt()).toShort()

/**
 * Performs a bitwise XOR operation between the two values.
 */
@SinceKotlin("1.1")@kotlin.internal.InlineOnly
public inline infix fun Short.xor(other: Short): Short =
    (this.toInt() xor other.toInt()).toShort()

/**
 * Inverts
 */

```





```

to\n * treat any [RequireKotlin] as if it requires the language version. Since 1.2, the Kotlin compiler supports\n *
[RequireKotlinVersionKind.LANGUAGE_VERSION], [RequireKotlinVersionKind.COMPILER_VERSION] and
[RequireKotlinVersionKind.API_VERSION].\n * If the actual value of [versionKind] is something different (e.g. a
new version kind, added in future versions of Kotlin),\n * Kotlin 1.2 is going to ignore this [RequireKotlin]
altogether, where as Kotlin before 1.2 is going to treat this as a requirement\n * on the language version.\n *\n *
This annotation is
erased at compile time; its arguments are stored in a more compact form in the Kotlin metadata.\n
*/\n@Target(AnnotationTarget.CLASS, AnnotationTarget.FUNCTION, AnnotationTarget.PROPERTY,
AnnotationTarget.CONSTRUCTOR,
AnnotationTarget.TYPEALIAS)\n@Retention(AnnotationRetention.SOURCE)\n@Repeatable\n@SinceKotlin("1.
2")\ninternal annotation class RequireKotlin(\n    val version: String,\n    val message: String = "",\n    val level:
DeprecationLevel = DeprecationLevel.ERROR,\n    val versionKind: RequireKotlinVersionKind =
RequireKotlinVersionKind.LANGUAGE_VERSION,\n    val errorCode: Int = -1)\n\n/**\n * The kind of the
version that is required by [RequireKotlin].\n */\n@SinceKotlin("1.2")\ninternal enum class
RequireKotlinVersionKind {\n    LANGUAGE_VERSION,\n    COMPILER_VERSION,\n
API_VERSION,\n}\n\n/**\n * Specifies that this declaration is a part of special DSL, used for constructing
function's contract.\n */\n@Retention(AnnotationRetention.BINARY)\n@SinceKotlin("1.2")\ninternal
annotation class ContractsDsl\n\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.properties\n\nimport kotlin.reflect.KProperty\n\n/**\n * Standard
property delegates.\n */\npublic object Delegates {\n    /**\n     * Returns a property delegate for a read/write
property with a non-`null` value that is initialized not during\n     * object construction time but at a later time.
Trying to read the property before the initial value has been\n     * assigned results in an exception.\n     */\n     *
@sample samples.properties.Delegates.notNullDelegate\n     */\n     public fun <T : Any> notNull():
ReadWriteProperty<Any?, T> = NotNullVar()\n\n    /**\n     * Returns a property delegate for a read/write property
that calls a specified callback function when changed.\n     * @param initialValue the initial
value of the property.\n     * @param onChange the callback which is called after the change of the property is
made. The value of the property\n     * has already been changed when this callback is invoked.\n     */\n     *
@sample samples.properties.Delegates.observableDelegate\n     */\n     public inline fun <T>
observable(initialValue: T, crossinline onChange: (property: KProperty<*>, oldValue: T, newValue: T) -> Unit):\n
        ReadWriteProperty<Any?, T> =\n         object : ObservableProperty<T>(initialValue) {\n             override fun
afterChange(property: KProperty<*>, oldValue: T, newValue: T) = onChange(property, oldValue, newValue)\n
        }\n\n    /**\n     * Returns a property delegate for a read/write property that calls a specified callback function when
changed,\n     * allowing the callback to veto the modification.\n     * @param initialValue the initial value of the
property.\n     * @param onChange the callback which is called before a change to the property
value is attempted.\n     * The value of the property hasn't been changed yet, when this callback is invoked.\n     *
If the callback returns `true` the value of the property is being set to the new value,\n     * and if the callback returns
`false` the new value is discarded and the property remains its old value.\n     */\n     * @sample
samples.properties.Delegates.vetoableDelegate\n     */\n     @sample
samples.properties.Delegates.throwVetoableDelegate\n     */\n     public inline fun <T> vetoable(initialValue: T,
crossinline onChange: (property: KProperty<*>, oldValue: T, newValue: T) -> Boolean):\n
        ReadWriteProperty<Any?, T> =\n         object : ObservableProperty<T>(initialValue) {\n             override fun
beforeChange(property: KProperty<*>, oldValue: T, newValue: T): Boolean = onChange(property, oldValue,
newValue)\n         }\n\n    private class NotNullVar<T : Any>(): ReadWriteProperty<Any?, T> {\n        private var
value: T? = null\n        public override fun getValue(thisRef:
Any?, property: KProperty<*>): T {\n            return value ?: throw IllegalStateException("Property
${property.name} should be initialized before get.")\n        }\n        public override fun setValue(thisRef: Any?,
property: KProperty<*>, value: T) {\n            this.value = value\n        }\n    }\n\n"/*\n * Copyright 2010-2020 JetBrains

```

```

s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.properties\n\nimport
kotlin.reflect.KProperty\n\n/**\n * Base interface that can be used for implementing property delegates of read-only
properties.\n */\n * This is provided only for convenience; you don't have to extend this interface\n * as long as your
property delegate has methods with the same signatures.\n */\n * @param T the type of object which owns the
delegated property.\n * @param V the type of the property value.\n */\n\npublic fun interface ReadOnlyProperty<in
T, out V> {\n    /**\n     * Returns the value of the property for the given object.\n     * @param thisRef the object
for which the value is requested.\n     * @param property the metadata for the property.\n     * @return the property
value.\n     */\n    public operator fun getValue(thisRef: T, property: KProperty<*>): V\n}\n\n/**\n * Base interface
that can be used for implementing property delegates of read-write properties.\n */\n * This is provided only for
convenience; you don't have to extend this interface\n * as long as your property delegate has methods with the
same signatures.\n */\n * @param T the type of object which owns the delegated property.\n * @param V the type of
the property value.\n */\n\npublic interface ReadWriteProperty<in T, V> : ReadOnlyProperty<T, V> {\n    /**\n     *
Returns the value of the property for the given object.\n     * @param thisRef the object for which the value is
requested.\n     * @param property the metadata for the property.\n     * @return the property value.\n     */\n    public override operator fun getValue(thisRef: T, property:
KProperty<*>): V\n\n    /**\n     * Sets the value of the property for the given object.\n     * @param thisRef the
object for which the value is requested.\n     * @param property the metadata for the property.\n     * @param value
the value to set.\n     */\n    public operator fun setValue(thisRef: T, property: KProperty<*>, value: V)\n}\n\n/**\n *
Base interface that can be used for implementing property delegate providers.\n */\n * This is provided only for
convenience; you don't have to extend this interface\n * as long as your delegate provider has a method with the
same signature.\n */\n * @param T the type of object which owns the delegated property.\n * @param D the type of
property delegates this provider provides.\n */\n\n@SinceKotlin("1.4")\n\npublic fun interface
PropertyDelegateProvider<in T, out D> {\n    /**\n     * Returns the delegate of the property for the given object.\n
     *\n     * This function can be used to extend the logic of creating the object (e.g. perform validation checks)\n     *
to which the property implementation is delegated.\n     * @param thisRef the object for which property
delegate is requested.\n     * @param property the metadata for the property.\n     * @return the property delegate.\n
     */\n    public operator fun provideDelegate(thisRef: T, property: KProperty<*>): D\n}\n\n"/*\n * Copyright 2010-
2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.properties\n\nimport
kotlin.reflect.KProperty\n\n/**\n * Implements the core logic of a property delegate for a read/write property that
calls callback functions when changed.\n * @param initialValue the initial value of the property.\n */\n\npublic
abstract class ObservableProperty<V>(initialValue: V) : ReadWriteProperty<Any?,
V> {\n    private var value = initialValue\n\n    /**\n     * The callback which is called before a change to the
property value is attempted.\n     * The value of the property hasn't been changed yet, when this callback is
invoked.\n     * If the callback returns `true` the value of the property is being set to the new value,\n     * and if
the callback returns `false` the new value is discarded and the property remains its old value.\n     */\n    protected open
fun beforeChange(property: KProperty<*>, oldValue: V, newValue: V): Boolean = true\n\n    /**\n     * The
callback which is called after the change of the property is made. The value of the property\n     * has already been
changed when this callback is invoked.\n     */\n    protected open fun afterChange(property: KProperty<*>,
oldValue: V, newValue: V): Unit {}\n\n    public override fun getValue(thisRef: Any?, property: KProperty<*>): V
{\n        return value\n    }\n\n    public override fun setValue(thisRef:
Any?, property: KProperty<*>, value: V) {\n        val oldValue = this.value\n        if (!beforeChange(property,
oldValue, value)) {\n            return\n        }\n        this.value = value\n        afterChange(property, oldValue,
value)\n    }\n}\n\n"/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this
source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:Suppress("PackageDirectoryMismatch")\n\npackage kotlin\n\nimport kotlin.reflect.*\n\n/**\n * An
extension operator that allows delegating a read-only property of type [V]\n * to a property reference to a property

```



```

is negative or zero.\n
 * \n
 * @sample samples.random.Randoms.nextIntFromUntil\n
 * \n
 public open fun
nextInt(until: Int): Int = nextInt(0, until)\n
 /** \n
 * Gets the next random `Int` from the random number
generator in the specified range.\n
 * \n
 * Generates an `Int` random value uniformly
distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n
 * \n
 * @throws
IllegalArgumentException if [from] is greater than or equal to [until].\n
 * \n
 * @sample
samples.random.Randoms.nextIntFromUntil\n
 * \n
 public open fun nextInt(from: Int, until: Int): Int {\n
checkRangeBounds(from, until)\n
 val n = until - from\n
 if (n > 0 || n == Int.MIN_VALUE) {\n
 val
rnd = if (n and -n == n) {\n
 val bitCount = fastLog2(n)\n
 nextBits(bitCount)\n
 } else {\n
 var v: Int\n
 do {\n
 val bits = nextInt().ushr(1)\n
 v = bits % n\n
 }
while (bits - v + (n - 1) < 0)\n
 v\n
 }\n
 return from + rnd\n
 } else {\n
 while (true)
{\n
 val rnd = nextInt()\n
 if (rnd in from until until) return rnd\n
 }\n
 }\n
 }\n
}\n
 /** \n
 * Gets the next random `Long` from the random number generator.\n
 * \n
 * Generates a `Long`
random value uniformly distributed between `Long.MIN_VALUE` and `Long.MAX_VALUE` (inclusive).\n
 * \n
 * @sample samples.random.Randoms.nextLong\n
 * \n
 public open fun nextLong(): Long =
nextInt().toLong().shl(32) + nextInt()\n
 /** \n
 * Gets the next random non-negative `Long` from the random
number generator less than the specified [until] bound.\n
 * \n
 * Generates a `Long` random value uniformly
distributed between `0` (inclusive) and the specified [until] bound (exclusive).\n
 * \n
 * @param until must be
positive.\n
 * \n
 * @throws IllegalArgumentException if [until] is negative or zero.\n
 * \n
 * @sample
samples.random.Randoms.nextLongFromUntil\n
 * \n
 public open fun nextLong(until: Long): Long =
nextLong(0, until)\n
 /** \n
 * Gets the next random `Long` from the random number generator in the specified
range.\n
 * \n
 * Generates a `Long` random value uniformly distributed between the specified [from] (inclusive) and
[until] (exclusive) bounds.\n
 * \n
 * @throws IllegalArgumentException if [from] is greater than or equal to
[until].\n
 * \n
 * @sample samples.random.Randoms.nextLongFromUntil\n
 * \n
 public open fun
nextLong(from: Long, until: Long): Long {\n
checkRangeBounds(from, until)\n
 val n = until - from\n
if (n > 0) {\n
 val rnd: Long\n
 if (n and -n == n) {\n
 val nLow = n.toInt()\n
 val nHigh
= (n ushr 32).toInt()\n
 rnd = when {\n
 nLow != 0 -> {\n
 val bitCount =
fastLog2(nLow)\n
 // toUInt().toLong()\n
 nextBits(bitCount).toLong() and
0xFFFF_FFFF\n
 }\n
 nHigh == 1 ->\n
 // toUInt().toLong()\n
nextInt().toLong() and
0xFFFF_FFFF\n
 else -> {\n
 val bitCount = fastLog2(nHigh)\n
nextBits(bitCount).toLong().shl(32) + (nextInt().toLong() and 0xFFFF_FFFF)\n
 }\n
 }\n
 } else {\n
 var v: Long\n
 do {\n
 val bits = nextLong().ushr(1)\n
 v = bits %
n\n
 } while (bits - v + (n - 1) < 0)\n
 rnd = v\n
 }\n
 return from + rnd\n
 } else {\n
 while (true) {\n
 val rnd = nextLong()\n
 if (rnd in from until until) return rnd\n
 }\n
 }\n
 }\n
}\n
}\n
 /** \n
 * Gets the next random [Boolean] value.\n
 * \n
 * @sample
samples.random.Randoms.nextBoolean\n
 * \n
 public open fun nextBoolean(): Boolean = nextBits(1) != 0\n
 /** \n
 * Gets the next random [Double] value uniformly distributed between 0 (inclusive) and 1 (exclusive).\n
 * \n
 * @sample samples.random.Randoms.nextDouble\n
 * \n
 public open fun nextDouble(): Double =
doubleFromParts(nextBits(26), nextBits(27))\n
 /** \n
 * Gets the next random non-negative `Double` from the
random number generator less than the specified [until] bound.\n
 * \n
 * Generates a `Double` random value
uniformly distributed between 0 (inclusive) and [until] (exclusive).\n
 * \n
 * @throws IllegalArgumentException
if [until] is negative or zero.\n
 * \n
 * @sample samples.random.Randoms.nextDoubleFromUntil\n
 * \n
 public open fun nextDouble(until: Double): Double = nextDouble(0.0, until)\n
 /** \n
 * Gets the next random
`Double` from the random number generator in the specified range.\n
 * \n
 * Generates a `Double` random value
uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n
 * \n
 * [from]
and [until] must be finite otherwise the behavior is unspecified.\n
 * \n

```

```

* @throws IllegalArgumentException if [from] is greater than or equal to [until].\n
*\n
* @sample
samples.random.Randoms.nextDoubleFromUntil\n
*/\n
public open fun nextDouble(from: Double, until:
Double): Double {\n
    checkRangeBounds(from, until)\n
    val size = until - from\n
    val r = if
(size.isInfinite() && from.isFinite() && until.isFinite()) {\n
        val r1 = nextDouble() * (until / 2 - from / 2)\n
        from + r1 + r1\n
    } else {\n
        from + nextDouble() * size\n
    }\n
    return if (r >= until)
until.nextDown() else r\n
}\n
/**\n
 * Gets the next random [Float] value uniformly distributed between 0
(inclusive) and 1 (exclusive).\n
*\n
* @sample samples.random.Randoms.nextFloat\n
*/\n
public open fun
nextFloat(): Float = nextBits(24) / (1 shl 24).toFloat()\n
/**\n
 * Fills a subrange of the specified byte [array]
starting from [fromIndex] inclusive and ending [toIndex] exclusive\n
*\n
* with random bytes.\n
*\n
* @return [array] with the subrange filled with random bytes.\n
*\n
*
@sample samples.random.Randoms.nextBytes\n
*/\n
public open fun nextBytes(array: ByteArray, fromIndex:
Int = 0, toIndex: Int = array.size): ByteArray {\n
    require(fromIndex in 0..array.size && toIndex in 0..array.size)
{ "\nfromIndex ($fromIndex) or toIndex ($toIndex) are out of range: 0..${array.size}." }\n
    require(fromIndex <=
toIndex) { "\nfromIndex ($fromIndex) must be not greater than toIndex ($toIndex)."}\n
    val steps = (toIndex -
fromIndex) / 4\n
    var position = fromIndex\n
    repeat(steps) {\n
        val v = nextInt()\n
array[position] = v.toByte()\n
        array[position + 1] = v.ushr(8).toByte()\n
        array[position + 2] =
v.ushr(16).toByte()\n
        array[position + 3] = v.ushr(24).toByte()\n
        position += 4\n
    }\n
    val
remainder = toIndex - position\n
    val vr =
nextBits(remainder * 8)\n
    for (i in 0 until remainder) {\n
        array[position + i] = vr.ushr(i * 8).toByte()\n
    }\n
    return array\n
}\n
/**\n
 * Fills the specified byte [array] with random bytes and returns it.\n
*\n
* @return [array] filled with random bytes.\n
*\n
* @sample samples.random.Randoms.nextBytes\n
*/\n
public open fun nextBytes(array: ByteArray): ByteArray = nextBytes(array, 0, array.size)\n
/**\n
 *
Creates a byte array of the specified [size], filled with random bytes.\n
*\n
* @sample
samples.random.Randoms.nextBytes\n
*/\n
public open fun nextBytes(size: Int): ByteArray =
nextBytes(ByteArray(size))\n
/**\n
 * The default random number generator.\n
*\n
* On JVM this
generator is thread-safe, its methods can be invoked from multiple threads.\n
*\n
* @sample
samples.random.Randoms.defaultRandom\n
*/\n
companion object Default : Random(), Serializable {\n
    private val defaultRandom: Random = defaultPlatformRandom()\n
    private object Serialized : Serializable
{\n
        private const val serialVersionUID = 0L\n
        private fun readResolve(): Any = Random\n
    }\n
    private fun writeReplace(): Any = Serialized\n
    override fun nextBits(bitCount: Int): Int =
defaultRandom.nextBits(bitCount)\n
    override fun nextInt(): Int = defaultRandom.nextInt()\n
    override fun
nextInt(until: Int): Int = defaultRandom.nextInt(until)\n
    override fun nextInt(from: Int, until: Int): Int =
defaultRandom.nextInt(from, until)\n
    override fun nextLong(): Long = defaultRandom.nextLong()\n
    override fun nextLong(until: Long): Long = defaultRandom.nextLong(until)\n
    override fun nextLong(from:
Long, until: Long): Long = defaultRandom.nextLong(from, until)\n
    override fun nextBoolean(): Boolean =
defaultRandom.nextBoolean()\n
    override fun nextDouble(): Double = defaultRandom.nextDouble()\n
    override fun
nextDouble(until: Double): Double = defaultRandom.nextDouble(until)\n
    override fun
nextDouble(from: Double, until: Double): Double = defaultRandom.nextDouble(from, until)\n
    override fun
nextFloat(): Float = defaultRandom.nextFloat()\n
    override fun nextBytes(array: ByteArray): ByteArray =
defaultRandom.nextBytes(array)\n
    override fun nextBytes(size: Int): ByteArray =
defaultRandom.nextBytes(size)\n
    override fun nextBytes(array: ByteArray, fromIndex: Int, toIndex: Int):
ByteArray =\n
        defaultRandom.nextBytes(array, fromIndex, toIndex)\n
}\n
}\n
/**\n
 * Returns a repeatable
random number generator seeded with the given [seed] `Int` value.\n
*\n
* Two generators with the same seed
produce the same sequence of values within the same version of Kotlin runtime.\n
*\n
* *Note:* Future versions of
Kotlin may change the algorithm of this seeded number generator so that it will return\n
* a sequence of values
different from the current one for a given seed.\n
*\n
* On JVM the returned generator is NOT thread-safe. Do not
invoke it from multiple threads without proper synchronization.\n
*\n
* @sample
samples.random.Randoms.seededRandom\n
*/\n
@SinceKotlin("1.3")\n
public fun Random(seed: Int): Random =

```

XorWowRandom(seed, seed.shr(31))\n\n/\*\*\n \* Returns a repeatable random number generator seeded with the given [seed] `Long` value.\n \*\n \* Two generators with the same seed produce the same sequence of values within the same version of Kotlin runtime.\n \*\n \* \*Note:\* Future versions of Kotlin may change the algorithm of this seeded number generator so that it will return\n \* a sequence of values different from the current one for a given seed.\n \*\n \* On JVM the returned generator is NOT thread-safe. Do not invoke it from multiple threads without proper synchronization.\n \*\n \* @sample samples.random.Randoms.seededRandom\n

```

*/\n@SinceKotlin("1.3")\npublic fun Random(seed: Long): Random
    = XorWowRandom(seed.toInt(), seed.shr(32).toInt())\n\n/**\n * Gets the next random `Int` from the random number generator in the specified [range].\n *\n * Generates an `Int` random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n *\n * @throws
IllegalArgumentException if [range] is empty.\n */\n@SinceKotlin("1.3")\npublic fun Random.nextInt(range: IntRange): Int = when {\n    range.isEmpty() -> throw IllegalArgumentException("Cannot get random in empty range: $range")\n    range.last < Int.MAX_VALUE -> nextInt(range.first, range.last + 1)\n    range.first > Int.MIN_VALUE -> nextInt(range.first - 1, range.last) + 1\n    else -> nextInt()\n}\n\n/**\n * Gets the next random `Long` from the random number generator in the specified [range].\n *\n * Generates a `Long` random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n *\n * @throws
IllegalArgumentException if [range] is empty.\n */\n@SinceKotlin("1.3")\npublic fun Random.nextLong(range: LongRange): Long = when {\n    range.isEmpty() -> throw IllegalArgumentException("Cannot get random in empty range: $range")\n    range.last < Long.MAX_VALUE -> nextLong(range.first, range.last + 1)\n    range.first > Long.MIN_VALUE -> nextLong(range.first - 1, range.last) + 1\n    else -> nextLong()\n}\n\n\ninternal expect fun defaultPlatformRandom(): Random\n\ninternal expect fun doubleFromParts(hi26: Int, low27: Int): Double\n\ninternal fun fastLog2(value: Int): Int = 31 - value.countLeadingZeroBits()\n\n/** Takes upper [bitCount] bits (0..32) from this number. */\ninternal fun Int.takeUpperBits(bitCount: Int): Int =\n    this.ushr(32 - bitCount) and (-bitCount).shr(31)\n\ninternal fun checkRangeBounds(from: Int, until: Int) = require(until > from) {\n    boundsErrorMessage(from, until) }\n\ninternal fun checkRangeBounds(from: Long, until: Long) = require(until > from) {\n    boundsErrorMessage(from, until) }\n\ninternal fun checkRangeBounds(from: Double, until: Double) = require(until > from) {\n    boundsErrorMessage(from, until) }\n\ninternal fun boundsErrorMessage(from: Any, until: Any) = "Random range is empty: [$from, $until)."\n\n"/**\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.random\n\n\n/**\n * Gets the next random [UInt] from the random number generator.\n *\n * Generates a [UInt] random value uniformly distributed between [UInt.MIN_VALUE] and [UInt.MAX_VALUE] (inclusive).\n */\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextUInt(): UInt = nextInt().toUInt()\n\n/**\n * Gets the next random [UInt] from the random number generator less than the specified [until] bound.\n *\n * Generates a [UInt] random value uniformly distributed between\n    `0` (inclusive) and the specified [until] bound (exclusive).\n *\n * @throws IllegalArgumentException if [until] is zero.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextUInt(until: UInt): UInt = nextUInt(0u, until)\n\n/**\n * Gets the next random [UInt] from the random number generator in the specified range.\n *\n * Generates a [UInt] random value uniformly distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n *\n * @throws IllegalArgumentException if [from] is greater than or equal to [until].\n */\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun Random.nextUInt(from: UInt, until: UInt): UInt {\n    checkUIntRangeBounds(from, until)\n\n    val signedFrom = from.toInt() xor Int.MIN_VALUE\n    val signedUntil = until.toInt() xor Int.MIN_VALUE\n    val signedResult = nextInt(signedFrom, signedUntil) xor Int.MIN_VALUE\n    return signedResult.toUInt()\n}\n\n/**\n
```

```

* Gets the next random [UInt] from the random number generator in the specified [range].\n * Generates a
[UInt] random value uniformly distributed in the specified [range]:\n * from `range.start` inclusive to
`range.endInclusive` inclusive.\n * @throws IllegalArgumentException if [range] is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
Random.nextUInt(range: UIntRange): UInt = when {\n    range.isEmpty() -> throw
IllegalArgumentException("Cannot get random in empty range: $range")\n    range.last < UInt.MAX_VALUE ->
nextUInt(range.first, range.last + 1u)\n    range.first > UInt.MIN_VALUE -> nextUInt(range.first - 1u, range.last) +
1u\n    else -> nextUInt()\n}\n\n/**\n * Gets the next random [ULong] from the random number generator.\n * Generates a [ULong] random value uniformly distributed between [ULong.MIN_VALUE] and
[ULong.MAX_VALUE] (inclusive).\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun Random.nextULong(): ULong = nextLong().toULong()\n\n/**\n * Gets the next random [ULong] from the
random number generator less than the specified [until] bound.\n * Generates a [ULong] random value
uniformly distributed between `0` (inclusive) and the specified [until] bound (exclusive).\n * @throws
IllegalArgumentException if [until] is zero.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
Random.nextULong(until: ULong): ULong = nextULong(0uL, until)\n\n/**\n * Gets the next random [ULong] from
the random number generator in the specified range.\n * Generates a [ULong] random value uniformly
distributed between the specified [from] (inclusive) and [until] (exclusive) bounds.\n * @throws
IllegalArgumentException if [from] is greater than or equal to [until].\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
Random.nextULong(from: ULong, until: ULong): ULong
{\n    checkULongRangeBounds(from, until)\n    val signedFrom = from.toLong() xor Long.MIN_VALUE\n    val signedUntil = until.toLong() xor Long.MIN_VALUE\n    val signedResult = nextLong(signedFrom,
signedUntil) xor Long.MIN_VALUE\n    return signedResult.toULong()\n}\n\n/**\n * Gets the next random
[ULong] from the random number generator in the specified [range].\n * Generates a [ULong] random value
uniformly distributed in the specified [range]:\n * from `range.start` inclusive to `range.endInclusive` inclusive.\n
*\n * @throws IllegalArgumentException if [range] is empty.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
Random.nextULong(range: ULongRange): ULong = when {\n    range.isEmpty() -> throw
IllegalArgumentException("Cannot get random in empty range: $range")\n    range.last < ULong.MAX_VALUE -
> nextULong(range.first, range.last + 1u)\n    range.first > ULong.MIN_VALUE -> nextULong(range.first - 1u,
range.last) + 1u\n    else -> nextULong()\n}\n\n/**\n * Fills the specified unsigned byte [array] with random bytes and returns it.\n * @return [array] filled with random bytes.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Random.nextUBytes(array: UByteArray): UByteArray {\n    nextBytes(array.asByteArray())\n    return
array\n}\n\n/**\n * Creates an unsigned byte array of the specified [size], filled with random bytes.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun Random.nextUBytes(size: Int): UByteArray
= nextBytes(size).asUByteArray()\n\n/**\n * Fills a subrange of the specified `UByte` [array] starting from
[fromIndex] inclusive and ending [toIndex] exclusive with random UBytes.\n * @return [array] with the
subrange filled with random bytes.\n
*\n@SinceKotlin("1.3")\n@ExperimentalUnsignedTypes\npublic fun
Random.nextUBytes(array: UByteArray, fromIndex: Int = 0, toIndex: Int = array.size): UByteArray {\n    nextBytes(array.asByteArray(), fromIndex,
toIndex)\n    return array\n}\n\ninternal fun checkUIntRangeBounds(from: UInt, until: UInt) = require(until >
from) { boundsErrorMessage(from, until) }\ninternal fun checkULongRangeBounds(from: ULong, until: ULong) =
require(until > from) { boundsErrorMessage(from, until) }\n\n"/\n * Copyright 2010-2018 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.random\n\n/**\n * Random number generator,

```



using Marsaglia's "xorwow" algorithm  
 \* Cycles after  $2^{192} - 2^{32}$  repetitions.  
 \* For more details, see Marsaglia, George (July 2003). "Xorshift RNGs". Journal of Statistical Software. 8 (14).

doi:10.18637/jss.v008.i14  
 \* Available at <https://www.jstatsoft.org/v08/i14/paper>  
 \* An internal class

```
XorWowRandom internal constructor(\n private var x: Int,\n private var y: Int,\n private var z: Int,\n private var
```

```
w: Int,\n private var v: Int,\n private var addend: Int)\n : Random(), Serializable {\n internal\n constructor(seed1: Int, seed2: Int) : \n this(seed1, seed2, 0, 0, seed1.inv(), (seed1 shl 10) xor (seed2 ushr 4))\n init {\n require((x or y or z or w or v) != 0) { "Initial state must have at least one non-zero element.\n }\n // some trivial seeds can produce several values with zeroes in upper bits, so we discard first 64\n repeat(64) { nextInt() }\n }\n override fun nextInt(): Int {\n // Equivalent to the xorwow algorithm\n // From Marsaglia, G. 2003. Xorshift RNGs. J. Statis. Soft. 8, 14, p. 5\n var t = x\n t = t xor (t ushr 2)\n x = y\n y = z\n z = w\n val v0 = v\n w = v0\n t = (t xor (t shl 1)) xor v0 xor (v0 shl 4)\n v = t\n addend += 362437\n return t + addend\n }\n override fun nextBits(bitCount: Int): Int =\n nextInt().takeUpperBits(bitCount)\n}
```

```
private companion object {\n private const val serialVersionUID: Long = 0L\n }\n}\n"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
```

```
*\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("RangesKt")\n\npackage
```

```
kotlin.ranges\n\n/**\n * Represents a range of [Comparable] values.\n */\nprivate open class ComparableRange<T> : Comparable<T> >>(\n override val start: T,\n override val endInclusive: T)\n : ClosedRange<T> {\n override fun equals(other: Any?): Boolean {\n return other is ComparableRange<*> && (isEmpty() && other.isEmpty()) ||\n start == other.start && endInclusive == other.endInclusive\n }\n override fun hashCode(): Int
```

```
{\n return if (isEmpty()) -1 else 31 * start.hashCode() + endInclusive.hashCode()\n }\n override fun toString(): String = "$start..$endInclusive"\n}\n\n/**\n * Creates a range from this [Comparable] value to the specified [that] value.\n * This value needs to be smaller than or equal to [that] value, otherwise the returned range will be empty.\n * @sample samples.ranges.Ranges.rangeFromComparable\n */\npublic operator fun <T> Comparable<T> >> T.rangeTo(that: T): ClosedRange<T> = ComparableRange(this, that)\n\n/**\n * Represents a range of floating point numbers.\n * Extends [ClosedRange] interface providing custom operation [lessThanOrEquals]
```

```
for comparing values of range domain type.\n * This interface is implemented by floating point ranges returned by [Float.rangeTo] and [Double.rangeTo] operators to\n * achieve IEEE-754 comparison order instead of total order of floating point numbers.\n */\n@SinceKotlin("1.1")\npublic interface ClosedFloatingPointRange<T : Comparable<T>> : ClosedRange<T> {\n override fun contains(value: T): Boolean = lessThanOrEquals(start, value) && lessThanOrEquals(value, endInclusive)\n override fun isEmpty(): Boolean = !lessThanOrEquals(start, endInclusive)\n}\n\n/**\n * Compares two values of range domain type and returns true if first is less than or equal to second.\n */\nfun lessThanOrEquals(a: T, b: T): Boolean\n}\n\n/**\n * A closed range of values of type `Double`.\n * Numbers are compared with the ends of this range according to IEEE-754.\n */\nprivate class ClosedDoubleRange(\n start: Double,\n endInclusive: Double)\n : ClosedFloatingPointRange<Double> {\n private val _start = start\n private val _endInclusive = endInclusive\n override val start: Double get() = _start\n override val endInclusive: Double get() = _endInclusive\n\n override fun lessThanOrEquals(a: Double, b: Double): Boolean = a <= b\n\n override fun contains(value: Double): Boolean = value >= _start && value <= _endInclusive\n\n override fun isEmpty(): Boolean = !(_start <= _endInclusive)\n\n override fun equals(other: Any?): Boolean {\n return other is ClosedDoubleRange && (isEmpty() && other.isEmpty()) ||\n _start == other._start && _endInclusive == other._endInclusive\n }\n\n override fun hashCode(): Int {\n return if (isEmpty()) -1 else 31 * _start.hashCode() + _endInclusive.hashCode()\n }\n\n override fun toString(): String = "$_start..$_endInclusive"\n}\n\n/**\n * Creates a range from this [Double] value to the specified [that] value.\n * Numbers are compared with the ends of this range according to IEEE-754.\n * @sample samples.ranges.Ranges.rangeFromDouble\n */\n@SinceKotlin("1.1")\npublic operator fun
```

```

Double.rangeTo(that: Double): ClosedFloatingPointRange<Double> = ClosedDoubleRange(this, that)\n\n\n/**\n *
A closed range of values of type `Float`.\n *\n * Numbers are compared with the ends of this range according to
IEEE-754.\n */\nprivate class ClosedFloatRange(\n    start: Float,\n    endInclusive: Float\n) :
ClosedFloatingPointRange<Float>
{
    private val _start = start\n    private val _endInclusive = endInclusive\n    override val start: Float get() =
_start\n    override val endInclusive: Float get() = _endInclusive\n\n    override fun lessThanOrEquals(a: Float, b:
Float): Boolean = a <= b\n\n    override fun contains(value: Float): Boolean = value >= _start && value <=
_endInclusive\n\n    override fun isEmpty(): Boolean = !(_start <= _endInclusive)\n\n    override fun equals(other:
Any?): Boolean {\n        return other is ClosedFloatRange && (isEmpty() && other.isEmpty()) ||\n            _start
== other._start && _endInclusive == other._endInclusive\n    }\n\n    override fun hashCode(): Int {\n        return if
(isEmpty()) -1 else 31 * _start.hashCode() + _endInclusive.hashCode()\n    }\n\n    override fun toString(): String =
"\$_start..\$_endInclusive"\n}\n\n\n/**\n * Creates a range from this [Float] value to the specified [that] value.\n *\n *
Numbers are compared with the ends
of this range according to IEEE-754.\n * @sample samples.ranges.Ranges.rangeFromFloat\n
*/\n@SinceKotlin("1.1")\npublic operator fun Float.rangeTo(that: Float): ClosedFloatingPointRange<Float> =
ClosedFloatRange(this, that)\n\n\n/**\n * Returns `true` if this iterable range contains the specified [element].\n *\n *
Always returns `false` if the [element] is `null`.\n */\n@SinceKotlin("1.3")\n@kotlin.internal.InlineOnly\npublic
inline operator fun <T, R> R.contains(element: T?): Boolean where T : Any, R : Iterable<T>, R : ClosedRange<T>
= \n    element != null && contains(element)\n\n\ninternal fun checkStepIsPositive(isPositive: Boolean, step:
Number) {\n    if (!isPositive) throw IllegalArgumentException("Step must be positive, was: $step.")\n}\n\n\n/*\n *
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governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmName("KClasses")\n@file:Suppress("UNCHECKED_CAST")\n\npackage
kotlin.reflect\n\nimport kotlin.internal.LowPriorityInOverloadResolution\n\n\n/**\n * Casts the given [value] to the
class represented by this [KClass] object.\n * Throws an exception if the value is `null` or if it is not an instance of
this class.\n *\n * This is an experimental function that behaves as a similar function from kotlin.reflect.full on
JVM.\n *\n * @see [KClass.isInstance]\n * @see [KClass.safeCast]\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@LowPriorityInOverloadResoluti
on\nfun <T : Any> KClass<T>.cast(value: Any?): T {\n    if (!isInstance(value)) throw ClassCastException("Value
cannot be cast to $qualifiedOrSimpleName")\n    return value as T\n}\n\n// TODO: replace with qualifiedName
when it is fully supported in K/JS\ninternal expect val KClass<*>.qualifiedOrSimpleName: String?\n\n\n/**\n * Casts
the given [value] to the class represented by this [KClass] object.\n * Returns
`null` if the value is `null` or if it is not an instance of this class.\n *\n * This is an experimental function that
behaves as a similar function from kotlin.reflect.full on JVM.\n *\n * @see [KClass.isInstance]\n * @see
[KClass.cast]\n
*/\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@LowPriorityInOverloadResoluti
on\nfun <T : Any> KClass<T>.safeCast(value: Any?): T? {\n    return if (isInstance(value)) value as T else
null\n}\n\n\n/*\n * Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of
this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\npackage kotlin.reflect\n\nimport kotlin.jvm.JvmField\nimport kotlin.jvm.JvmStatic\n\n\n\n/**\n * Represents
a type projection. Type projection is usually the argument to another type in a type usage.\n * For example, in the
type `Array<out Number>`, `out Number` is the covariant projection of the type represented
by the class `Number`.\n *\n * Type projection is either the star projection, or an entity consisting of a specific type
plus optional variance.\n *\n * See the [Kotlin language
documentation](https://kotlinlang.org/docs/reference/generics.html#type-projections)\n * for more information.\n
*/\n@SinceKotlin("1.1")\npublic data class KTypeProjection constructor(\n    /**\n * The use-site variance
specified in the projection, or `null` if this is a star projection.\n    */\n    public val variance: KVariance?,\n    /**\n *
The type specified in the projection, or `null` if this is a star projection.\n    */\n    public val type: KType?\n)

```

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{\n\n init {\n    require((variance == null) == (type == null)) {\n        if (variance == null)\n            \"Star projection must have no type specified.\"\n        else\n            \"The projection variance $variance requires type to be specified.\"\n    }\n}\n\n override fun toString(): String = when (variance) {\n    null -> \"*\n    KVariance.INVARIANT -> type.toString()\n    KVariance.IN -> \"in $type\"\n    KVariance.OUT -> \"out $type\"\n}\n\n public companion object {\n    // provided for compiler access\n    @JvmField\n    @PublishedApi\n    internal val star: KTypeProjection = KTypeProjection(null, null)\n}\n\n /**\n * Star projection, denoted by the `*` character.\n * For example, in the type `KClass<*>`, `*` is the star projection.\n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/generics.html#star-projections) for more information.\n */\n public val STAR: KTypeProjection get() = star\n\n /**\n * Creates an invariant projection of a given type. Invariant projection is just the type itself,\n * without any use-site variance modifiers applied to it.\n * For example, in the type `Set<String>`, `String` is an invariant projection of the type represented by the class `String`.\n */\n @JvmStatic\n public fun invariant(type: KType): KTypeProjection =\n    KTypeProjection(KVariance.INVARIANT, type)\n\n /**\n * Creates a contravariant projection of a given type, denoted by the `in` modifier applied to a type.\n * For example, in the type `MutableList<in Number>`, `in Number` is a contravariant projection of the type of class `Number`.\n */\n @JvmStatic\n public fun contravariant(type: KType): KTypeProjection =\n    KTypeProjection(KVariance.IN, type)\n\n /**\n * Creates a covariant projection of a given type, denoted by the `out` modifier applied to a type.\n * For example, in the type `Array<out Number>`, `out Number` is a covariant projection of the type of class `Number`.\n */\n @JvmStatic\n public fun covariant(type: KType): KTypeProjection =\n    KTypeProjection(KVariance.OUT, type)\n}\n}"/>\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\n /**\n * Represents variance applied to a type parameter on the declaration site (*declaration-site variance*),\n * or to a type in a projection (*use-site variance*). \n * See the [Kotlin language documentation](https://kotlinlang.org/docs/reference/generics.html#variance) for more information.\n * @see [KTypeParameter.variance]\n * @see [KTypeProjection]\n */\n @SinceKotlin("1.1")\n enum class KVariance {\n    /**\n     * The affected type parameter or type is *invariant*, which means it has no variance applied to it.\n     */\n    INVARIANT,\n    /**\n     * The affected type parameter or type is *contravariant*. Denoted by the `in` modifier in the source code.\n     */\n    IN,\n    /**\n     * The affected type parameter or type is *covariant*. Denoted by the `out` modifier in the source code.\n     */\n    OUT,\n}\n"/>\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.reflect\n\n /**\n * Returns a runtime representation of the given reified type [T] as an instance of [KType].\n * Note that on JVM, the created type has no annotations ([KType.annotations] returns an empty list)\n * even if the type in the source code is annotated. Support for type annotations might be added in a future version.\n */\n @SinceKotlin("1.6")\n @WasExperimental(ExperimentalStdlibApi::class)\n public inline fun <reified T> typeOf(): KType =\n    throw UnsupportedOperationException("This function is implemented as an intrinsic on all supported platforms.")\n"/>\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("StringsKt")\n\npackage kotlin.text\n\n /**\n * An object to which char sequences and values can be appended.\n */\n expect interface Appendable {\n    /**\n     * Appends the specified character [value] to this Appendable and returns this instance.\n     */\n    @param value the character to append.\n    fun append(value: Char): Appendable\n\n    /**\n     * Appends the specified character sequence [value] to this Appendable and returns this instance.\n     */\n    @param value the character sequence to append. If [value] is `null`, then the four characters `\\null` are appended to this Appendable.\n    fun append(value: CharSequence?): Appendable\n\n    /**\n     * Appends a subsequence of

```



```

whitespace characters (no indent at all) then the\n * common indent is 0,
and therefore this function doesn't change the indentation.\n *\n * Doesn't preserve the original line endings.\n *\n *
@sample samples.text.Strings.trimIndent\n * @see trimMargin\n * @see kotlin.text.isBlank\n * ^\npublic fun
String.trimIndent(): String = replaceIndent("\\")\n\n/**\n * Detects a common minimal indent like it does
[trimIndent] and replaces it with the specified [newIndent].\n * ^\npublic fun String.replaceIndent(newIndent: String
= "\\"): String {\n    val lines = lines()\n    val minCommonIndent = lines\n        .filter(String::isNotBlank)\n
        .map(String::indentWidth)\n        .minOrNull() ?: 0\n    return lines.reindent(length + newIndent.length *
lines.size, getIndentFunction(newIndent), { line -> line.drop(minCommonIndent) })\n}\n\n/**\n * Prepends [indent]
to every line of the original string.\n *\n * Doesn't preserve the original line endings.\n * ^\npublic fun
String.prependIndent(indent: String = "\n\n"): String =\n    lineSequence()\n        .map {\n
            when {\n                it.isBlank() -> {\n                    when {\n                        it.length < indent.length ->
indent\n                            else -> it\n                    }\n                }\n                else -> indent + it\n            }\n        }\n        .joinToString("\\n")\n\nprivate fun String.indentWidth(): Int = indexOfFirst { !it.isWhitespace() }.let { if (it == -1)
length else it }\n\nprivate fun getIndentFunction(indent: String) = when {\n    indent.isEmpty() -> { line: String ->
line }\n    else -> { line: String -> indent + line }\n}\n\nprivate inline fun List<String>.reindent(\n
resultSizeEstimate: Int,\n    indentAddFunction: (String) -> String,\n    indentCutFunction: (String) -> String?\n):
String {\n    val lastIndex = lastIndex\n    return mapIndexedNotNull { index, value ->\n        if ((index == 0 || index
== lastIndex) && value.isBlank())\n            null\n        else\n            indentCutFunction(value)?.let(indentAddFunction)
?: value\n    }\n    .joinTo(StringBuilder(resultSizeEstimate), "\\n")\n        .toString()\n}\n\n"/*\n * Copyright
2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.text\n\n/**\n *
Defines names for Unicode symbols used in proper Typography.\n * ^\npublic object Typography {\n    /** The
character &#x22; \u2013 quotation mark * ^\n    public const val quote: Char = "\u0022"\n    /** The character
&#x24; \u2013 dollar sign * ^\n    public const val dollar: Char = "\u0024"\n    /** The character &#x26; \u2013
ampersand * ^\n    public const val amp: Char = "\u0026"\n    /** The character &#x3C; \u2013 less-than sign * ^\n
    public const val less: Char = "\u003C"\n    /** The character &#x3E; \u2013 greater-than sign * ^\n    public const val
greater: Char = "\u003E"\n    /** The non-breaking space character * ^\n
    public const val nbsp: Char = "\u00A0"\n    /** The character &#xD7; * ^\n    public const val times: Char =
"\u00D7"\n    /** The character &#xA2; * ^\n    public const val cent: Char = "\u00A2"\n    /** The character &#xA3;
* ^\n    public const val pound: Char = "\u00A3"\n    /** The character &#xA7; * ^\n    public const val section: Char =
"\u00A7"\n    /** The character &#xA9; * ^\n    public const val copyright: Char = "\u00A9"\n    /** The character
&#xAB; * ^\n    @SinceKotlin("1.6")\n    public const val leftGuillemet: Char = "\u00AB"\n    /** The character
&#xBB; * ^\n    @SinceKotlin("1.6")\n    public const val rightGuillemet: Char = "\u00BB"\n    /** The character
&#xAE; * ^\n    public const val registered: Char = "\u00AE"\n    /** The character &#xB0; * ^\n    public const val
degree: Char = "\u00B0"\n    /** The character &#xB1; * ^\n    public const val plusMinus: Char = "\u00B1"\n    /**
The character &#xB6; * ^\n    public const val paragraph: Char = "\u00B6"\n
    /** The character &#xB7; * ^\n    public const val middleDot: Char = "\u00B7"\n    /** The character &#xBD; * ^\n
    public const val half: Char = "\u00BD"\n    /** The character &#x2013; * ^\n    public const val ndash: Char =
"\u2013"\n    /** The character &#x2014; * ^\n    public const val mdash: Char = "\u2014"\n    /** The character
&#x2018; * ^\n    public const val leftSingleQuote: Char = "\u2018"\n    /** The character &#x2019; * ^\n    public
const val rightSingleQuote: Char = "\u2019"\n    /** The character &#x201A; * ^\n    public const val
lowSingleQuote: Char = "\u201A"\n    /** The character &#x201C; * ^\n    public const val leftDoubleQuote: Char =
"\u201C"\n    /** The character &#x201D; * ^\n    public const val rightDoubleQuote: Char = "\u201D"\n    /** The
character &#x201E; * ^\n    public const val lowDoubleQuote: Char = "\u201E"\n    /** The character &#x2020; * ^\n
    public const val dagger: Char = "\u2020"\n    /** The character &#x2021; * ^\n    public
const val doubleDagger: Char = "\u2021"\n    /** The character &#x2022; * ^\n    public
const val bullet: Char = "\u2022"\n    /** The character &#x2026; * ^\n    public
const val ellipsis: Char = "\u2026"\n    /** The character

```

```

&#x2032; *^n public const val prime: Char = "\u2032"n /** The character &#x2032; *^n public const val
doublePrime: Char = "\u2033"n /** The character &#x20AC; *^n public const val euro: Char = "\u20AC"n
/** The character &#x2122; *^n public const val tm: Char = "\u2122"n /** The character &#x2248; *^n
public const val almostEqual: Char = "\u2248"n /** The character &#x2260; *^n public const val notEqual:
Char = "\u2260"n /** The character &#x2264; *^n public const val lessOrEqual: Char = "\u2264"n /** The
character &#x2265; *^n public const val greaterOrEqual: Char = "\u2265"n /** The character &#xAB; *^n
@Deprecated("This constant has a typo in the name. Use leftGuillemet instead."),
ReplaceWith("Typography.leftGuillemet"))n @DeprecatedSinceKotlin("1.6")n public const val
leftGuillemete: Char = "\u00AB"n /** The character &#xBB; *^n @Deprecated("This constant has a typo in
the name. Use rightGuillemet instead."), ReplaceWith("Typography.rightGuillemet"))n
@DeprecatedSinceKotlin("1.6")n public const val rightGuillemete: Char = "\u00BB"n },"/*n * Copyright
2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.n * Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.n */npackage kotlin.textn/n/**n *
Represents a collection of captured groups in a single match of a regular expression.n *n * This collection has size
of `groupCount + 1` where `groupCount` is the count of groups in the regular expression.n * Groups are indexed
from 1 to `groupCount` and group with the index 0 corresponds to the entire match.n *n * An element of the
collection
at the particular index can be `null`,n * if the corresponding group in the regular expression is optional andn *
there was no match captured by that group.n */npublic interface MatchGroupCollection :
Collection<MatchGroup?> {n/n /** Returns a group with the specified [index].n *n * @return An instance
of [MatchGroup] if the group with the specified [index] was matched or `null` otherwise.n *n * Groups are
indexed from 1 to the count of groups in the regular expression. A group with the index 0n * corresponds to the
entire match.n *^n public operator fun get(index: Int): MatchGroup?n }n/n/**n * Extends
[MatchGroupCollection] by introducing a way to get matched groups by name, when regex supports it.n
*/n@SinceKotlin("1.1")npublic interface MatchNamedGroupCollection : MatchGroupCollection {n /**n *
Returns a named group with the specified [name].n * @return An instance of [MatchGroup] if the group with the
specified [name] was
matched or `null` otherwise.n * @throws IllegalArgumentException if there is no group with the specified
[name] defined in the regex pattern.n * @throws UnsupportedOperationException if this match group collection
doesn't support getting match groups by name,n * for example, when it's not supported by the current platform.n
*/n public operator fun get(name: String): MatchGroup?n }n/n/**n * Represents the results from a single
regular expression match.n */npublic interface MatchResult {n /** The range of indices in the original string
where match was captured. */n public val range: IntRangen /** The substring from the input string captured by
this match. */n public val value: Stringn /**n * A collection of groups matched by the regular expression.n
*n * This collection has size of `groupCount + 1` where `groupCount` is the count of groups in the regular
expression.n * Groups are indexed from 1 to `groupCount` and group
with the index 0 corresponds to the entire match.n */n public val groups: MatchGroupCollectionn /**n *
A list of matched indexed group values.n *n * This list has size of `groupCount + 1` where `groupCount` is
the count of groups in the regular expression.n * Groups are indexed from 1 to `groupCount` and group with the
index 0 corresponds to the entire match.n *n * If the group in the regular expression is optional and there were
no match captured by that group,n * corresponding item in [groupValues] is an empty string.n *n *
@sample samples.text.Regexp.matchDestructuringToGroupValuesn */n public val groupValues:
List<String>n/n /**n * An instance of [MatchResult.Destructured] wrapper providing components for
destructuring assignment of group values.n *n * component1 corresponds to the value of the first group,
component2 \u2014 of the second, and so on.n *n * @sample
samples.text.Regexp.matchDestructuringToGroupValuesn
*/n public val destructured: Destructured get() = Destructured(this)n/n /** Returns a new [MatchResult]
with the results for the next match, starting at the positionn * at which the last match ended (at the character after

```

```

the last matched character).\n    */\n    public fun next(): MatchResult?\n\n    /**\n     * Provides components for
destructuring assignment of group values.\n    *\n     * [component1] corresponds to the value of the first group,
[component2] \u2014 of the second, and so on.\n    *\n     * If the group in the regular expression is optional and
there were no match captured by that group,\n    *\n     * corresponding component value is an empty string.\n    *\n     *
@sample samples.text.Regexps.matchDestructuringToGroupValues\n    */\n    public class Destructured internal
constructor(public val match: MatchResult) {\n    @kotlin.internal.InlineOnly\n        public operator inline fun
component1(): String = match.groupValues[1]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component2(): String = match.groupValues[2]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component3(): String = match.groupValues[3]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component4(): String = match.groupValues[4]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component5(): String = match.groupValues[5]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component6(): String = match.groupValues[6]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component7(): String = match.groupValues[7]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component8(): String = match.groupValues[8]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component9(): String = match.groupValues[9]\n
        @kotlin.internal.InlineOnly\n            public operator inline fun component10(): String = match.groupValues[10]\n\n    /**\n     * Returns
destructured group values as a list of strings.\n    *\n     * First value in the returned list corresponds to the value of the
first group, and so on.\n    *\n     * @sample samples.text.Regexps.matchDestructuringToGroupValues\n    */\n    public fun toList(): List<String> = match.groupValues.subList(1, match.groupValues.size)\n    }\n}"/*\n
Copyright 2010-2021 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*/\n\n@file:kotlin.jvm.JvmMultifileClass()\n@file:kotlin.jvm.JvmName("DurationUnitKt")\n\npackage
kotlin.time\n\n/**\n * The list of possible time measurement units, in which a duration can be expressed.\n *\n *
The smallest time unit is [NANOSECONDS] and the largest is [DAYS], which corresponds to exactly 24
[ HOURS].\n */\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalTime::class)\n\npublic expect enum class
DurationUnit {\n    /**\n     * Time unit representing one nanosecond, which is 1/1000 of a microsecond.\n     */\n    NANOSECONDS,\n    /**\n     * Time unit representing one microsecond, which is 1/1000 of a millisecond.\n     */\n    MICROSECONDS,\n    /**\n     * Time unit representing one millisecond, which is 1/1000 of a second.\n     */\n    MILLISECONDS,\n    /**\n     * Time unit representing one second.\n     */\n    SECONDS,\n    /**\n     * Time unit representing one minute.\n     */\n    MINUTES,\n    /**\n     * Time unit representing one hour.\n     */\n    HOURS,\n    /**\n     * Time unit representing one day, which is always equal to 24 hours.\n     */\n    DAYS;\n}\n\n/** Converts the given time duration [value] expressed in the specified [sourceUnit] into the specified
[targetUnit].\n */\n@SinceKotlin("1.3")\ninternal expect fun convertDurationUnit(value: Double,
    sourceUnit: DurationUnit, targetUnit: DurationUnit): Double\n\n// overflown result is
unspecified\n@SinceKotlin("1.5")\ninternal expect fun convertDurationUnitOverflow(value: Long, sourceUnit:
    DurationUnit, targetUnit: DurationUnit): Long\n\n// overflown result is coerced in the Long range
boundaries\n@SinceKotlin("1.5")\ninternal expect fun convertDurationUnit(value: Long, sourceUnit:
    DurationUnit, targetUnit: DurationUnit):
    Long\n\n@SinceKotlin("1.3")\n@Suppress("REDUNDANT_ELSE_IN_WHEN")\ninternal fun
DurationUnit.shortName(): String = when (this) {\n    DurationUnit.NANOSECONDS -> "ns"\n
    DurationUnit.MICROSECONDS -> "us"\n
    DurationUnit.MILLISECONDS -> "ms"\n
    DurationUnit.SECONDS -> "s"\n
    DurationUnit.MINUTES -> "m"\n
    DurationUnit.HOURS -> "h"\n
    DurationUnit.DAYS -> "d"\n
    else -> error("Unknown unit: $this")\n}\n\n@SinceKotlin("1.5")\ninternal fun
durationUnitByShortName(shortName: String): DurationUnit = when (shortName) {\n    "ns"
-> DurationUnit.NANOSECONDS\n    "us" -> DurationUnit.MICROSECONDS\n    "ms" ->
DurationUnit.MILLISECONDS\n    "s" -> DurationUnit.SECONDS\n    "m" -> DurationUnit.MINUTES\n
    "h" -> DurationUnit.HOURS\n    "d" -> DurationUnit.DAYS\n    else -> throw

```

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IllegalArgumentException("Unknown duration unit short name:
$shortName")\n}\n\n@SinceKotlin("1.5")\ninternal fun durationUnitByIsoChar(isoChar: Char,
isTimeComponent: Boolean): DurationUnit =\n    when {\n        !isTimeComponent -> {\n            when (isoChar) {\n                'D' -> DurationUnit.DAYS\n                else -> throw IllegalArgumentException("Invalid or
unsupported duration ISO non-time unit: $isoChar")\n            }\n        } else -> {\n            when (isoChar) {\n                'H' -> DurationUnit.HOURS\n                'M' -> DurationUnit.MINUTES\n                'S' ->
DurationUnit.SECONDS\n                else -> throw IllegalArgumentException("Invalid duration ISO time unit:
$isoChar")\n            }\n        }\n    },"/*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.annotation.AnnotationTarget.*\n\n/**\n * This annotation marks the experimental preview of the standard library API for measuring time and working with
durations.\n */\n * > Note that this API is in a preview state and has a very high chance of being changed in the
future.\n * Do not use it if you develop a library since your library will become binary incompatible\n * with the
future versions of the standard library.\n */\n * Any usage of a declaration annotated with `@ExperimentalTime`
must be accepted either by\n * annotating that usage with the [OptIn] annotation, e.g.
`@OptIn(ExperimentalTime::class)`,\n * or by using the compiler argument `-opt-
in=kotlin.time.ExperimentalTime`.\n */\n\n@RequiresOptIn(level
=
RequiresOptIn.Level.ERROR)\n@MustBeDocumented\n@Retention(AnnotationRetention.BINARY)\n@Target(\n
CLASS,\n ANNOTATION_CLASS,\n PROPERTY,\n FIELD,\n LOCAL_VARIABLE,\n
VALUE_PARAMETER,\n CONSTRUCTOR,\n FUNCTION,\n PROPERTY_GETTER,\n
PROPERTY_SETTER,\n TYPEALIAS)\n\n@SinceKotlin("1.3")\n\npublic annotation class
ExperimentalTime\n"/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language
contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.jvm.JvmInline\n\n/**\n * A source of time
for measuring time intervals.\n */\n * The only operation provided by the time source is [markNow]. It returns a
[TimeMark], which can be used to query the elapsed time later.\n */\n * @see [measureTime]\n * @see
[measureTimedValue]\n */\n\n@SinceKotlin("1.3")\n\n@ExperimentalTime\n\npublic interface TimeSource {\n    /**\n
 * Marks a point in time on this time source.\n */\n * The returned [TimeMark] instance encapsulates the captured
time point and allows querying\n * the duration of time interval [elapsed][TimeMark.elapsedNow] from that
point.\n */\n * \n\n    public fun markNow(): TimeMark\n\n    /**\n * The most precise time source available in the
platform.\n */\n * This time source returns its readings from a source of monotonic time when it is available in a
target platform,\n * and resorts to a non-monotonic time source otherwise.\n */\n * The function [markNow]
of this time source returns the specialized [ValueTimeMark] that is an inline value class\n * wrapping a platform-
dependent time reading value.\n */\n * \n\n    public object Monotonic : TimeSource {\n        override fun markNow():
ValueTimeMark = MonotonicTimeSource.markNow()\n        override fun toString(): String =
MonotonicTimeSource.toString()\n\n        /**\n * A specialized [kotlin.time.TimeMark]
returned by [TimeSource.Monotonic].\n */\n * This time mark is implemented as an inline value class
wrapping a platform-dependent\n * time reading value of the default monotonic time source, thus allowing to
avoid additional boxing\n * of that value.\n */\n * The operations [plus] and [minus] are also
specialized to return [ValueTimeMark] type.\n */\n * \n\n        @ExperimentalTime\n        @SinceKotlin("1.7")\n
        @JvmInline\n        public value class ValueTimeMark internal constructor(internal val reading:
ValueTimeMarkReading) : TimeMark {\n            override fun elapsedNow(): Duration =
MonotonicTimeSource.elapsedFrom(this)\n            override fun plus(duration: Duration): ValueTimeMark =
MonotonicTimeSource.adjustReading(this, duration)\n            override fun minus(duration: Duration):
ValueTimeMark = MonotonicTimeSource.adjustReading(this, -duration)\n            override fun hasPassedNow():

```



```

Boolean = !elapsedNow().isNegative()\n
    override fun hasNotPassedNow(): Boolean = elapsedNow().isNegative()\n    }\n }\n\n public
companion object {\n    }\n}\n\n/** A platform-specific reading type that is wrapped by
[TimeSource.Monotonic.ValueTimeMark] inline class. *\ninternal expect class ValueTimeMarkReading\n\n\n/**\n * Represents a time point notched on a particular [TimeSource]. Remains bound to the time source it was taken
from\n * and allows querying for the duration of time elapsed from that point (see the function [elapsedNow]).\n
*\n\n @SinceKotlin("1.3")\n\n @ExperimentalTime\n\n public interface TimeMark {\n    /**\n    * Returns the amount of
time passed from this mark measured with the time source from which this mark was taken.\n    *\n    * Note that
the value returned by this function can change on subsequent invocations.\n    *\n    * @throws
IllegalArgumentExcepion an implementation may throw if calculating the elapsed time involves\n    * adding a
positive infinite
duration to an infinitely distant past time mark or\n    * a negative infinite duration to an infinitely distant future
time mark.\n    *\n    public abstract fun elapsedNow(): Duration\n\n    /**\n    * Returns a time mark on the same
time source that is ahead of this time mark by the specified [duration].\n    *\n    * The returned time mark is more
_late_ when the [duration] is positive, and more _early_ when the [duration] is negative.\n    *\n    * If the time
mark is adjusted too far in the past or in the future, it may saturate to an infinitely distant time mark.\n    * In that
case, [elapsedNow] will return an infinite duration elapsed from such infinitely distant mark.\n    *\n    * @throws
IllegalArgumentExcepion an implementation may throw if a positive infinite duration is added to an infinitely
distant past time mark or\n    * a negative infinite duration is added to an infinitely distant future time mark.\n
*\n\n    public open operator fun plus(duration:
Duration): TimeMark = AdjustedTimeMark(this, duration)\n\n    /**\n    * Returns a time mark on the same time
source that is behind this time mark by the specified [duration].\n    *\n    * The returned time mark is more _early_
when the [duration] is positive, and more _late_ when the [duration] is negative.\n    *\n    * If the time mark is
adjusted too far in the past or in the future, it may saturate to an infinitely distant time mark.\n    * In that case,
[elapsedNow] will return an infinite duration elapsed from such infinitely distant mark.\n    *\n    * @throws
IllegalArgumentExcepion an implementation may throw if a positive infinite duration is subtracted from an
infinitely distant future time mark or\n    * a negative infinite duration is subtracted from an infinitely distant past
time mark.\n    *\n    public open operator fun minus(duration: Duration): TimeMark = plus(-duration)\n\n\n
/**\n    * Returns true if this time mark has passed according to the
time source from which this mark was taken.\n    *\n    * Note that the value returned by this function can change
on subsequent invocations.\n    * If the time source is monotonic, it can change only from `false` to `true`, namely,
when the time mark becomes behind the current point of the time source.\n    *\n    public fun hasPassedNow():
Boolean = !elapsedNow().isNegative()\n\n    /**\n    * Returns false if this time mark has not passed according to
the time source from which this mark was taken.\n    *\n    * Note that the value returned by this function can
change on subsequent invocations.\n    * If the time source is monotonic, it can change only from `true` to `false`,
namely, when the time mark becomes behind the current point of the time source.\n    *\n    public fun
hasNotPassedNow(): Boolean =
elapsedNow().isNegative()\n}\n}\n\n @ExperimentalTime\n\n @SinceKotlin("1.3")\n\n @kotlin.internal.InlineOnly\n\n
@Deprecated(\n    \ "Subtracting one TimeMark from another is not
a well defined operation because these time marks could have been obtained from the different time sources.\n",\n
level = DeprecationLevel.ERROR)\n\n @Suppress("UNUSED_PARAMETER")\n\n public inline operator fun
TimeMark.minus(other: TimeMark): Duration = throw Error("Operation is
disallowed.")\n\n\n @ExperimentalTime\n\n @SinceKotlin("1.3")\n\n @kotlin.internal.InlineOnly\n\n @Deprecated(\n
\ "Comparing one TimeMark to another is not a well defined operation because these time marks could have been
obtained from the different time sources.\n",\n    level =
DeprecationLevel.ERROR)\n\n @Suppress("UNUSED_PARAMETER")\n\n public inline operator fun
TimeMark.compareTo(other: TimeMark): Int = throw Error("Operation is
disallowed.")\n\n\n\n @ExperimentalTime\n\n private class AdjustedTimeMark(val mark: TimeMark, val adjustment:

```

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Duration) : TimeMark {
    override fun elapsedNow(): Duration = mark.elapsedNow() - adjustment
    override fun plus(duration: Duration): TimeMark = AdjustedTimeMark(mark, adjustment
+ duration)
}
}
"/**
 * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.
 * Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.
 */
package kotlin.time
@SinceKotlin("1.3")
@ExperimentalTime
internal expect object
MonotonicTimeSource : TimeSource {
    override fun markNow(): TimeSource.Monotonic.ValueTimeMark
fun elapsedFrom(timeMark: TimeSource.Monotonic.ValueTimeMark): Duration
fun adjustReading(timeMark:
TimeSource.Monotonic.ValueTimeMark, duration: Duration): TimeSource.Monotonic.ValueTimeMark
}
}
"/**
 * An abstract class used to implement time sources that return their readings as [Long] values in the specified
 [unit].
 * @property unit The unit in which this time source's readings are expressed.
 */
@SinceKotlin("1.3")
@ExperimentalTime
public abstract class AbstractLongTimeSource(protected val
unit: DurationUnit) : TimeSource {
    /**
     * This protected method should be overridden to return the current reading of the time source expressed as a
     [Long] number
     * in the unit specified by the [unit] property.
     */
    protected abstract fun read(): Long
    private class LongTimeMark(private val startedAt: Long, private val timeSource: AbstractLongTimeSource, private
val offset: Duration) : TimeMark {
        override fun elapsedNow(): Duration = (timeSource.read() -
startedAt).toDuration(timeSource.unit) - offset
        override fun plus(duration: Duration): TimeMark =
LongTimeMark(startedAt, timeSource, offset + duration)
    }
    override fun markNow(): TimeMark =
LongTimeMark(read(), this, Duration.ZERO)
}
}
"/**
 * An abstract class used to implement time sources that
return their readings as [Double] values in the specified [unit].
 * @property unit The unit in which this time
source's readings are expressed.
 */
@SinceKotlin("1.3")
@ExperimentalTime
public abstract class
AbstractDoubleTimeSource(protected
val unit: DurationUnit) : TimeSource {
    /**
     * This protected method should be overridden to return the
current reading of the time source expressed as a [Double] number
     * in the unit specified by the [unit]
property.
     */
    protected abstract fun read(): Double
    private class DoubleTimeMark(private val startedAt:
Double, private val timeSource: AbstractDoubleTimeSource, private val offset: Duration) : TimeMark {
        override fun elapsedNow(): Duration = (timeSource.read() - startedAt).toDuration(timeSource.unit) - offset
        override fun plus(duration: Duration): TimeMark = DoubleTimeMark(startedAt, timeSource, offset + duration)
    }
    override fun markNow(): TimeMark = DoubleTimeMark(read(), this, Duration.ZERO)
}
}
"/**
 * A time
source that has programmatically updatable readings. It is useful as a predictable source of time in tests.
 * The
current reading value can be advanced by the specified duration
amount with the operator [plusAssign]:
 * val timeSource = TestTimeSource()
 * timeSource +=
10.seconds
 * Implementation note: the current reading value is stored as a [Long] number of
nanoseconds,
 * thus it's capable to represent a time range of approximately 1292 years.
 * Should the
reading value overflow as the result of [plusAssign] operation, an [IllegalStateException] is thrown.
 */
@SinceKotlin("1.3")
@ExperimentalTime
public class TestTimeSource : AbstractLongTimeSource(unit =
DurationUnit.NANOSECONDS) {
    private var reading: Long = 0L
    override fun read(): Long = reading
}
/**
 * Advances the current reading value of this time source by the specified [duration].
 * [duration]
value is rounded down towards zero when converting it to a [Long] number of nanoseconds.
 * For example, if
the duration being added is `0.6.nanoseconds`, the reading doesn't advance because
 * the duration value is
rounded to zero nanoseconds.
 * @throws IllegalStateException when the reading value overflows as the
result of this operation.
 */
public operator fun plusAssign(duration: Duration) {
    val longDelta =
duration.toLong(unit)
    reading = if (longDelta != Long.MIN_VALUE && longDelta != Long.MAX_VALUE)
    {
        // when delta fits in long, add it as long
        val newReading = reading + longDelta
        if
(reading xor longDelta >= 0 && reading xor newReading < 0) overflow(duration)
        newReading
    } else
    {
        val delta = duration.toDouble(unit)
        // when delta is greater than long, add it as double
        val newReading = reading + delta
        if (newReading > Long.MAX_VALUE || newReading <
Long.MIN_VALUE) overflow(duration)
        newReading.toLong()
    }
}
private fun

```

```

overflow(duration: Duration) {\n    throw IllegalStateException("\nTestTimeSource will
overflow if its reading ${reading}ns is advanced by $duration.\n")\n    }\n}\n", "/*\n * Copyright 2010-2022
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport
kotlin.time.Duration.Companion.milliseconds\nimport kotlin.time.Duration.Companion.nanoseconds\n\n// Long
time reading saturation math, shared between JVM and Native\n\ninternal fun saturatingAdd(longNs: Long,
duration: Duration): Long {\n    val durationNs = duration.inWholeNanoseconds\n    if ((longNs - 1) or 1 ==
Long.MAX_VALUE) { // MIN_VALUE or MAX_VALUE - the reading is infinite\n        return
checkInfiniteSumDefined(longNs, duration, durationNs)\n    }\n    if ((durationNs - 1) or 1 == Long.MAX_VALUE)
{ // duration doesn't fit in Long nanos\n        return saturatingAddInHalves(longNs, duration)\n    }\n    val result =
longNs + durationNs\n    if (((longNs
xor result) and (durationNs xor result)) < 0) {\n        return if (longNs < 0) Long.MIN_VALUE else
Long.MAX_VALUE\n    }\n    return result\n}\n\nprivate fun checkInfiniteSumDefined(longNs: Long, duration:
Duration, durationNs: Long): Long {\n    if (duration.isInfinite() && (longNs xor durationNs < 0)) throw
IllegalArgumentException("Summing infinities of different signs")\n    return longNs\n}\n\nprivate fun
saturatingAddInHalves(longNs: Long, duration: Duration): Long {\n    val half = duration / 2\n    if
((half.inWholeNanoseconds - 1) or 1 == Long.MAX_VALUE) {\n        // this will definitely saturate\n        return
(longNs + duration.toDouble(DurationUnit.NANOSECONDS)).toLong()\n    } else {\n        return
saturatingAdd(saturatingAdd(longNs, half), half)\n    }\n}\n\ninternal fun saturatingDiff(valueNs: Long, originNs:
Long): Duration {\n    if ((originNs - 1) or 1 == Long.MAX_VALUE) { // MIN_VALUE or MAX_VALUE\n        return -(originNs.toDuration(DurationUnit.DAYS)) // saturate
to infinity\n    }\n    val result = valueNs - originNs\n    if ((result xor valueNs) and (result xor originNs).inv() < 0)
{\n        val resultMs = valueNs / NANOS_IN_MILLIS - originNs / NANOS_IN_MILLIS\n        val resultNs =
valueNs % NANOS_IN_MILLIS - originNs % NANOS_IN_MILLIS\n        return resultMs.milliseconds +
resultNs.nanoseconds\n    }\n    return result\n}\n", "/*\n * Copyright 2010-2022 JetBrains s.r.o. and
Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that
can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin.time\n\nimport kotlin.contracts.*\n\n/**\n *
Executes the given function [block] and returns the duration of elapsed time interval.\n * The elapsed time is
measured with [TimeSource.Monotonic].\n */\n\n@SinceKotlin("1.3")\n@ExperimentalTime\npublic inline fun
measureTime(block: () -> Unit): Duration {\n    contract {\n        callsInPlace(block,
InvocationKind.EXACTLY_ONCE)\n    }\n    return TimeSource.Monotonic.measureTime(block)\n}\n\n/**\n * Executes the given function [block] and
returns the duration of elapsed time interval.\n * The elapsed time is measured with the specified `this`
[TimeSource] instance.\n */\n\n@SinceKotlin("1.3")\n@ExperimentalTime\npublic inline fun
TimeSource.measureTime(block: () -> Unit): Duration {\n    contract {\n        callsInPlace(block,
InvocationKind.EXACTLY_ONCE)\n    }\n    val mark = markNow()\n    block()\n    return
mark.elapsedNow()\n}\n\n/**\n * Executes the given function [block] and returns the duration of elapsed time
interval.\n * The elapsed time is measured with the specified `this` [TimeSource.Monotonic] instance.\n
*/\n\n@SinceKotlin("1.7")\n@ExperimentalTime\npublic inline fun TimeSource.Monotonic.measureTime(block: ()
-> Unit): Duration {\n    contract {\n        callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n    }\n    val
mark = markNow()\n    block()\n    return mark.elapsedNow()\n}\n\n/**\n * Data class representing a result of executing an action, along with the duration of elapsed time interval.\n * The elapsed time is measured with the specified `this` [TimeSource.Monotonic] instance.\n */\n\n@SinceKotlin("1.3")\n@ExperimentalTime\npublic data class TimedValue<T>(val value: T, val duration:
Duration)\n\n/**\n * Executes the given function [block] and returns an instance of [TimedValue] class, containing
both\n * the result of the function execution and the duration of elapsed time interval.\n * The elapsed time is
measured with [TimeSource.Monotonic].\n */\n\n@SinceKotlin("1.3")\n@ExperimentalTime\npublic inline fun <T>
measureTimedValue(block: () -> T): TimedValue<T> {\n    contract {\n        callsInPlace(block,

```

```

InvocationKind.EXACTLY_ONCE)\n })\n\n return
TimeSource.Monotonic.measureTimedValue(block)\n}\n\n/**\n * Executes the given [block] and returns an
instance of [TimedValue] class, containing both\n * the result
of function execution and the duration of elapsed time interval.\n *\n * The elapsed time is measured with the
specified `this` [TimeSource] instance.\n *\n @SinceKotlin("1.3")\n @ExperimentalTime\n public inline fun <T>
TimeSource.measureTimedValue(block: () -> T): TimedValue<T> {\n contract {\n callsInPlace(block,
InvocationKind.EXACTLY_ONCE)\n }\n\n val mark = markNow()\n val result = block()\n return
TimedValue(result, mark.elapsedNow())\n}\n\n/**\n * Executes the given [block] and returns an instance of
[TimedValue] class, containing both\n * the result of function execution and the duration of elapsed time interval.\n
*\n * The elapsed time is measured with the specified `this` [TimeSource.Monotonic] instance.\n
*\n @SinceKotlin("1.7")\n @ExperimentalTime\n public inline fun <T>
TimeSource.Monotonic.measureTimedValue(block: () -> T): TimedValue<T> {\n contract {\n
callsInPlace(block, InvocationKind.EXACTLY_ONCE)\n }\n\n val mark = markNow()\n
val result = block()\n return TimedValue(result, mark.elapsedNow())\n}\n\n","/*\n * Copyright 2010-2020
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage kotlin\n\nimport
kotlin.coroutines.*\nimport kotlin.coroutines.intrinsics.*\nimport
kotlin.native.concurrent.SharedImmutable\n\n/**\n * Defines deep recursive function that keeps its stack on the
heap,\n * which allows very deep recursive computations that do not use the actual call stack.\n * To initiate a call to
this deep recursive function use its [invoke] function.\n * As a rule of thumb, it should be used if recursion goes
deeper than a thousand calls.\n *\n * The [DeepRecursiveFunction] takes one parameter of type [T] and returns a
result of type [R].\n * The [block] of code defines the body of a recursive function. In this block\n *
[callRecursive][DeepRecursiveScope.callRecursive]
function can be used to make a recursive call\n * to the declared function. Other instances of
[DeepRecursiveFunction] can be called\n * in this scope with `callRecursive` extension, too.\n *\n * For example,
take a look at the following recursive tree class and a deeply\n * recursive instance of this tree with 100K nodes:\n
*\n * ```\n * class Tree(val left: Tree? = null, val right: Tree? = null)\n * val deepTree = generateSequence(Tree()) {
Tree(it) }.take(100_000).last()\n * ```\n * A regular recursive function can be defined to compute a depth of a
tree:\n * ```\n * fun depth(t: Tree?): Int =\n *     if (t == null) 0 else max(depth(t.left), depth(t.right)) + 1\n *
println(depth(deepTree)) // StackOverflowError\n * ```\n * If this `depth` function is called for a `deepTree` it
produces `StackOverflowError` because of deep recursion.\n * However, the `depth` function can be rewritten using
`DeepRecursiveFunction` in the following way, and then\n * it successfully computes
[depth(deepTree)][DeepRecursiveFunction.invoke] expression:\n * ```\n * val depth =
DeepRecursiveFunction<Tree?, Int> { t ->\n *     if (t == null) 0 else max(callRecursive(t.left),
callRecursive(t.right)) + 1\n * }\n * println(depth(deepTree)) // Ok\n * ```\n * Deep recursive functions can also
mutually call each other using a heap for the stack via\n * [callRecursive][DeepRecursiveScope.callRecursive]
extension. For example, the\n * following pair of mutually recursive functions computes the number of tree nodes at
even depth in the tree.\n * ```\n * val mutualRecursion = object {\n *     val even:
DeepRecursiveFunction<Tree?, Int> = DeepRecursiveFunction { t ->\n *         if (t == null) 0 else
odd.callRecursive(t.left) + odd.callRecursive(t.right) + 1\n *     }\n *     val odd: DeepRecursiveFunction<Tree?,
Int> = DeepRecursiveFunction { t ->\n *         if (t == null) 0 else even.callRecursive(t.left) +
even.callRecursive(t.right)\n *     }\n * }\n * ```\n *
@param [T] the function parameter type.\n * @param [R] the function result type.\n * @param block the function
body.\n * @SinceKotlin("1.7")\n * @WasExperimental(ExperimentalStdlibApi::class)\n * public class
DeepRecursiveFunction<T, R>(\n     internal val block: suspend DeepRecursiveScope<T, R>.(T) -> R)\n }\n\n/**\n *
Initiates a call to this deep recursive function, forming a root of the call tree.\n *\n * This operator should not be
used from inside of [DeepRecursiveScope] as it uses the call stack slot for\n * initial recursive invocation. From
inside of [DeepRecursiveScope] use\n * [callRecursive][DeepRecursiveScope.callRecursive].\n

```



```

if (UNDEFINED_RESULT == result) {\n          // call \"function\" with \"value\" using \"cont\" as completion\n    val r = try {\n          // This is block.startCoroutine(this, value, cont)\n    function.startCoroutineUninterceptedOrReturn(this, value, cont)\n          } catch (e: Throwable) {\n    cont.resumeWithException(e)\n          continue\n        }\n        // If the function returns without suspension -- calls its continuation\n    immediately\n        if (r != COROUTINE_SUSPENDED)\n            cont.resume(r as R)\n        } else\n    {\n        // we returned from a crossFunctionCompletion trampoline -- call resume here\n        this.result =\n    UNDEFINED_RESULT // reset result back\n        cont.resumeWith(result)\n    }\n}\n}"/*\n * Copyright 2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code\n is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated\n file. DO NOT\n\nEDIT!\n\n@file:kotlin.jvm.JvmName(\"NumbersKt\")\n@file:kotlin.jvm.JvmMultifileClass\npackage\nkotlin\nimport kotlin.math.sign\n/** Divides this value by the other value, flooring the result to an integer that is\n closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic\n inline fun Byte.floorDiv(other: Byte): Int = \n    this.toInt().floorDiv(other.toInt())\n/** Calculates the\n remainder of flooring division of this value by the other value.\n * The result is either zero or has the same sign\n as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun Byte.mod(other: Byte): Byte = \n    this.toInt().mod(other.toInt()).toByte()\n/** Divides this value by the other value, flooring the result to an integer\n that is closer to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun\n Byte.floorDiv(other: Short): Int = \n    this.toInt().floorDiv(other.toInt())\n/** Calculates the remainder of\n flooring division of this value by the other value.\n * The result is either zero or has the same sign as the\n _divisor_ and has the absolute value less than the\n absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun\n Byte.mod(other: Short): Short = \n    this.toInt().mod(other.toInt()).toShort()\n/** Divides this value by the other\n value, flooring the result to an integer that is closer to negative infinity.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun Byte.floorDiv(other: Int): Int = \n    this.toInt().floorDiv(other)\n/** Calculates the remainder of flooring division of this value by the other\n value.\n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the\n absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun\n Byte.mod(other: Int): Int = \n    this.toInt().mod(other)\n/** Divides this value by the other value, flooring the\n result to an integer that is closer to negative infinity.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline\n fun Byte.floorDiv(other: Long): Long = \n    this.toLong().floorDiv(other)\n/** Calculates the remainder of\n flooring division of this value by the other value.\n * The result is either zero or has the same sign as the\n _divisor_ and has the absolute value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun Byte.mod(other: Long): Long = \n    this.toLong().mod(other)\n/** Divides this value by the other value, flooring the result to an integer that is closer\n to negative infinity. */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun Short.floorDiv(other:\n Byte): Int = \n    this.toInt().floorDiv(other.toInt())\n/** Calculates the remainder of flooring division of this\n value by the other value.\n * The result is either zero or has the same sign as the _divisor_ and has the absolute\n value less than the absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic\n inline fun Short.mod(other: Byte): Byte = \n    this.toInt().mod(other.toInt()).toByte()\n/** Divides this value by\n the other value, flooring the result to an integer that is closer to negative infinity.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun Short.floorDiv(other: Short): Int = \n    this.toInt().floorDiv(other.toInt())\n/** Calculates the remainder of flooring division of this value by the other\n value.\n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the\n absolute value of the divisor.\n */\n@SinceKotlin(\"1.5\")\n@kotlin.internal.InlineOnly\npublic inline fun

```

Short.mod(other: Short): Short = \n this.toInt().mod(other.toInt()).toShort()\n\n\*\* Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Short.floorDiv(other: Int): Int =  
\n this.toInt().floorDiv(other)\n\n**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun  
Short.mod(other: Int): Int = \n this.toInt().mod(other)\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
```

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Short.floorDiv(other: Long): Long = \n this.toLong().floorDiv(other)\n\n**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun  
Short.mod(other: Long):
```

```
Long = \n this.toLong().mod(other)\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun  
Int.floorDiv(other: Byte): Int = \n this.floorDiv(other.toInt())\n\n**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
```

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Int.mod(other: Byte): Byte = \n this.mod(other.toInt()).toByte()\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun  
Int.floorDiv(other: Short): Int = \n this.floorDiv(other.toInt())\n\n**\n * Calculates the remainder of flooring division of
```

```
this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
```

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Int.mod(other: Short): Short = \n this.mod(other.toInt()).toShort()\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun  
Int.floorDiv(other: Int): Int {\n var q = this / other\n if (this xor other < 0 && q * other != this) q--\n return q\n}\n\n**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Int.mod(other: Int): Int {\n val r = this
```

```
% other\n return r + (other and (((r xor other) and (r or -r)) shr 31))\n}\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
```

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Int.floorDiv(other: Long): Long = \n this.toLong().floorDiv(other)\n\n**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun  
Int.mod(other: Long): Long = \n this.toLong().mod(other)\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.
```

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Long.floorDiv(other: Byte): Long = \n this.floorDiv(other.toLong())\n\n**\n * Calculates the remainder of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the absolute value of the divisor.\n
```

```
*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Long.mod(other: Byte): Byte = \n this.mod(other.toLong()).toByte()\n\n** Divides this value by the other value, flooring the result to an integer that is closer to negative infinity. *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun
```

Long.floorDiv(other: Short): Long = \n this.floorDiv(other.toLong())\n\n/\*\*\n \* Calculates the remainder of flooring division of this value by the other value.\n \* \n \* The result is either zero or has the same sign as the \_divisor\_ and has the absolute value less than the absolute value of the divisor.\n

```

*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Long.mod(other: Short): Short = \n
this.mod(other.toLong()).toShort()\n\n/**

```

Divides this value by the other value, flooring the result to an integer that is closer to negative infinity.

```

*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Long.floorDiv(other: Int): Long = \n
this.floorDiv(other.toLong())\n\n/**\n * Calculates the remainder of flooring division of this value by the other
value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the
absolute value of the divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun
Long.mod(other: Int): Int = \n this.mod(other.toLong()).toInt()\n\n/** Divides this value by the other value,
flooring the result to an integer that is closer to negative infinity.

```

```

*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Long.floorDiv(other: Long): Long {\n
var q = this / other\n if (this xor other < 0 && q * other != this) q--\n return q}\n\n/**\n * Calculates the
remainder
of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the
_divisor_ and has the absolute value less than the absolute value of the divisor.\n

```

```

*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Long.mod(other: Long): Long {\n val r
= this % other\n return r + (other and (((r xor other) and (r or -r)) shr 63))}\n\n/**\n * Calculates the remainder
of flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the
_divisor_ and has the absolute value less than the absolute value of the divisor.\n * \n * If the result cannot be
represented exactly, it is rounded to the nearest representable number. In this case the absolute value of the result
can be less than or _equal to_ the absolute value of the divisor.\n

```

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*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Float.mod(other: Float): Float {\n val r
= this % other\n
return if (r != 0.0.toFloat() && r.sign != other.sign) r + other else r}\n\n/**\n * Calculates the remainder of
flooring division of this value by the other value.\n * \n * The result is either zero or has the same sign as the
_divisor_ and has the absolute value less than the absolute value of the divisor.\n * \n * If the result cannot be
represented exactly, it is rounded to the nearest representable number. In this case the absolute value of the result
can be less than or _equal to_ the absolute value of the divisor.\n

```

```

*\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Float.mod(other: Double): Double = \n
this.toDouble().mod(other)\n\n/**\n * Calculates the remainder of flooring division of this value by the other
value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less than the
absolute value of the divisor.\n * \n * If the result cannot be represented exactly, it is rounded to the nearest
representable
number. In this case the absolute value of the result can be less than or _equal to_ the absolute value of the
divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Double.mod(other: Float):
Double = \n this.mod(other.toDouble())\n\n/**\n * Calculates the remainder of flooring division of this value by
the other value.\n * \n * The result is either zero or has the same sign as the _divisor_ and has the absolute value less
than the absolute value of the divisor.\n * \n * If the result cannot be represented exactly, it is rounded to the nearest
representable number. In this case the absolute value of the result can be less than or _equal to_ the absolute value of
the divisor.\n *\n@SinceKotlin("1.5")\n@kotlin.internal.InlineOnly\npublic inline fun Double.mod(other:
Double): Double {\n val r = this % other\n return if (r != 0.0 && r.sign != other.sign) r + other else
r}\n\n", "/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n *\n\npackage kotlin\n\nimport kotlin.internal.InlineOnly\n\n/**\n * Returns a hash
code value for the object or zero if the object is `null`.\n * \n * @see Any.hashCode\n

```

```

*\n@SinceKotlin("1.3")\n@InlineOnly\npublic inline fun Any?.hashCode(): Int = this?.hashCode() ?: 0\n", "/*\n *

```



```

Copyright 2010-2020 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is
governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\npackage
kotlin\n\n/**\n * Represents a version of the Kotlin standard library.\n * [major], [minor] and [patch] are integer
components of a version,\n * they must be non-negative and not greater than 255
([MAX_COMPONENT_VALUE]).\n *\n * @constructor Creates a version from all three components.\n
*\n * @SinceKotlin("1.1")\n */\npublic class KotlinVersion(val
    major: Int, val minor: Int, val patch: Int) : Comparable<KotlinVersion> {\n    /**\n     * Creates a version from
[major] and [minor] components, leaving [patch] component zero.\n     *\n     * public constructor(major: Int, minor:
Int) : this(major, minor, 0)\n     * private val version = versionOf(major, minor, patch)\n     * private fun
versionOf(major: Int, minor: Int, patch: Int): Int {\n         require(major in 0..MAX_COMPONENT_VALUE &&
minor in 0..MAX_COMPONENT_VALUE && patch in 0..MAX_COMPONENT_VALUE) {\n             \"Version
components are out of range: $major.$minor.$patch\"\n         }\n         return major.shl(16) + minor.shl(8) + patch\n
}\n     * Returns the string representation of this version\n     *\n     * override fun toString(): String =
\"$major.$minor.$patch\"\n     * override fun equals(other: Any?): Boolean {\n         if (this === other) return true\n
val otherVersion = (other as? KotlinVersion) ?: return false\n         return this.version == otherVersion.version\n
}\n     * override fun hashCode(): Int = version\n     * override fun compareTo(other: KotlinVersion): Int = version
- other.version\n     * Returns `true` if this version is not less than the version specified\n     * with the
provided [major] and [minor] components.\n     *\n     * public fun isAtLeast(major: Int, minor: Int): Boolean = //
this.version >= versionOf(major, minor, 0)\n         this.major > major || (this.major == major &&
this.minor >= minor)\n     * Returns `true` if this version is not less than the version specified\n     * with
the provided [major], [minor] and [patch] components.\n     *\n     * public fun isAtLeast(major: Int, minor: Int, patch:
Int): Boolean = // this.version >= versionOf(major, minor, patch)\n         this.major > major || (this.major == major
&&
this.minor >= minor || this.minor == minor &&
this.patch >= patch)\n     *\n     companion object {\n         /**\n          * Maximum value a version component can have, a constant value 255.\n          *\n          * // NOTE: Must be
placed before CURRENT because its initialization requires this field being initialized in JS\n          * public const val
MAX_COMPONENT_VALUE = 255\n          * Returns the current version of the Kotlin standard
library.\n          *\n          * @kotlin.jvm.JvmField\n          * public val CURRENT: KotlinVersion =
KotlinVersionCurrentValue.get()\n        }\n    }\n\n// this class is ignored during classpath normalization when
considering whether to recompile dependencies in Kotlin build\nprivate object KotlinVersionCurrentValue {\n    @kotlin.jvm.JvmStatic\n    fun get(): KotlinVersion = KotlinVersion(1, 7, 10) // value is written here automatically
during build\n}"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n * @file:kotlin.jvm.JvmName("LateinitKt")\n * @file:Suppress("unused")\n */\npackage
kotlin\n\nimport kotlin.internal.InlineOnly\nimport kotlin.internal.AccessibleLateinitPropertyLiteral\nimport
kotlin.reflect.KProperty0\n\n/**\n * Returns `true` if this lateinit property has been assigned a value, and `false`
otherwise.\n * Cannot be used in an inline function, to avoid binary compatibility issues.\n
*\n * @SinceKotlin("1.2")\n * @InlineOnly\n * inline val @receiver:AccessibleLateinitPropertyLiteral
KProperty0<*>.isInitialized: Boolean\n    get() = throw NotImplementedError("Implementation is
intrinsic")\n}"/\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n *
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n * @file:kotlin.jvm.JvmName("LazyKt")\n * @file:kotlin.jvm.JvmMultifileClass\n */\npackage kotlin\n\nimport
kotlin.reflect.KProperty\n\n/**\n * Represents a value with lazy initialization.\n
*\n * To create an instance of [Lazy] use the [lazy] function.\n *\n * public interface Lazy<out T> {\n    /**\n     *
Gets the lazily initialized value of the current Lazy instance.\n     * Once the value was initialized it must not change
during the rest of lifetime of this Lazy instance.\n     *\n     * public val value: T\n     * Returns `true` if a
value for this Lazy instance has been already initialized, and `false` otherwise.\n     * Once this function has returned
`true` it stays `true` for the rest of lifetime of this Lazy instance.\n     *\n     * public fun isInitialized():

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Boolean\n}\n\n/**\n * Creates a new instance of the [Lazy] that is already initialized with the specified [value].\n * \npublic fun <T> lazyOf(value: T): Lazy<T> = InitializedLazyImpl(value)\n\n/**\n * An extension to delegate a read-only property of type [T] to an instance of [Lazy].\n * \n * This extension allows to use instances of Lazy for property delegation.\n * `val property: String\n * by lazy { initializer }`\n * \n@kotlin.internal.InlineOnly\npublic inline operator fun <T>\nLazy<T>.getValue(thisRef: Any?, property: KProperty<*>): T = value\n\n/**\n * Specifies how a [Lazy] instance synchronizes initialization among multiple threads.\n * \npublic enum class LazyThreadSafetyMode {\n\n /**\n * Locks are used to ensure that only a single thread can initialize the [Lazy] instance.\n * \n SYNCHRONIZED,\n\n /**\n * Initializer function can be called several times on concurrent access to uninitialized [Lazy] instance value,\n * but only the first returned value will be used as the value of [Lazy] instance.\n * \n PUBLICATION,\n\n /**\n * No locks are used to synchronize an access to the [Lazy] instance value; if the instance is accessed from multiple threads, its behavior is undefined.\n * \n * This mode should not be used unless the [Lazy] instance is guaranteed never to be initialized from more than one thread.\n * \n\n NONE,\n}\n\n\ninternal object UNINITIALIZED_VALUE\n\n// internal to be called from lazy in JS\ninternal class UnsafeLazyImpl<out T>(initializer: () -> T) : Lazy<T>, Serializable {\n\n private var initializer: (() -> T)? = initializer\n\n private var _value: Any? = UNINITIALIZED_VALUE\n\n override val value: T\n\n get() {\n\n if (_value === UNINITIALIZED_VALUE) {\n\n _value = initializer!!()\n\n initializer = null\n\n }\n\n @Suppress("UNCHECKED_CAST")\n\n return _value as T\n\n }\n\n override fun\nisInitialized(): Boolean = _value !== UNINITIALIZED_VALUE\n\n override fun toString(): String = if\n(isInitialized()) value.toString() else "Lazy value not initialized yet."\n\n private fun writeReplace(): Any =\nInitializedLazyImpl(value)\n}\n\n\ninternal class InitializedLazyImpl<out T>(override val value: T) : Lazy<T>,\nSerializable {\n\n override fun isInitialized(): Boolean = true\n\n override fun\ntoString(): String = value.toString()\n}\n\n", /*\n * Copyright 2010-2019 JetBrains s.r.o. and Kotlin Programming\nLanguage contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the\nlicense/LICENSE.txt file.\n\n *\n@file:kotlin.jvm.JvmMultifileClass\n@file:kotlin.jvm.JvmName("NumbersKt")\npackage kotlin\n\n/**\n * Counts the number of set bits in the binary representation of this [Int] number.\n\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun\nInt.countOneBits(): Int\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary\nrepresentation of this [Int] number.\n\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun\nInt.countLeadingZeroBits(): Int\n\n/**\n * Counts the number of consecutive least significant bits that are zero in\nthe binary representation of this [Int] number.\n\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic\nexpect fun Int.countTrailingZeroBits(): Int\n\n/**\n * Returns a number having a single bit set in the position of the\nmost significant set bit of this [Int] number,\n * or zero, if this number is zero.\n\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun\nInt.takeHighestOneBit(): Int\n\n/**\n * Returns a number having a single bit set in the position of the least\nsignificant set bit of this [Int] number,\n * or zero, if this number is zero.\n\n *\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun\nInt.takeLowestOneBit(): Int\n\n/**\n * Rotates the binary representation of this [Int] number left by the specified\n[bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least\nsignificant bits on the right side.\n * Rotating the number left by a negative bit count is the same as rotating it\nright by the negated bit\n\n count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n * Rotating by a multiple of [Int.SIZE_BITS]\n(32) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 32)`\n\n *\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun

```

Int.rotateLeft(bitCount: Int): Int\n\n\*\*\n \* Rotates the binary representation of this [Int] number right by the specified [bitCount] number of bits.\n \* The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n \*\n \* Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n \* `number.rotateRight(-n) == number.rotateLeft(n)`\n \*\n \* Rotating by a multiple of [Int.SIZE\_BITS] (32) returns the same number, or more generally\n \* `number.rotateRight(n) == number.rotateRight(n % 32)`\n

\*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Int.rotateRight(bitCount: Int): Int\n\n\*\*\n \* Counts the number of set bits in the binary representation of this [Long] number.\n \*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.countOneBits(): Int\n\n\*\*\n \* Counts the number of consecutive most significant bits that are zero in the binary representation of this [Long] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.countLeadingZeroBits(): Int\n\n\*\*\n \* Counts the number of consecutive least significant bits that are zero in the binary representation of this [Long] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.countTrailingZeroBits(): Int\n\n\*\*\n \* Returns a number having a single bit set in the position of the most significant set bit of this [Long] number,\n \* or zero, if this number is zero.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.takeHighestOneBit(): Long\n\n\*\*\n \* Returns a number having a single bit set in the position of the least significant set bit of this [Long] number,\n \* or zero, if this number is zero.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.takeLowestOneBit(): Long\n\n\*\*\n \* Rotates the binary representation of this [Long] number left by the specified [bitCount] number of bits.\n \* The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n \*\n \* Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n \* `number.rotateLeft(-n) == number.rotateRight(n)`\n \*\n \* Rotating by a multiple of [Long.SIZE\_BITS] (64) returns the same number, or more generally\n \* `number.rotateLeft(n) == number.rotateLeft(n % 64)`\n

\*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.rotateLeft(bitCount: Int): Long\n\n\*\*\n \* Rotates the binary representation of this [Long] number right by the specified [bitCount] number of bits.\n \* The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n \*\n \* Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n \* `number.rotateRight(-n) == number.rotateLeft(n)`\n \*\n \* Rotating by a multiple of [Long.SIZE\_BITS] (64) returns the same number, or more generally\n \* `number.rotateRight(n) == number.rotateRight(n % 64)`\n

\*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic expect fun Long.rotateRight(bitCount: Int): Long\n\n\*\*\n \* Counts the number of set bits in the binary representation of this [Byte] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.countOneBits(): Int = (toInt() and 0xFF).countOneBits()\n\n\*\*\n \* Counts the number of consecutive most significant bits that are zero in the binary representation of this [Byte] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.countLeadingZeroBits(): Int = (toInt() and 0xFF).countLeadingZeroBits() - (Int.SIZE\_BITS - Byte.SIZE\_BITS)\n\n\*\*\n \* Counts the number of consecutive least significant bits that are zero in the binary representation of this [Byte] number.\n

\*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun Byte.countTrailingZeroBits(): Int = (toInt() or 0x100).countTrailingZeroBits()\n\n\*\*\n \* Returns a number having a single bit set in the position of the most significant set bit of this [Byte] number,\n \* or zero, if this

number is zero.\n

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic
```

```
c\ninline fun Byte.takeHighestOneBit(): Byte = (toInt() and 0xFF).takeHighestOneBit().toByte()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Byte] number,\n * or zero, if this number is zero.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun Byte.takeLowestOneBit(): Byte = toInt().takeLowestOneBit().toByte()\n\n/**\n * Rotates the binary representation of this [Byte] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n * Rotating by a multiple of [Byte.SIZE_BITS] (8) returns the same number, or more generally\n * `number.rotateLeft(n)\n == number.rotateLeft(n % 8)`\n
```

```
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun\n Byte.rotateLeft(bitCount: Int): Byte =\n (toInt().shl(bitCount and 7) or (toInt() and 0xFF).ushr(8 - (bitCount and 7))).toByte()\n\n/**\n * Rotates the binary representation of this [Byte] number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.\n * Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n * Rotating by a multiple of [Byte.SIZE_BITS] (8) returns the same number, or more generally\n * `number.rotateRight(n) ==\n number.rotateRight(n % 8)`\n
```

```
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun\n Byte.rotateRight(bitCount: Int): Byte =\n (toInt().shl(8 - (bitCount and 7)) or (toInt() and 0xFF).ushr(bitCount and 7)).toByte()\n\n/**\n * Counts the number of set bits in the binary representation of this [Short] number.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun Short.countOneBits(): Int = (toInt() and 0xFFFF).countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the binary representation of this [Short] number.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun Short.countLeadingZeroBits(): Int =\n (toInt() and 0xFFFF).countLeadingZeroBits() - (Int.SIZE_BITS - Short.SIZE_BITS)\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the binary representation of this [Short] number.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun Short.countTrailingZeroBits(): Int = (toInt()\n or 0x10000).countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most significant set bit of this [Short] number,\n * or zero, if this number is zero.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun Short.takeHighestOneBit(): Short = (toInt() and 0xFFFF).takeHighestOneBit().toShort()\n\n/**\n * Returns a number having a single bit set in the position of the least significant set bit of this [Short] number,\n * or zero, if this number is zero.\n
```

```
*\n@SinceKotlin("1.4")\n@WasExperimental(ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic\n c inline fun Short.takeLowestOneBit(): Short = toInt().takeLowestOneBit().toShort()\n\n/**\n * Rotates the binary representation of this [Short] number left by the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.\n * Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n * Rotating by a multiple of [Short.SIZE_BITS] (16) returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 16)`\n
```

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*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
Short.rotateLeft(bitCount: Int): Short =\n (toInt().shl(bitCount and 15) or (toInt() and 0xFFFF).ushr(16 - (bitCount
and 15))).toShort()\n\n/**\n * Rotates the binary representation of this [Short] number right by the specified
[bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter the number as the
most significant bits on the left side.\n * \n * Rotating the number right by a negative bit count is the same as rotating
it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n * \n * Rotating
by a multiple of [Short.SIZE_BITS] (16) returns the same number, or more generally\n * `number.rotateRight(n)
== number.rotateRight(n % 16)`\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class)\npublic fun
Short.rotateRight(bitCount: Int): Short =\n (toInt().shl(16 - (bitCount and 15)) or (toInt() and
0xFFFF).ushr(bitCount and 15)).toShort()\n\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming
Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be found in the
license/LICENSE.txt file.\n *\n\npackage kotlin\nimport kotlin.internal.RequireKotlin\nimport
kotlin.internal.RequireKotlinVersionKind\n\n@kotlin.internal.InlineOnly\n@SinceKotlin("1.2")\n@Suppress("IN
VISIBLE_MEMBER", "INVISIBLE_REFERENCE")\n@RequireKotlin("1.2.30", level =
DeprecationLevel.HIDDEN, versionKind = RequireKotlinVersionKind.COMPILER_VERSION)\npublic inline fun
<R> suspend(noinline block: suspend () -> R): suspend () ->
R = block\n\n"/*\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use
of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmName("TuplesKt")\n\npackage kotlin\n\n/**\n * Represents a generic pair of two
values.\n * \n * There is no meaning attached to values in this class, it can be used for any purpose.\n * Pair exhibits
value semantics, i.e. two pairs are equal if both components are equal.\n * \n * An example of decomposing it into
values:\n * @sample samples.misc.Tuples.pairDestructuring\n * \n * @param A type of the first value.\n * @param
B type of the second value.\n * @property first First value.\n * @property second Second value.\n * @constructor
Creates a new instance of Pair.\n *\n\npublic data class Pair<out A, out B>(\n public val first: A,\n public val
second: B)\n) : Serializable {\n\n /**\n * Returns string representation of the [Pair]
including its [first] and [second] values.\n * \n public override fun toString(): String = "$first,
$second"\n}\n\n/**\n * Creates a tuple of type [Pair] from this and [that].\n * \n * This can be useful for creating
[Map] literals with less noise, for example:\n * @sample samples.collections.Maps.instantiation.mapFromPairs\n
*\n\npublic infix fun <A, B> A.to(that: B): Pair<A, B> = Pair(this, that)\n\n/**\n * Converts this pair into a list.\n *
\n * @sample samples.misc.Tuples.pairToList\n *\n\npublic fun <T> Pair<T, T>.toList(): List<T> = listOf(first,
second)\n\n/**\n * Represents a triad of values\n * \n * There is no meaning attached to values in this class, it can be
used for any purpose.\n * Triple exhibits value semantics, i.e. two triples are equal if all three components are
equal.\n * \n * An example of decomposing it into values:\n * @sample samples.misc.Tuples.tripleDestructuring\n * \n
*\n * @param A type of the first value.\n * @param B type of the second value.\n * @param C type
of the third value.\n * @property first First value.\n * @property second Second value.\n * @property third Third
value.\n *\n\npublic data class Triple<out A, out B, out C>(\n public val first: A,\n public val second: B,\n
public val third: C)\n) : Serializable {\n\n /**\n * Returns string representation of the [Triple] including its [first],
[second] and [third] values.\n * \n public override fun toString(): String = "$first, $second,
$third"\n}\n\n/**\n * Converts this triple into a list.\n * @sample samples.misc.Tuples.tripleToList\n *\n\npublic
fun <T> Triple<T, T, T>.toList(): List<T> = listOf(first, second, third)\n\n"/*\n * Copyright 2010-2022 JetBrains
s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0
license that can be found in the license/LICENSE.txt file.\n *\n\n// Auto-generated file. DO NOT
EDIT!\n\npackage kotlin.ranges\n\n\nimport kotlin.internal.*\n\n/**\n * A range of values of
type `UInt`.\n *\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic class
UIntRange(start: UInt, endInclusive: UInt) : UIntProgression(start, endInclusive, 1), ClosedRange<UInt> {\n
\n override val start: UInt get() = first\n override val endInclusive: UInt get() = last\n\n override fun contains(value:
UInt): Boolean = first <= value && value <= last\n\n /**\n * Checks if the range is empty.\n * \n * The

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range is empty if its start value is greater than the end value.\n    */\n    override fun isEmpty(): Boolean = first >
last\n\n    override fun equals(other: Any?): Boolean =\n        other is UIntRange && (isEmpty() &&
other.isEmpty()) ||\n            first == other.first && last == other.last)\n\n    override fun hashCode(): Int =\n        if (isEmpty()) -1 else (31 * first.toInt() + last.toInt())\n\n    override fun toString(): String = \"$first..$last\"\n\n    companion object {\n        /** An empty range of values of type
UInt. */\n        public val EMPTY: UIntRange = UIntRange(UInt.MAX_VALUE, UInt.MIN_VALUE)\n
}\n}\n\n/** A progression of values of type `UInt`.\n\n*/\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic open class
UIntProgression\n\n    internal constructor(\n        start: UInt,\n        endInclusive: UInt,\n        step: Int\n    ) : Iterable<UInt> {\n
    init {\n        if (step == 0.toInt()) throw kotlin.IllegalArgumentException("Step must be non-zero.")\n        if (step
== Int.MIN_VALUE) throw kotlin.IllegalArgumentException("Step must be greater than Int.MIN_VALUE to
avoid overflow on negation.")\n    }\n\n    /**\n     * The first element in the progression.\n     */\n    public val first:
UInt = start\n\n    /**\n     * The last element in the progression.\n     */\n    public val last: UInt =
getProgressionLastElement(start, endInclusive, step)\n\n    /**\n     * The step of the progression.\n     */\n    public
val step: Int = step\n\n    final override fun
iterator(): Iterator<UInt> = UIntProgressionIterator(first, last, step)\n\n    /**\n     * Checks if the progression is
empty.\n     *\n     * Progression with a positive step is empty if its first element is greater than the last element.\n     *
Progression with a negative step is empty if its first element is less than the last element.\n     */\n    public open fun
isEmpty(): Boolean = if (step > 0) first > last else first < last\n\n    override fun equals(other: Any?): Boolean =\n        other is UIntProgression && (isEmpty() && other.isEmpty()) ||\n            first == other.first && last == other.last
&& step == other.step)\n\n    override fun hashCode(): Int =\n        if (isEmpty()) -1 else (31 * (31 * first.toInt() +
last.toInt()) + step.toInt())\n\n    override fun toString(): String = if (step > 0) \"$first..$last step $step\" else \"$first
downTo $last step ${-step}\"\n\n    companion object {\n        /**\n         * Creates UIntProgression within the
specified bounds
of a closed range.\n         *\n         * The progression starts with the [rangeStart] value and goes toward the [rangeEnd]
value not excluding it, with the specified [step].\n         *\n         * In order to go backwards the [step] must be negative.\n
         */\n        /**\n         * [step] must be greater than `Int.MIN_VALUE` and not equal to zero.\n         */\n        public fun
fromClosedRange(rangeStart: UInt, rangeEnd: UInt, step: Int): UIntProgression = UIntProgression(rangeStart,
rangeEnd, step)\n    }\n}\n\n/** An iterator over a progression of values of type `UInt`.\n * @property step the
number by which the value is incremented on each step.\n */\n@SinceKotlin("1.3")\nprivate class
UIntProgressionIterator(first: UInt, last: UInt, step: Int) : Iterator<UInt> {\n    private val finalElement = last\n
private var hasNext: Boolean = if (step > 0) first <= last else first >= last\n    private val step = step.toInt() // use 2-
complement math for negative steps\n    private var next = if (hasNext)\n        first else finalElement\n\n    override fun hasNext(): Boolean = hasNext\n\n    override fun next(): UInt {\n        val
value = next\n        if (value == finalElement) {\n            if (!hasNext) throw kotlin.NoSuchElementException()\n
            hasNext = false\n        } else {\n            next += step\n        }\n        return value\n    }\n}\n\n", "/*\n * Copyright
2010-2022 JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed
by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n */\n\n// Auto-generated file. DO NOT
EDIT!\n\npackage kotlin.ranges\n\nimport kotlin.internal.*\n\n/** A range of values of type `ULong`.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic class
ULongRange(start: ULong, endInclusive: ULong) : ULongProgression(start, endInclusive, 1),
ClosedRange<ULong> {\n    override val start: ULong get() = first\n    override val endInclusive: ULong
get() = last\n\n    override fun contains(value: ULong): Boolean = first <= value && value <= last\n\n    /**\n     *\n     * Checks if the range is empty.\n     *\n     * The range is empty if its start value is greater than the end value.\n     */\n    override fun isEmpty(): Boolean = first > last\n\n    override fun equals(other: Any?): Boolean =\n        other is
ULongRange && (isEmpty() && other.isEmpty()) ||\n            first == other.first && last == other.last)\n\n    override fun hashCode(): Int =\n        if (isEmpty()) -1 else (31 * (first xor (first shr 32)).toInt() + (last xor (last shr
32)).toInt())\n\n    override fun toString(): String = \"$first..$last\"\n\n    companion object {\n        /** An empty

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range of values of type ULong. */n    public val EMPTY: ULongRange = ULongRange(ULong.MAX_VALUE,
ULong.MIN_VALUE)n    }n}n/n/**n * A progression of values of type `ULong`.n
*/n@SinceKotlin("1.5")n@WasExperimental(ExperimentalUnsignedTypes::class)npublic open
class ULongProgression\ninternal constructor(\n start: ULong,\n endInclusive: ULong,\n step: Long\n):
Iterable<ULong> {\n init {\n     if (step == 0.toLong()) throw kotlin.IllegalArgumentException("\nStep must be
non-zero.\n")\n     if (step == Long.MIN_VALUE) throw kotlin.IllegalArgumentException("\nStep must be greater
than Long.MIN_VALUE to avoid overflow on negation.\n")\n     }\n     /**n * The first element in the
progression.\n */n     public val first: ULong = start\n     /**n * The last element in the progression.\n */n
     public val last: ULong = getProgressionLastElement(start, endInclusive, step)\n     /**n * The step of the
progression.\n */n     public val step: Long = step\n     final override fun iterator(): Iterator<ULong> =
ULongProgressionIterator(first, last, step)\n     /**n * Checks if the progression is empty.\n     \n *
Progression with a positive step is empty if its first element is greater than the last
element.\n * Progression with a negative step is empty if its first element is less than the last element.\n */n
     public open fun isEmpty(): Boolean = if (step > 0) first > last else first < last\n     override fun equals(other: Any?):
Boolean =\n         other is ULongProgression && (isEmpty() && other.isEmpty()) ||\n             first == other.first
&& last == other.last && step == other.step)\n     override fun hashCode(): Int =\n         if (isEmpty()) -1 else (31 *
(31 * (first xor (first shr 32)).toInt() + (last xor (last shr 32)).toInt()) + (step xor (step ushr 32)).toInt())\n     override fun toString(): String = if (step > 0) "$first..$last step $step" else "$first downTo $last step ${-step}"\n     companion object {\n         /**n * Creates ULongProgression within the specified bounds of a closed
range.\n         * The progression starts with the [rangeStart] value and goes toward the [rangeEnd] value not
excluding it, with the specified [step].\n         *\n         * In order to go backwards the [step] must be negative.\n         *\n         * [step] must be greater than
`Long.MIN_VALUE` and not equal to zero.\n         */n         public fun fromClosedRange(rangeStart: ULong,
rangeEnd: ULong, step: Long): ULongProgression = ULongProgression(rangeStart, rangeEnd, step)\n     }\n     }n}n/n/**n * An iterator over a progression of values of type `ULong`.n * @property step the number by which
the value is incremented on each step.n */n@SinceKotlin("1.3")nprivate class ULongProgressionIterator(first:
ULong, last: ULong, step: Long) : Iterator<ULong> {\n private val finalElement = last\n private var hasNext:
Boolean = if (step > 0) first <= last else first >= last\n private val step = step.toULong() // use 2-complement math
for negative steps\n private var next = if (hasNext) first else finalElement\n override fun hasNext(): Boolean =
hasNext\n override fun next(): ULong {\n     val value = next\n     if (value
== finalElement) {\n         if (!hasNext) throw kotlin.NoSuchElementException()\n         hasNext = false\n     }
else {\n         next += step\n     }\n     return value\n }\n}\n/n/n", /*n * Copyright 2010-2021 JetBrains s.r.o.
and Kotlin Programming Language contributors.n * Use of this source code is governed by the Apache 2.0 license
that can be found in the license/LICENSE.txt file.n */n\npackage kotlin.math\n/n/**n * Returns the smaller of two
values.\n */n@SinceKotlin("1.5")n@WasExperimental(ExperimentalUnsignedTypes::class)n@kotlin.internal.InlineOnly\npublic inline fun min(a: UInt, b: UInt): UInt {\n return minOf(a, b)\n}\n/n/**n * Returns the smaller of two
values.\n */n@SinceKotlin("1.5")n@WasExperimental(ExperimentalUnsignedTypes::class)n@kotlin.internal.InlineOnly\npublic inline fun min(a: ULong, b: ULong): ULong {\n return minOf(a, b)\n}\n/n/**n * Returns the greater of
two values.\n */n@SinceKotlin("1.5")n@WasExperimental(ExperimentalUnsignedTypes::class)n@kotlin.internal.InlineOnly\npublic
inline fun max(a: UInt, b: UInt): UInt {\n return maxOf(a, b)\n}\n/n/**n * Returns the greater of two values.\n */n@SinceKotlin("1.5")n@WasExperimental(ExperimentalUnsignedTypes::class)n@kotlin.internal.InlineOnly\npublic inline fun max(a: ULong, b: ULong): ULong {\n return maxOf(a, b)\n}\n/n/*n * Copyright 2010-2021
JetBrains s.r.o. and Kotlin Programming Language contributors.n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n

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*\n\n@file:kotlin.jvm.JvmName("\UNumbersKt")\npackage kotlin\n\n/**\n * Counts the number of set bits in the
binary representation of this [UInt] number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.countOneBits(): Int =
toInt().countOneBits()\n\n/**\n * Counts the number of consecutive most significant
bits that are zero in the binary representation of this [UInt] number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.countLeadingZeroBits(): Int =
toInt().countLeadingZeroBits()\n\n/**\n * Counts the number of consecutive least significant bits that are zero in the
binary representation of this [UInt] number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.countTrailingZeroBits(): Int =
toInt().countTrailingZeroBits()\n\n/**\n * Returns a number having a single bit set in the position of the most
significant set bit of this [UInt] number,\n * or zero, if this number is zero.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.takeHighestOneBit():
UInt = toInt().takeHighestOneBit().toUInt()\n\n/**\n * Returns a number having a single bit set in the position of
the least significant set bit of this [UInt] number,\n * or zero, if this number is zero.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.takeLowestOneBit(): UInt =
toInt().takeLowestOneBit().toUInt()\n\n/**\n * Rotates the binary representation of this [UInt] number left by the
specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the number as
the least significant bits on the right side.\n * Rotating the number left by a negative bit count is the same as
rotating it right by the negated bit count:\n * `number.rotateLeft(-n) == number.rotateRight(n)`\n * Rotating by a
multiple of [UInt.SIZE_BITS] (32) returns the same number, or more generally\n * `number.rotateLeft(n) ==
number.rotateLeft(n %
32)`\n *\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.rotateLeft(bitCount: Int):
UInt = toInt().rotateLeft(bitCount).toUInt()\n\n/**\n * Rotates the binary representation of this [UInt] number
right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side reenter
the number as the most significant bits on the left side.\n * Rotating the number right by a negative bit count is
the same as rotating it left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n *
Rotating by a multiple of [UInt.SIZE_BITS] (32) returns the same number, or more generally\n *
`number.rotateRight(n) == number.rotateRight(n % 32)`\n
*\n@SinceKotlin("1.6")\n@WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UInt.rotateRight(bitCount: Int):
UInt = toInt().rotateRight(bitCount).toUInt()\n\n/**\n * Counts the number of set bits in the binary representation
of this [ULong] number.\n *\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.countOneBits(): Int =
toLong().countOneBits()\n\n/**\n * Counts the number of consecutive most significant bits that are zero in the
binary representation of this [ULong] number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline fun ULong.countLeadingZeroBits(): Int =
toLong().countLeadingZeroBits()\n\n/**\n * Counts the number of consecutive least significant bits that are zero
in the binary representation of this [ULong] number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n@kotlin.internal.InlineOnly\npublic inline

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fun ULong.countTrailingZeroBits(): Int = toLong().countTrailingZeroBits()\n\n**\n * Returns a number having a
single bit set in the position of the most significant set bit of this [ULong] number,\n * or zero, if this number is
zero.\n * \n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun ULong.takeHighestOneBit(): ULong
= toLong().takeHighestOneBit().toULong()\n\n**\n * Returns a number having a single bit set in the position of the
least significant set bit of this [ULong] number,\n * or zero, if this number is zero.\n
*\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun ULong.takeLowestOneBit(): ULong
= toLong().takeLowestOneBit().toULong()\n\n**\n * Rotates the binary representation of this [ULong] number left
by the specified [bitCount] number of bits.\n * The most significant
bits pushed out from the left side reenter the number as the least significant bits on the right side.\n * \n * Rotating
the number left by a negative bit count is the same as rotating it right by the negated bit count:\n *
`number.rotateLeft(-n) == number.rotateRight(n)`\n * \n * Rotating by a multiple of [ULong.SIZE_BITS] (64)
returns the same number, or more generally\n * `number.rotateLeft(n) == number.rotateLeft(n % 64)`\n
*\n @SinceKotlin("1.6")\n @WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n public inline fun ULong.rotateLeft(bitCount:
Int): ULong = toLong().rotateLeft(bitCount).toULong()\n\n**\n * Rotates the binary representation of this [ULong]
number right by the specified [bitCount] number of bits.\n * The least significant bits pushed out from the right side
reenter the number as the most significant bits on the left side.\n * \n * Rotating the number right by a negative bit
count is the same as rotating it
left by the negated bit count:\n * `number.rotateRight(-n) == number.rotateLeft(n)`\n * \n * Rotating by a multiple
of [ULong.SIZE_BITS] (64) returns the same number, or more generally\n * `number.rotateRight(n) ==
number.rotateRight(n % 64)`\n * \n @SinceKotlin("1.6")\n @WasExperimental(ExperimentalStdlibApi::class,
ExperimentalUnsignedTypes::class)\n @kotlin.internal.InlineOnly\n public inline fun ULong.rotateRight(bitCount:
Int): ULong = toLong().rotateRight(bitCount).toULong()\n\n**\n * Counts the number of set bits in the binary
representation of this [UByte] number.\n
*\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun UByte.countOneBits(): Int =
toUInt().countOneBits()\n\n**\n * Counts the number of consecutive most significant bits that are zero in the
binary representation of this [UByte] number.\n
*\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun UByte.countLeadingZeroBits(): Int
= toByte().countLeadingZeroBits()\n\n**\n * Counts the number of consecutive least significant bits that are zero
in the binary representation of this [UByte] number.\n
*\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun UByte.countTrailingZeroBits(): Int =
toByte().countTrailingZeroBits()\n\n**\n * Returns a number having a single bit set in the position of the most
significant set bit of this [UByte] number,\n * or zero, if this number is zero.\n
*\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun UByte.takeHighestOneBit(): UByte
= toInt().takeHighestOneBit().toUByte()\n\n**\n * Returns a number having a single bit set in the position of the
least significant set bit
of this [UByte] number,\n * or zero, if this number is zero.\n
*\n @SinceKotlin("1.5")\n @WasExperimental(ExperimentalUnsignedTypes::class,
ExperimentalStdlibApi::class)\n @kotlin.internal.InlineOnly\n public inline fun UByte.takeLowestOneBit(): UByte =
toInt().takeLowestOneBit().toUByte()\n\n**\n * Rotates the binary representation of this [UByte] number left by
the specified [bitCount] number of bits.\n * The most significant bits pushed out from the left side reenter the
number as the least significant bits on the right side.\n * \n * Rotating the number left by a negative bit count is the

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same as rotating it right by the negated bit count:  
`number.rotateLeft(-n) == number.rotateRight(n)`  
Rotating by a multiple of [UByte.SIZE\_BITS] (8) returns the same number, or more generally  
`number.rotateLeft(n) == number.rotateLeft(n % 8)`

`@SinceKotlin("1.6")@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UByte.rotateLeft(bitCount: Int): UByte = toByte().rotateLeft(bitCount).toUByte()`  
Rotates the binary representation of this [UByte] number right by the specified [bitCount] number of bits. The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.  
Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:  
`number.rotateRight(-n) == number.rotateLeft(n)`  
Rotating by a multiple of [UByte.SIZE\_BITS] (8) returns the same number, or more generally  
`number.rotateRight(n) == number.rotateRight(n % 8)`

`@SinceKotlin("1.6")@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UByte.rotateRight(bitCount: Int): UByte = toByte().rotateRight(bitCount).toUByte()`  
Counts the number of set bits in the binary representation of this [UShort]

`@SinceKotlin("1.5")@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UShort.countOneBits(): Int = toUInt().countOneBits()`  
Counts the number of consecutive most significant bits that are zero in the binary representation of this [UShort] number.

`@SinceKotlin("1.5")@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UShort.countLeadingZeroBits(): Int = toShort().countLeadingZeroBits()`  
Counts the number of consecutive least significant bits that are zero in the binary representation of this [UShort] number.

`@SinceKotlin("1.5")@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UShort.countTrailingZeroBits(): Int = toShort().countTrailingZeroBits()`  
Returns a number having a single bit set in the position of the most significant set bit of this [UShort] number, or zero, if this number is zero.

`@SinceKotlin("1.5")@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UShort.takeHighestOneBit(): UShort = toInt().takeHighestOneBit().toUShort()`  
Returns a number having a single bit set in the position of the least significant set bit of this [UShort] number, or zero, if this number is zero.

`@SinceKotlin("1.5")@WasExperimental(ExperimentalUnsignedTypes::class, ExperimentalStdlibApi::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UShort.takeLowestOneBit(): UShort = toInt().takeLowestOneBit().toUShort()`  
Rotates the binary representation of this [UShort] number left by the specified [bitCount] number of bits. The most significant bits pushed out from the left side reenter the number as the least significant bits on the right side.  
Rotating the number left by a negative bit count is the same as rotating it right by the negated bit count:  
`number.rotateLeft(-n) == number.rotateRight(n)`  
Rotating by a multiple of [UShort.SIZE\_BITS] (16) returns the same number, or more generally  
`number.rotateLeft(n) == number.rotateLeft(n % 16)`

`@SinceKotlin("1.6")@WasExperimental(ExperimentalStdlibApi::class, ExperimentalUnsignedTypes::class)`  
`@kotlin.internal.InlineOnly`  
`public inline fun UShort.rotateLeft(bitCount: Int): UShort = toShort().rotateLeft(bitCount).toUShort()`  
Rotates the binary representation of this [UShort] number right by the specified [bitCount] number of bits. The least significant bits pushed out from the right side reenter the number as the most significant bits on the left side.  
Rotating the number right by a negative bit count is the same as rotating it left by the negated bit count:  
`number.rotateRight(-n) == number.rotateLeft(n)`  
Rotating by a multiple of [UShort.SIZE\_BITS] (16) returns the same number, or more generally  
`number.rotateRight(n) == number.rotateRight(n % 16)`

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ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly\npublic inline fun UShort.rotateRight(bitCount:
Int): UShort = toShort().rotateRight(bitCount).toUShort()\n"/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n */\n\npackage kotlin.internal\n\n// (a - b) mod c\nprivate fun
differenceModulo(a: UInt, b: UInt, c: UInt): UInt {\n    val ac = a % c\n    val bc = b % c\n    return if (ac >= bc) ac -
bc else ac - bc + c}\n\nprivate fun differenceModulo(a: ULong, b: ULong, c: ULong): ULong {\n    val ac = a %
c\n    val bc = b % c\n    return if (ac >= bc) ac - bc else ac - bc + c}\n\n/**\n * Calculates the final element
of a bounded arithmetic progression, i.e. the last element of the progression which is in the range\n * from [start] to
[end] in case of a positive [step], or from [end] to [start] in case of a negative\n * [step].\n * No validation on
passed parameters is performed. The given parameters should satisfy the condition:\n * - either `step > 0` and
`start <= end`,\n * - or `step < 0` and `start >= end`.\n * @param start first element of the progression\n *
@param end ending bound for the progression\n * @param step increment, or difference of successive elements in
the progression\n * @return the final element of the progression\n * @suppress\n
*/\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal fun getProgressionLastElement(start: UInt, end: UInt, step:
Int): UInt = when {\n    step > 0 -> if (start >= end) end else end - differenceModulo(end, start, step.toUInt())\n
step < 0 -> if (start <= end) end else end + differenceModulo(start, end, (-step).toUInt())\n    else -> throw
kotlin.IllegalArgumentException("Step is zero.")\n}\n\n/**\n * Calculates the final element of a bounded
arithmetic progression, i.e. the last element of the progression which is in the range\n * from [start] to [end] in case
of a positive [step], or from [end] to [start] in case of a negative\n * [step].\n * No validation on passed
parameters is performed. The given parameters should satisfy the condition:\n * - either `step > 0` and `start <=
end`,\n * - or `step < 0` and `start >= end`.\n * @param start first element of the progression\n * @param end
ending bound for the progression\n * @param step increment, or difference of successive elements in the
progression\n * @return the final element of the progression\n * @suppress\n
*/\n\n@PublishedApi\n@SinceKotlin("1.3")\ninternal fun getProgressionLastElement(start: ULong, end: ULong,
step: Long): ULong = when {\n    step > 0 -> if (start >= end) end else end - differenceModulo(end, start,
step.toULong())\n    step <
0 -> if (start <= end) end else end + differenceModulo(start, end, (-step).toULong())\n    else -> throw
kotlin.IllegalArgumentException("Step is zero.")\n}\n"/*\n * Copyright 2010-2021 JetBrains s.r.o. and Kotlin
Programming Language contributors.\n * Use of this source code is governed by the Apache 2.0 license that can be
found in the license/LICENSE.txt file.\n */\n\n@file:kotlin.jvm.JvmName("UStringsKt") // string representation
of unsigned numbers\n\npackage kotlin.text\n\n/**\n * Returns a string representation of this [Byte] value in the
specified [radix].\n * @throws IllegalArgumentException when [radix] is not a valid radix for number to string
conversion.\n
*/\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly
\npublic /*inline*/ fun UByte.toString(radix: Int): String = this.toInt().toString(radix)\n\n/**\n * Returns a string
representation of this [Short] value in the specified [radix].\n * @throws IllegalArgumentException
when [radix] is not a valid radix for number to string conversion.\n
*/\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly
\npublic /*inline*/ fun UShort.toString(radix: Int): String = this.toInt().toString(radix)\n\n\n/**\n * Returns a string
representation of this [Int] value in the specified [radix].\n * @throws IllegalArgumentException when [radix] is
not a valid radix for number to string conversion.\n
*/\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\n@kotlin.internal.InlineOnly
\npublic /*inline*/ fun UInt.toString(radix: Int): String = this.toLong().toString(radix)\n\n\n/**\n * Returns a string
representation of this [Long] value in the specified [radix].\n * @throws IllegalArgumentException when [radix]
is not a valid radix for number to string conversion.\n
*/\n\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
ULong.toString(radix: Int):

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String = ulongToString(this.toLong(), checkRadix(radix))\n\n/**\n * Parses the string as a signed [UByte]
number and returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a
number.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUByte(): UByte = toUByteOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a signed
[UByte] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to
number conversion.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun String.toUByte(radix: Int): UByte = toUByteOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the
string as a [UShort] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation
of a number.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUShort(): UShort = toUShortOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a
[UShort] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation of a number.\n * @throws IllegalArgumentException when [radix] is not a valid radix for string to
number conversion.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun String.toUShort(radix: Int): UShort = toUShortOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the
string as an [UInt] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation of a number.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toUInt():
UInt = toUIntOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as an [UInt] number and
returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n *
@throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUInt(radix: Int): UInt = toUIntOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as a
[ULong] number and returns the result.\n * @throws NumberFormatException if the string is not a valid
representation of a number.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun String.toULong():
ULong = toULongOrNull() ?: numberFormatError(this)\n\n/**\n * Parses the string as a [ULong] number and
returns the result.\n * @throws NumberFormatException if the string is not a valid representation of a number.\n *
@throws IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun String.toULong(radix: Int): ULong = toULongOrNull(radix) ?: numberFormatError(this)\n\n/**\n * Parses the string as an [UByte] number and returns the result\n * or `null` if the string is not a valid representation of
a number.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUByteOrNull(): UByte? = toUByteOrNull(radix = 10)\n\n/**\n * Parses the string as an [UByte] number
and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n * @throws
IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUByteOrNull(radix: Int): UByte? {
    val int = this.toUIntOrNull(radix) ?: return null
    if (int >
        UByte.MAX_VALUE) return null
    return int.toUByte()\n}\n\n/**\n * Parses the string
as an [UShort] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUShortOrNull(): UShort? = toUShortOrNull(radix = 10)\n\n/**\n * Parses the string as an [UShort] number
and returns the result\n * or `null` if the string is not a valid representation of a number.\n */\n * @throws
IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n */\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUShortOrNull(radix: Int): UShort? {
    val int = this.toUIntOrNull(radix) ?: return null
    if (int >
        UShort.MAX_VALUE) return null
    return int.toUShort()\n}\n\n/**\n * Parses the string as an [UInt] number and

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returns the result\n * or `null` if the string is not a valid representation of a number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic
fun String.toUIntOrNull(): UInt? = toUIntOrNull(radix = 10)\n\n**\n * Parses the string as an [UInt] number and
returns the result\n * or `null` if the string is not a valid representation of a number.\n *\n * @throws
IllegalArgumentException when [radix] is not a valid radix for string to number conversion.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toUIntOrNull(radix: Int): UInt? {\n    checkRadix(radix)\n\n    val length = this.length\n    if (length == 0)
return null\n\n    val limit: UInt = UInt.MAX_VALUE\n    val start: Int\n\n    val firstChar = this[0]\n    if (firstChar
< '0') {\n        if (length == 1 || firstChar != '+') return null\n        start = 1\n    } else {\n        start = 0\n    }\n\n    val
limitForMaxRadix = 119304647u // limit / 36\n\n    var limitBeforeMul = limitForMaxRadix\n    val uradix =
radix.toUInt()\n    var result = 0u\n    for (i in start until length) {\n        val
digit = digitOf(this[i], radix)\n\n        if (digit < 0) return null\n        if (result > limitBeforeMul) {\n            if
(limitBeforeMul == limitForMaxRadix) {\n                limitBeforeMul = limit / uradix\n\n                if (result >
limitBeforeMul) {\n                    return null\n                }\n            } else {\n                return null\n            }\n        }\n\n        result *= uradix\n\n        val beforeAdding = result\n        result += digit.toUInt()\n        if (result <
beforeAdding) return null // overflow has happened\n    }\n\n    return result\n}\n\n**\n * Parses the string as an
[ULong] number and returns the result\n * or `null` if the string is not a valid representation of a number.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toULongOrNull(): ULong? = toULongOrNull(radix = 10)\n\n**\n * Parses the string as an [ULong] number
and returns the result\n * or `null` if the string is not a
valid representation of a number.\n *\n * @throws IllegalArgumentException when [radix] is not a valid radix for
string to number conversion.\n
*\n@SinceKotlin("1.5")\n@WasExperimental(ExperimentalUnsignedTypes::class)\npublic fun
String.toULongOrNull(radix: Int): ULong? {\n    checkRadix(radix)\n\n    val length = this.length\n    if (length ==
0) return null\n\n    val limit: ULong = ULong.MAX_VALUE\n    val start: Int\n\n    val firstChar = this[0]\n    if
(firstChar < '0') {\n        if (length == 1 || firstChar != '+') return null\n        start = 1\n    } else {\n        start = 0\n    }\n\n    val
limitForMaxRadix = 512409557603043100uL // limit / 36\n\n    var limitBeforeMul =
limitForMaxRadix\n    val uradix = radix.toULong()\n    var result = 0uL\n    for (i in start until length) {\n        val
digit = digitOf(this[i], radix)\n\n        if (digit < 0) return null\n        if (result > limitBeforeMul) {\n            if
(limitBeforeMul == limitForMaxRadix) {\n                limitBeforeMul = limit / uradix\n\n                if (result >
limitBeforeMul) {\n                    return null\n                }\n            } else {\n                return null\n            }\n        }\n\n        result *= uradix\n\n        val beforeAdding =
result\n        result += digit.toUInt()\n        if (result < beforeAdding) return null // overflow has happened\n    }\n\n    return result\n}\n\n**\n * Copyright 2010-2018 JetBrains s.r.o. and Kotlin Programming Language contributors.\n
Use of this source code is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n@file:Suppress("INVISIBLE_REFERENCE", "INVISIBLE_MEMBER")\npackage kotlin\n\nimport
kotlin.annotation.AnnotationTarget.*\nimport kotlin.internal.RequireKotlin\nimport
kotlin.internal.RequireKotlinVersionKind\n\n**\n * Marks the API that is dependent on the experimental unsigned
types, including those types themselves.\n *\n * Usages of such API will be
reported as warnings unless an explicit opt-in with\n * the [OptIn] annotation, e.g.
`@OptIn(ExperimentalUnsignedTypes::class)`\n * or with the `-opt-in=kotlin.ExperimentalUnsignedTypes`
compiler option is given.\n *\n * It's recommended to propagate the experimental status to the API that depends on
unsigned types by annotating it with this annotation.\n *\n@RequiresOptIn(level =
RequiresOptIn.Level.WARNING)\n@MustBeDocumented\n@Target(CLASS, ANNOTATION_CLASS,
PROPERTY, FIELD, LOCAL_VARIABLE, VALUE_PARAMETER, CONSTRUCTOR, FUNCTION,
PROPERTY_GETTER, PROPERTY_SETTER,
TYPEALIAS)\n@Retention(AnnotationRetention.BINARY)\n@RequireKotlin("1.2.50", versionKind =
RequireKotlinVersionKind.COMPILER_VERSION)\npublic annotation class ExperimentalUnsignedTypes\n", "/*\n

```

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is governed by the Apache 2.0 license that can be found in the license/LICENSE.txt file.\n
*\n\n@file:kotlin.jvm.JvmMultifileClass\n\n@file:kotlin.jvm.JvmName("MathKt")\n\n\npackage
kotlin.math\n\n\n// constants, can't use them from nativeMath as they are not constants there\n\n/** Ratio of the
circumference of a circle to its diameter, approximately 3.14159. *\n\n@SinceKotlin("1.2")\n\npublic const val PI:
Double = 3.141592653589793\n\n/** Base of the natural logarithms, approximately 2.71828.
*\n\n@SinceKotlin("1.2")\n\npublic const val E: Double = 2.718281828459045\n\n// region =====
Double Math =====\n\n\n/** Computes the sine of the angle [x]
given in radians.\n\n * \n\n * Special cases:\n\n * - `sin(NaN|+Inf|-Inf)` is `NaN`\n\n *\n\n@SinceKotlin("1.2")\n\npublic
expect fun sin(x: Double): Double\n\n\n/** Computes the cosine of the angle [x] given in radians.\n\n * \n\n * Special
cases:\n\n * - `cos(NaN|+Inf|-Inf)` is `NaN`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun cos(x: Double):
Double\n\n\n/** Computes the tangent of the angle [x] given in radians.\n\n * \n\n * Special
cases:\n\n * - `tan(NaN|+Inf|-Inf)` is `NaN`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun tan(x: Double):
Double\n\n\n/** Computes the arc sine of the value [x];\n\n * the returned value is an angle in the range from `-PI/2`
to `PI/2` radians.\n\n * \n\n * Special cases:\n\n * - `asin(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n\n
*\n\n@SinceKotlin("1.2")\n\npublic expect fun asin(x: Double): Double\n\n\n/** Computes the arc cosine of the
value [x];\n\n * the returned value is an angle in the range from `0.0` to `PI` radians.\n\n * \n\n * Special cases:\n\n
* - `acos(x)` is `NaN`, when `abs(x) > 1` or x is `NaN`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun acos(x: Double):
Double\n\n\n/** Computes the arc tangent of the value [x];\n\n * the returned value is an angle in the range from `-
PI/2` to `PI/2` radians.\n\n * \n\n * Special cases:\n\n * - `atan(NaN)` is `NaN`\n\n *\n\n@SinceKotlin("1.2")\n\npublic
expect fun atan(x: Double): Double\n\n\n/** Returns the angle `theta` of the polar coordinates
`(r, theta)` that correspond\n\n * to the rectangular coordinates `(x, y)` by computing the arc tangent of the value [y] /
[x];\n\n * the returned value is an angle in the range from `-PI` to `PI` radians.\n\n * \n\n * Special cases:\n\n * - `atan2(0.0,
0.0)` is `0.0`\n\n * - `atan2(0.0, x)` is `0.0` for `x > 0` and `PI` for `x < 0`\n\n * - `atan2(-0.0, x)` is `-0.0` for `x >
0` and `-PI` for `x < 0`\n\n * - `atan2(y, +Inf)` is `0.0` for `0 < y < +Inf` and `-0.0` for `-Inf < y < 0`\n\n * - `atan2(y, -
Inf)` is `PI` for `0 < y < +Inf` and `-PI` for `-Inf < y < 0`\n\n * - `atan2(y, 0.0)` is `PI/2` for `y > 0` and `-PI/2` for `y
< 0`\n\n * - `atan2(+Inf, x)` is `PI/2` for finite `x`\n\n * - `atan2(-Inf, x)` is `-PI/2` for finite `x`\n\n * - `atan2(NaN,
x)` and `atan2(y, NaN)` is `NaN`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun atan2(y: Double, x: Double):
Double\n\n\n/** Computes the hyperbolic sine of the value [x].\n\n * \n\n * Special cases:\n\n * - `sinh(NaN)` is
`NaN`\n\n * - `sinh(+Inf)`
is `+Inf`\n\n * - `sinh(-Inf)` is `-Inf`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun sinh(x: Double):
Double\n\n\n/** Computes the hyperbolic cosine of the value [x].\n\n * \n\n * Special cases:\n\n * - `cosh(NaN)` is
`NaN`\n\n * - `cosh(+Inf|-Inf)` is `+Inf`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun cosh(x: Double):
Double\n\n\n/** Computes the hyperbolic tangent of the value [x].\n\n * \n\n * Special cases:\n\n * - `tanh(NaN)` is
`NaN`\n\n * - `tanh(+Inf)` is `1.0`\n\n * - `tanh(-Inf)` is `-1.0`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun tanh(x:
Double): Double\n\n\n/** Computes the inverse hyperbolic sine of the value [x].\n\n * \n\n * The returned value is `y`
such that `sinh(y) == x`.\n\n * \n\n * Special cases:\n\n * - `asinh(NaN)` is `NaN`\n\n * - `asinh(+Inf)` is `+Inf`\n\n * -
`asinh(-Inf)` is `-Inf`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun asinh(x: Double): Double\n\n\n/** Computes
the inverse hyperbolic cosine of the value [x].\n\n * \n\n * The returned value is positive
`y` such that `cosh(y) == x`.\n\n * \n\n * Special cases:\n\n * - `acosh(NaN)` is `NaN`\n\n * - `acosh(x)` is `NaN` when `x
< 1`\n\n * - `acosh(+Inf)` is `+Inf`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun acosh(x: Double):
Double\n\n\n/** Computes the inverse hyperbolic tangent of the value [x].\n\n * \n\n * The returned value is `y` such
that `tanh(y) == x`.\n\n * \n\n * Special cases:\n\n * - `tanh(NaN)` is `NaN`\n\n * - `tanh(x)` is `NaN` when `x > 1` or `x <
-1`\n\n * - `tanh(1.0)` is `+Inf`\n\n * - `tanh(-1.0)` is `-Inf`\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun atanh(x:
Double): Double\n\n\n/** Computes `sqrt(x^2 + y^2)` without intermediate overflow or underflow.\n\n * \n\n *
Special cases:\n\n * - returns `+Inf` if any of arguments is infinite\n\n * - returns `NaN` if any of arguments is `NaN`
and the other is not infinite\n\n *\n\n@SinceKotlin("1.2")\n\npublic expect fun hypot(x: Double, y: Double):
Double\n\n\n/** Computes the positive square root of the value [x].\n\n * \n\n * Special

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cases:  $\sqrt{x}$  is NaN when  $x < 0$  or  $x$  is NaN

`public expect fun sqrt(x: Double): Double`  
 Computes Euler's number  $e$  raised to the power of the value  $[x]$ .

Special cases:  $e^{\text{NaN}}$  is NaN,  $e^{+\text{Inf}}$  is  $+\text{Inf}$ ,  $e^{-\text{Inf}}$  is  $0.0$

`public expect fun exp(x: Double): Double`  
 Computes  $\exp(x) - 1$ .

This function can be implemented to produce more precise result for  $[x]$  near zero.

Special cases:  $\exp(\text{NaN})$  is NaN,  $\exp(+\text{Inf})$  is  $+\text{Inf}$ ,  $\exp(-\text{Inf})$  is  $-1.0$

`public expect fun expm1(x: Double): Double`  
 Computes the logarithm of the value  $[x]$  to the given  $[\text{base}]$ .

Special cases:  $\log(x, b)$  is NaN if either  $x$  or  $b$  are NaN,  $\log(x, b)$  is NaN when  $x < 0$  or  $b \leq 0$  or  $b == 1.0$ ,  $\log(+\text{Inf}, +\text{Inf})$  is NaN,  $\log(+\text{Inf}, b)$  is  $+\text{Inf}$  for  $b > 1$  and  $-\text{Inf}$  for  $b < 1$ ,  $\log(0.0, b)$  is  $-\text{Inf}$  for  $b > 1$  and  $+\text{Inf}$  for  $b > 1$

See also logarithm functions for common fixed bases:  $[\ln]$ ,  $[\log10]$  and  $[\log2]$ .

`public expect fun log(x: Double, base: Double): Double`  
 Computes the natural logarithm (base  $E$ ) of the value  $[x]$ .

Special cases:  $\ln(\text{NaN})$  is NaN,  $\ln(x)$  is NaN when  $x < 0.0$ ,  $\ln(+\text{Inf})$  is  $+\text{Inf}$ ,  $\ln(0.0)$  is  $-\text{Inf}$

`public expect fun ln(x: Double): Double`  
 Computes the common logarithm (base 10) of the value  $[x]$ .

@see  $[\ln]$  function for special cases.

`public expect fun log10(x: Double): Double`  
 Computes the binary logarithm (base 2) of the value  $[x]$ .

@see  $[\ln]$  function for special cases.

`public expect fun log2(x: Double): Double`  
 Computes  $\ln(x + 1)$ .

This function can be implemented to produce more precise result for  $[x]$  near zero.

Special cases:  $\ln1p(\text{NaN})$  is NaN,  $\ln1p(x)$  is NaN where  $x < -1.0$ ,  $\ln1p(-1.0)$  is  $-\text{Inf}$ ,  $\ln1p(+\text{Inf})$  is  $+\text{Inf}$

@see  $[\ln]$  function, @see  $[\expm1]$  function

`public expect fun ln1p(x: Double): Double`  
 Rounds the given value  $[x]$  to an integer towards positive infinity.

@return the smallest double value that is greater than or equal to the given value  $[x]$  and is a mathematical integer.

Special cases:  $\text{ceil}(x)$  is  $x$  where  $x$  is NaN or  $+\text{Inf}$  or  $-\text{Inf}$  or already a mathematical integer.

`public expect fun ceil(x: Double): Double`  
 Rounds the given value  $[x]$  to an integer towards negative infinity.

@return the largest double value that is smaller than or equal to the given value  $[x]$  and is a mathematical integer.

Special cases:  $\text{floor}(x)$  is  $x$  where  $x$  is NaN or  $+\text{Inf}$  or  $-\text{Inf}$  or already a mathematical integer.

`public expect fun floor(x: Double): Double`  
 Rounds the given value  $[x]$  to an integer towards zero.

@return the value  $[x]$  having its fractional part truncated.

Special cases:  $\text{truncate}(x)$  is  $x$  where  $x$  is NaN or  $+\text{Inf}$  or  $-\text{Inf}$  or already a mathematical integer.

`public expect fun truncate(x: Double): Double`  
 Rounds the given value  $[x]$  towards the closest integer with ties rounded towards even integer.

Special cases:  $\text{round}(x)$  is  $x$  where  $x$  is NaN or  $+\text{Inf}$  or  $-\text{Inf}$  or already a mathematical integer.

`public expect fun round(x: Double): Double`  
 Returns the absolute value of the given value  $[x]$ .

Special cases:  $\text{abs}(\text{NaN})$  is NaN

@see `absoluteValue` extension property for `[Double]`

`public expect fun abs(x: Double): Double`  
 Returns the sign of the given value  $[x]$ :  $-1.0$  if the value is negative, zero if the value is zero,  $1.0$  if the value is positive

Special case:  $\text{sign}(\text{NaN})$  is NaN

`public expect fun sign(x: Double): Double`  
 Returns the smaller of two values.

If either value is NaN, then the result is NaN.

`public expect fun min(a: Double, b: Double): Double`  
 Returns the greater of two values.

If either value is NaN, then the result is NaN.

`public expect fun max(a: Double, b: Double): Double`

Extensions

Raises this value to the power  $[x]$ .

Special cases:  $b.\text{pow}(0.0)$  is  $1.0$ ,  $b.\text{pow}(1.0) == b$ ,  $b.\text{pow}(\text{NaN})$  is NaN,  $\text{NaN}.\text{pow}(x)$  is NaN for  $x \neq 0.0$ ,  $b.\text{pow}(\text{Inf})$  is NaN for  $\text{abs}(b) == 1.0$ ,  $b.\text{pow}(x)$  is NaN for  $b < 0$  and  $x$  is finite and not an integer

`public expect fun Double.pow(x: Double): Double`  
 Raises this value to the integer power  $[n]$ .

See the other overload of `[pow]` for details.

`public expect fun Double.pow(n: Int): Double`  
 Returns the absolute

value of this value.  
`* Special cases:`  
`- NaN.absoluteValue` is `NaN``  
`@see abs function`  
`* Since Kotlin("1.2")\npublic expect val Double.absoluteValue: Double`  
`* Returns the sign of this value:`  
`- -1.0` if the value is negative,`  
`- zero if the value is zero,`  
`- 1.0` if the value is positive`  
`* Special case:`  
`- NaN.sign` is `NaN``  
`* Since Kotlin("1.2")\npublic expect val Double.sign: Double`  
`* Returns this value with the sign bit same as of the [sign] value.`  
`* If [sign] is `NaN` the sign of the result is undefined.`  
`* Since Kotlin("1.2")\npublic expect fun Double.withSign(sign: Double): Double`  
`* Returns this value with the sign bit same as of the [sign] value.`  
`* Since Kotlin("1.2")\npublic expect fun Double.withSign(sign: Int): Double`  
`* Returns the ulp (unit in the last place) of this value.`  
`* An ulp is a positive distance between this value and the next nearest [Double] value larger in magnitude.`  
`* Special Cases:`  
`- NaN.ulp` is `NaN``  
`- x.ulp` is `+Inf` when `x` is `+Inf` or `-Inf``  
`- 0.0.ulp` is `Double.MIN_VALUE``  
`* Since Kotlin("1.2")\npublic expect val Double.ulp: Double`  
`* Returns the [Double] value nearest to this value in direction of positive infinity.`  
`* Since Kotlin("1.2")\npublic expect fun Double.nextUp(): Double`  
`* Returns the [Double] value nearest to this value in direction of negative infinity.`  
`* Since Kotlin("1.2")\npublic expect fun Double.nextDown(): Double`  
`* Returns the [Double] value nearest to this value in direction from this value towards the value [to].`  
`* Special cases:`  
`- x.nextTowards(y)` is `NaN` if either `x` or `y` are `NaN``  
`- x.nextTowards(x) == x``  
`* Since Kotlin("1.2")\npublic expect fun Double.nextTowards(to: Double): Double`  
`* Rounds this [Double] value to the nearest integer and converts the result to [Int].`  
`* Ties are rounded towards positive infinity.`  
`* Special cases:`  
`- x.roundToInt() == Int.MAX_VALUE` when `x > Int.MAX_VALUE``  
`- x.roundToInt() == Int.MIN_VALUE` when `x < Int.MIN_VALUE``  
`* @throws IllegalArgumentException when this value is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun Double.roundToInt(): Int`  
`* Rounds this [Double] value to the nearest integer and converts the result to [Long].`  
`* Ties are rounded towards positive infinity.`  
`* Special cases:`  
`- x.roundToLong() == Long.MAX_VALUE` when `x > Long.MAX_VALUE``  
`- x.roundToLong() == Long.MIN_VALUE` when `x < Long.MIN_VALUE``  
`* @throws IllegalArgumentException when this value is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun Double.roundToLong(): Long`  
`// region ===== Float Math`  
`=====`  
`* Computes the sine of the angle [x] given in radians.`  
`* Special cases:`  
`- sin(NaN|+Inf|-Inf)` is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun sin(x: Float): Float`  
`* Computes the cosine of the angle [x] given in radians.`  
`* Special cases:`  
`- cos(NaN|+Inf|-Inf)` is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun cos(x: Float): Float`  
`* Computes the tangent of the angle [x] given in radians.`  
`* Special cases:`  
`- tan(NaN|+Inf|-Inf)` is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun tan(x: Float): Float`  
`* Computes the arc sine of the value [x];`  
`* the returned value is an angle in the range from  $-\pi/2$  to  $\pi/2$  radians.`  
`* Special cases:`  
`- asin(x)` is `NaN`, when `abs(x) > 1` or x is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun asin(x: Float): Float`  
`* Computes the arc cosine of the value [x];`  
`* the returned value is an angle in the range from  $0.0$  to  $\pi$  radians.`  
`* Special cases:`  
`- acos(x)` is `NaN`, when `abs(x) > 1` or x is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun acos(x: Float): Float`  
`* Computes the arc tangent of the value [x];`  
`* the returned value is an angle in the range from  $-\pi/2$  to  $\pi/2$  radians.`  
`* Special cases:`  
`- atan(NaN)` is `NaN``  
`* Since Kotlin("1.2")\npublic expect fun atan(x: Float): Float`  
`* Returns the angle `theta` of the polar coordinates `(r, theta)` that correspond to the rectangular coordinates `(x, y)` by computing the arc tangent of the value  $y / x$ ;`  
`* the returned value is an angle in the range from  $-\pi$  to  $\pi$  radians.`  
`* Special cases:`  
`- atan2(0.0, 0.0)` is  $0.0$`   
`- atan2(0.0, x)` is  $0.0$  for  $x > 0$  and  $\pi$  for  $x < 0$`   
`- atan2(-0.0, x)` is  $-0.0$  for  $x > 0$  and  $-\pi$  for  $x < 0$`   
`- atan2(y, +Inf)` is  $0.0$  for  $0 < y < +Inf$  and  $-0.0$  for  $-\text{Inf} < y < 0$`   
`- atan2(y, -Inf)` is  $\pi$  for  $0 < y < +Inf$  and  $-\pi$  for  $-\text{Inf} < y < 0$`   
`- atan2(0.0, y)` is  $\pi/2$  for  $y > 0$  and  $-\pi/2$  for  $y < 0$`   
`- atan2(+Inf, x)` is  $\pi/2$  for finite  $x$`   
`- atan2(-Inf, x)``



is  $-\pi/2$  for finite  $x$  \*  $-\text{atan2}(\text{NaN}, x)$  and  $\text{atan2}(y, \text{NaN})$  is  $\text{NaN}$  \*  $\text{atan2}(y: \text{Float}, x: \text{Float}): \text{Float}$  \* Computes the hyperbolic sine of the value  $[x]$ . \* Special cases:  $\text{sinh}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{sinh}(+\text{Inf})$  is  $+\text{Inf}$  \*  $\text{sinh}(-\text{Inf})$  is  $-\text{Inf}$  \*  $\text{sinh}(x: \text{Float}): \text{Float}$  \* Computes the hyperbolic cosine of the value  $[x]$ . \* Special cases:  $\text{cosh}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{cosh}(+\text{Inf}-\text{Inf})$  is  $+\text{Inf}$  \*  $\text{cosh}(x: \text{Float}): \text{Float}$  \* Computes the hyperbolic tangent of the value  $[x]$ . \* Special cases:  $\text{tanh}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{tanh}(+\text{Inf})$  is  $1.0$  \*  $\text{tanh}(-\text{Inf})$  is  $-1.0$  \*  $\text{tanh}(x: \text{Float}): \text{Float}$  \* Computes the inverse hyperbolic sine of the value  $[x]$ . \* The returned value is  $y$  such that  $\text{sinh}(y) == x$ . \* Special cases:  $\text{asinh}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{asinh}(+\text{Inf})$  is  $+\text{Inf}$  \*  $\text{asinh}(-\text{Inf})$  is  $-\text{Inf}$  \*  $\text{asinh}(x: \text{Float}): \text{Float}$  \* Computes the inverse hyperbolic cosine of the value  $[x]$ . \* The returned value is positive  $y$  such that  $\text{cosh}(y) == x$ . \* Special cases:  $\text{acosh}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{acosh}(x)$  is  $\text{NaN}$  when  $x < 1$  \*  $\text{acosh}(+\text{Inf})$  is  $+\text{Inf}$  \*  $\text{acosh}(x: \text{Float}): \text{Float}$  \* Computes the inverse hyperbolic tangent of the value  $[x]$ . \* The returned value is  $y$  such that  $\text{tanh}(y) == x$ . \* Special cases:  $\text{atanh}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{atanh}(x)$  is  $\text{NaN}$  when  $x > 1$  or  $x < -1$  \*  $\text{atanh}(1.0)$  is  $+\text{Inf}$  \*  $\text{atanh}(-1.0)$  is  $-\text{Inf}$  \*  $\text{atanh}(x: \text{Float}): \text{Float}$  \* Computes  $\sqrt{x^2 + y^2}$  without intermediate overflow or underflow. \* Special cases:  $\text{hypot}$  returns  $+\text{Inf}$  if any of arguments is infinite \*  $\text{hypot}$  returns  $\text{NaN}$  if any of arguments is  $\text{NaN}$  and the other is not infinite \*  $\text{hypot}(x: \text{Float}, y: \text{Float}): \text{Float}$  \* Computes the positive square root of the value  $[x]$ . \* Special cases:  $\text{sqrt}(x)$  is  $\text{NaN}$  when  $x < 0$  or  $x$  is  $\text{NaN}$  \*  $\text{sqrt}(x: \text{Float}): \text{Float}$  \* Computes Euler's number  $e$  raised to the power of the value  $[x]$ . \* Special cases:  $\text{exp}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{exp}(+\text{Inf})$  is  $+\text{Inf}$  \*  $\text{exp}(-\text{Inf})$  is  $0.0$  \*  $\text{exp}(x: \text{Float}): \text{Float}$  \* Computes  $\text{exp}(x) - 1$ . \* This function can be implemented to produce more precise result for  $[x]$  near zero. \* Special cases:  $\text{expm1}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{expm1}(+\text{Inf})$  is  $+\text{Inf}$  \*  $\text{expm1}(-\text{Inf})$  is  $-1.0$  \* @see [exp] function. \*  $\text{expm1}(x: \text{Float}): \text{Float}$  \* Computes the logarithm of the value  $[x]$  to the given [base]. \* Special cases:  $\text{log}(x, b)$  is  $\text{NaN}$  if either  $x$  or  $b$  are  $\text{NaN}$  \*  $\text{log}(x, b)$  is  $\text{NaN}$  when  $x < 0$  or  $b \leq 0$  or  $b == 1.0$  \*  $\text{log}(+\text{Inf}, +\text{Inf})$  is  $\text{NaN}$  \*  $\text{log}(+\text{Inf}, b)$  is  $+\text{Inf}$  for  $b > 1$  and  $-\text{Inf}$  for  $b < 1$  \*  $\text{log}(0.0, b)$  is  $-\text{Inf}$  for  $b > 1$  and  $+\text{Inf}$  for  $b > 1$  \* See also logarithm functions for common fixed bases: [ln], [log10] and [log2]. \*  $\text{log}(x: \text{Float}, \text{base}: \text{Float}): \text{Float}$  \* Computes the natural logarithm (base  $E$ ) of the value  $[x]$ . \* Special cases:  $\text{ln}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{ln}(x)$  is  $\text{NaN}$  when  $x < 0.0$  \*  $\text{ln}(+\text{Inf})$  is  $+\text{Inf}$  \*  $\text{ln}(0.0)$  is  $-\text{Inf}$  \*  $\text{ln}(x: \text{Float}): \text{Float}$  \* Computes the common logarithm (base 10) of the value  $[x]$ . \* @see [ln] function for special cases. \*  $\text{log10}(x: \text{Float}): \text{Float}$  \* Computes the binary logarithm (base 2) of the value  $[x]$ . \* @see [ln] function for special cases. \*  $\text{log2}(x: \text{Float}): \text{Float}$  \* Computes  $\ln(a + 1)$ . \* This function can be implemented to produce more precise result for  $[x]$  near zero. \* Special cases:  $\text{ln1p}(\text{NaN})$  is  $\text{NaN}$  \*  $\text{ln1p}(x)$  is  $\text{NaN}$  where  $x < -1.0$  \*  $\text{ln1p}(-1.0)$  is  $-\text{Inf}$  \*  $\text{ln1p}(+\text{Inf})$  is  $+\text{Inf}$  \* @see [ln] function \* @see [expm1] function \*  $\text{ln1p}(x: \text{Float}): \text{Float}$  \* Rounds the given value  $[x]$  to an integer towards positive infinity. \* @return the smallest Float value that is greater than or equal to the given value  $[x]$  and is a mathematical integer. \* Special cases:  $\text{ceil}(x)$  is  $x$  where  $x$  is  $\text{NaN}$  or  $+\text{Inf}$  or  $-\text{Inf}$  or already a mathematical integer. \*  $\text{ceil}(x: \text{Float}): \text{Float}$  \* Rounds the given value  $[x]$  to an integer towards negative infinity. \* @return the largest Float value that is smaller than or equal to the given value  $[x]$  and is a mathematical integer. \* Special cases:  $\text{floor}(x)$  is  $x$  where  $x$  is  $\text{NaN}$  or  $+\text{Inf}$  or  $-\text{Inf}$  or already a mathematical integer. \*  $\text{floor}(x: \text{Float}): \text{Float}$

`*\n@SinceKotlin("1.2")\npublic expect fun floor(x: Float): Float\n\n/**\n * Rounds the given value [x] to an integer towards zero.\n * \n * @return the value [x] having its fractional part truncated.\n * \n * Special cases:\n * - truncate(x) is x where x is NaN or +Inf or -Inf or already a mathematical integer.\n */\n\n@SinceKotlin("1.2")\npublic expect fun truncate(x: Float): Float\n\n/**\n * Rounds the given value [x] towards the closest integer with ties rounded towards even integer.\n * \n * Special cases:\n * - round(x) is x where x is NaN or +Inf or -Inf or already a mathematical integer.\n */\n\n@SinceKotlin("1.2")\npublic expect fun round(x: Float): Float\n\n/**\n * Returns the absolute value of the given value [x].\n * \n * Special cases:\n * - abs(NaN) is NaN\n * @see absoluteValue extension property for [Float]\n */\n\n@SinceKotlin("1.2")\npublic expect fun abs(x: Float): Float\n\n/**\n * Returns the sign of the given value [x]:\n * - -1.0 if the value is negative,\n * - zero if the value is zero,\n * - 1.0 if the value is positive\n * \n * Special case:\n * - sign(NaN) is NaN\n */\n\n@SinceKotlin("1.2")\npublic expect fun sign(x: Float): Float\n\n/**\n * Returns the smaller of two values.\n * \n * If either value is NaN, then the result is NaN.\n */\n\n@SinceKotlin("1.2")\npublic expect fun min(a: Float, b: Float): Float\n\n/**\n * Returns the greater of two values.\n * \n * If either value is NaN, then the result is NaN.\n */\n\n@SinceKotlin("1.2")\npublic expect fun max(a: Float, b: Float): Float\n\n// extensions\n\n/**\n * Raises this value to the power [x].\n * \n * Special cases:\n * - b.pow(0.0) is 1.0\n * - b.pow(1.0) == b\n * - b.pow(NaN) is NaN\n * - NaN.pow(x) is NaN for x != 0.0\n * - b.pow(Inf) is NaN for abs(b) == 1.0\n * - b.pow(x) is NaN for b < 0 and x is finite and not an integer\n */\n\n@SinceKotlin("1.2")\npublic expect fun Float.pow(x: Float): Float\n\n/**\n * Raises this value to the integer power [n].\n * \n * See the other overload of [pow] for details.\n */\n\n@SinceKotlin("1.2")\npublic expect fun Float.pow(n: Int): Float\n\n/**\n * Returns the absolute value of this value.\n * \n * Special cases:\n * - NaN.absoluteValue is NaN\n * @see abs function\n */\n\n@SinceKotlin("1.2")\npublic expect val Float.absoluteValue: Float\n\n/**\n * Returns the sign of this value:\n * - -1.0 if the value is negative,\n * - zero if the value is zero,\n * - 1.0 if the value is positive\n * \n * Special case:\n * - NaN.sign is NaN\n */\n\n@SinceKotlin("1.2")\npublic expect val Float.sign: Float\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n * \n * If [sign] is NaN the sign of the result is undefined.\n */\n\n@SinceKotlin("1.2")\npublic expect fun Float.withSign(sign: Float): Float\n\n/**\n * Returns this value with the sign bit same as of the [sign] value.\n */\n\n@SinceKotlin("1.2")\npublic expect fun Float.withSign(sign: Int): Float\n\n/**\n * Rounds this [Float] value to the nearest integer and converts the result to [Int].\n * \n * Ties are rounded towards positive infinity.\n * \n * Special cases:\n * - x.roundToInt() == Int.MAX_VALUE when x > Int.MAX_VALUE\n * - x.roundToInt() == Int.MIN_VALUE when x < Int.MIN_VALUE\n * \n * @throws IllegalArgumentException when this value is NaN\n */\n\n@SinceKotlin("1.2")\npublic expect fun Float.roundToInt(): Int\n\n/**\n * Rounds this [Float] value to the nearest integer and converts the result to [Long].\n * \n * Ties are rounded towards positive infinity.\n * \n * Special cases:\n * - x.roundToLong() == Long.MAX_VALUE when x > Long.MAX_VALUE\n * - x.roundToLong() == Long.MIN_VALUE when x < Long.MIN_VALUE\n * \n * @throws IllegalArgumentException when this value is NaN\n */\n\n@SinceKotlin("1.2")\npublic expect fun Float.roundToLong(): Long\n\n// endregion\n\n// region\n\n==== Integer Math ==== \n\n/**\n * Returns the absolute value of the given value [n].\n * \n * Special cases:\n * - abs(Int.MIN_VALUE) is Int.MIN_VALUE due to an overflow\n * @see absoluteValue extension property for [Int]\n */\n\n@SinceKotlin("1.2")\npublic expect fun abs(n: Int): Int\n\n/**\n * Returns the smaller of two values.\n */\n\n@SinceKotlin("1.2")\npublic expect fun min(a: Int, b: Int): Int\n\n/**\n * Returns the greater of two values.\n */\n\n@SinceKotlin("1.2")\npublic expect fun max(a: Int, b: Int): Int\n\n/**\n * Returns the absolute value of this value.\n * \n * Special cases:\n * - Int.MIN_VALUE.absoluteValue is Int.MIN_VALUE due to an overflow\n * @see abs function\n */\n\n@SinceKotlin("1.2")\npublic expect val Int.absoluteValue: Int\n\n/**\n * Returns the sign of this value:\n * - -1 if the value is negative,\n * - 0 if the value is zero,\n * - 1 if the value is positive\n */\n\n@SinceKotlin("1.2")\npublic expect val Int.sign: Int\n\n// endregion`

```

value [n].\n *\n * Special cases:\n * - `abs(Long.MIN_VALUE)` is `Long.MIN_VALUE` due to an overflow\n *\n * @see absoluteValue extension property for [Long]\n *\n @SinceKotlin("1.2")\n\npublic expect
fun abs(n: Long): Long\n\n**\n * Returns the smaller of two values.\n *\n @SinceKotlin("1.2")\n\npublic expect
fun min(a: Long, b: Long): Long\n\n**\n * Returns the greater of two values.\n *\n @SinceKotlin("1.2")\n\npublic
expect fun max(a: Long, b: Long): Long\n\n**\n * Returns the absolute value of this value.\n *\n * Special cases:\n
* - `Long.MIN_VALUE.absoluteValue` is `Long.MIN_VALUE` due to an overflow\n *\n * @see abs function\n
*\n @SinceKotlin("1.2")\n\npublic expect val Long.absoluteValue: Long\n\n**\n * Returns the sign of this value:\n
* - `-1` if the value is negative,\n * - `0` if the value is zero,\n * - `1` if the value is positive\n
*\n @SinceKotlin("1.2")\n\npublic expect val Long.sign: Int\n\n// endregion\n", "/*\n * Copyright 2010-2022
JetBrains s.r.o. and Kotlin Programming Language contributors.\n * Use of this source code is governed by the
Apache 2.0 license that can be found in the license/LICENSE.txt file.\n *\n\npackage kotlin.js\n\n**\n *
Exposes the JavaScript [Math
object](https://developer.mozilla.org/en/docs/Web/JavaScript/Reference/Global_Objects/Math) to Kotlin.\n
*\n @PublishedApi\n @JsName("Math")\n\ninternal external object JsMath {\n val LN2: Double\n fun
abs(value: Double): Double\n fun acos(value: Double): Double\n fun asin(value: Double): Double\n fun
atan(value: Double): Double\n fun atan2(y: Double, x: Double): Double\n fun cos(value: Double): Double\n
fun sin(value: Double): Double\n fun exp(value: Double): Double\n fun max(vararg values: Int): Int\n fun
max(vararg values: Float): Float\n fun max(vararg values: Double): Double\n fun min(vararg values: Int): Int\n
fun min(vararg values: Float): Float\n fun min(vararg values: Double): Double\n fun sqrt(value: Double):
Double\n fun tan(value: Double): Double\n fun log(value: Double): Double\n fun pow(base: Double, exp:
Double): Double\n fun round(value: Number): Double\n fun floor(value: Number):
Double\n fun ceil(value: Number): Double\n}\n\ninternal const val defineTaylorNBound = ""\n var epsilon =
2.220446049250313E-16;\n var taylor_2_bound = Math.sqrt(epsilon);\n var taylor_n_bound =
Math.sqrt(taylor_2_bound);\n ""\n\ninternal const val defineUpperTaylor2Bound = ""\n
$defineTaylorNBound\n var upper_taylor_2_bound = 1/taylor_2_bound;\n ""\n\ninternal const val
defineUpperTaylorNBound = ""\n $defineUpperTaylor2Bound\n var upper_taylor_n_bound =
1/taylor_n_bound;\n ""\n\n", "names": [], "mappings": "AAWC,CAXA,yB;EACG,IAAI,OAAO,MAAO,KAAI,UAA
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,IAAI,OAAO,OAAQ,KAAI,QAAvB,C;IACD,OAAO,CAAC,MAAM,QAAP,C;;IAGP,IAAI,OAAQ,GAAE,E;IAC
d,OAAO,CAAC,IAAI,OAAL,C;;CAEd,CAAC,IAAD,EAAO,kB;EACJ,IAAI,IAAI,M;ECPZ,MAAM,eAAgB,GAA
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```

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AAN,GAAa,CAAb,I;QAAb,aAAU,CAAV,mB;UA2B+B,MA1B3B,CAAM,CAAN,IA0BmC,IA1BxB,CAAK,CAA  
L,C;;QA0BH,OAAM,B,M;;MAF/B,W;K;qEAMJ,yB;MAAA,2B;MAAA,gC;MAAA,6B;QAGiB,Q;QADb,YAAY,U  
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Y,eAAK,CAAL,E;UACpB,KAAK,CAAC,CAAD,CAAG,GAAG,K;;QAEP,OAAO,K;O;KARX,C;mFAWA,yB;M  
AAA,mB;MAAA,gC;MAAA,6B;QAGiB,Q;QADb,YAAY,QAAY,IAAZ,C;QACC,OAAA,KAAM,OAAN,GAAa,  
CAAb,I;QAAb,aAAU,CAAV,iB;UACI,YACY,eAAK,CAAL,E;UACpB,KAAK,CAAC,CAAD,CAAG,GAAG,K;;  
QAEP,OAAO,K;O;KARX,C;IAWA,+B;MAiB,IAAN,I;MAFP,aAAsB,MAAY,IAAZ,C;MACtB,gBAAkB,W;MA  
Ed,IADS,IACT,mBADs,IACT,EAAM,IAAN,E;QAAC,oBAaA,MAAb,K;WACd,WAFS,IAET,S;QAAS,a;;QA3DA  
,U;QAAA,SA4dB,MA5DZ,OAAN,GAAa,CAAb,I;QAAb,aAAU,CAAV,mB;UA4D+B,MA3D3B,CAAM,CAAN,  
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E,YAAa,UAAU,IAAV,EAAGB,KAHhB,C;QAJEvE,Q;QAAA,OAAA,KAAM,OAAN,GAAa,CAAb,I;QAAb,aAA  
U,CAAV,iB;UACI,MAAM,CAAN,IAgEwG,IAhE7F,CAAK,CAAL,C;;QAgEwD,OA9DhE,K;O;KA6DX,C;IAGA,  
wC;MACiB,Q;MAAA,OAAA,KAAM,OAAN,GAAa,CAAb,I;MAAb,aAAU,CAAV,iB;QACI,MAAM,CAAN,IAA  
W,S;;MAEf,OAAO,K;K;IEIFX,iC;MAAA,qC;MAEI,iBAC8B,Q;MAE9B,iBAC8B,sB;MAE9B,yBAEsC,MAAM,  
G;MAE5C,yBAEsC,CAAC,GAAD,GAAO,G;MAE7C,WAEwB,EAAE,MAAM,GAAR,C;MAExB,kBACuB,C;M  
AEvB,iBACsB,E;K;;IAxB1B,6C;MAAA,4C;QAAA,2B;;MAAA,qC;K;IA2BA,gC;MAAA,oC;MAEI,iBAC6B,O;  
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B,0C;MAAA,yC;QAAA,wB;;MAAA,kC;K;IAeA,+B;MAAA,mC;MAEI,iBACJ,MAAM,KAAoB,U;MAEtB,iBAC  
J,MAAM,KAAoB,U;MAEtB,kBACuB,C;MAEvB,iBACsB,E;K;;IAZ1B,2C;MAAA,0C;QAAA,yB;;MAAA,mC;K  
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AA,yB;;MAAA,mC;K;IAiCA,iC;MAAA,qC;K;;IAAA,6C;MAAA,4C;QAAA,2B;;MAAA,qC;K;IAEA,kC;MAAA  
,sC;K;;IAAA,8C;MAAA,6C;QAAA,4B;;MAAA,sC;K;;aCu5vBoB,gB;;cCh1uB0C,mB;;  
gBAyEvC,yB;eAAyB,wB;;uBAgBzB,gC;sBAAwB,+B;mCA4JjC,qB;mCA5ImC,qB;;kBAQ1B,2B;iBAA0B,0B;;  
;eC/gBgB,wB;sBCoBA,sB;iBCnBA,0B;;aC5P8B,e;;gCCIDhD,yC;+BCVA,uC;+BCAA,sC;;gCCyJ/B,  
+B;+BAIW,sC;gCCqwCc,+B;0BAHvB,kC;uBAR6BO,gC;yBA8WD,iC;0BACA,mC;yBA4JA,iC;gCAmZP,oC;+BA  
bc,oC;+BAEC,+B;yBAEQ,kC;;gBCr0C6C,yB;;  
;IC/ErF,kD;MAMuF,wC;K;IANvF,4CAOI,Y  
;MAAuC,8B;K;IAP3C,8E;ICGA,kD;MAQuF,wC;K;IARvF,4CASI,Y;MAAuC,8B;K;IAT3C,8E;0FbOA,qB;MAQI,  
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K;4FAGX,qB;MAQI,OAAO,UAAI,CAAJ,C;K;4FAGX,qB;MAQI,OAAO,UAAI,CAAJ,C;K;4FAGX,qB;MAQI,O  
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C;MAOW,sB;;;QAobS,Q;QAAhB,iD;UAAgB,cAAhB,e;UAAsB,IApH,SAobO,CAAU,OAAV,CAAJ,C;YAAwB,q  
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B;;UAg2CO,Q;UAAA,OAAa,SAAR,sBAAQ,CAAb,W;UAAAd,OAAc,cAAAd,C;YAAc,uB;YACV,cAAc,UAAK,KA  
AL,C;YACd,IAI2Cc,SAk2CV,CAAU,OAAV,CAAJ,C;cAAwB,oBAAO,O;cAAP,sB;;;UAE5B,oBAAO,I;;;QAp2C  
P,wB;O;KAPJ,C;wFAUA,yB;MAo2CA,0D;MAAA,+C;MAP2CA,uC;QAOW,qB;;UAm2CO,Q;UAAA,OAAa,SA  
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,uC;QAOW,qB;;UAY2CO,Q;UAAA,OAAa,SAAR,sBAAQ,CAAb,W;UAAAd,OAAc,cAAAd,C;YAAc,uB;YACV,cA  
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,SA82CV,CAAU,OAAV,CAAJ,C;cAAwB,oBAAO,O;cAAP,sB;;;UAE5B,oBAAO,I;;;QAh3CP,wB;O;KAPJ,C;wF  
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;UAAAd,OAAc,cAAAd,C;YAAc,uB;YACV,cAAc,UAAK,KAAL,C;YACd,IAj3Cc,SAi3CV,CAAU,OAAV,CAAJ,C;  
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;MAN3CA,uC;QAOW,qB;;UAK3CO,Q;UAAA,OAAa,SAAR,sBAAQ,CAAb,W;UAAAd,OAAc,cAAAd,C;YAAc,uB;  
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Cd,IAv3Cc,SAu3CV,CAAU,OAAV,CAAJ,C;cAAwB,oBAAO,O;cAAP,sB;;;UAE5B,oBAAO,I;;;QAz3CP,wB;O;  
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gB,cAAA,SAAhB,M;UAAsB,IAAI,UAAU,OAAV,CAAJ,C;YAAwB,OAAO,O;;QACrD,MAAM,gCAAuB,mDAA  
vB,C;O;KANV,C;kFASA,yB;MAAA,iE;MAAA,uC;QAKoB,Q;QAAhB,wBAAGB,SAAhB,gB;UAAgB,cAAA,SA  
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V,C;mFASA,yB;MAAA,iE;MAAA,uC;QAKoB,Q;QAAhB,wBAAGB,SAAhB,gB;UAAgB,cAAA,SAAhB,M;UAA  
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B,e;YACI,cAgzBwB,SAhzBV,CAAU,WAAV,EAAuB,OAavB,C;YACd,MAAO,WAAI,WAAJ,C;;UAEX,qBAA  
O,M;;;QA6yBP,yB;O;KafJ,C;gFAkBA,yB;MA7yBA,gD;MAAA,gE;MA6yBA,gD;QAEW,sB;;UA3yBS,Q;UAHh  
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YAAgB,cAAhB,e;YACI,cA0yBwB,SA1yBV,CAAU,WAAV,EAAuB,OAavB,C;YACd,MAAO,WAAI,WAAJ,C;;  
UAEX,qBAAO,M;;;QAuyBP,yB;O;KafJ,C;gFAkBA,yB;MAvyBA,gD;MAAA,gE;MAuyBA,gD;QAEW,sB;;UAry  
BS,Q;UAHhB,IAIzZO,qBAAQ,CAktZf,C;YAAe,qBAAO,OAwyBH,OAxyBG,C;YAAP,uB;;UACqB,kBAAvB,eA  
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,sB;;UA/xBS,Q;UAHhB,IALuZO,qBAAQ,CAkuZf,C;YAAe,qBAAO,OAkyBH,OAlyBG,C;YAAP,uB;;UACqB,kB  
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O,WAAI,WAAJ,C;;UAEX,qBAAO,M;;;QA2xBP,yB;O;KafJ,C;gFAkBA,yB;MA3xBA,gD;MAAA,gE;MA2xBA,  
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B,OAavB,C;YACd,MAAO,WAAI,WAAJ,C;;UAEX,qBAAO,M;;;QA+wBP,yB;O;KafJ,C;gFAkBA,yB;MA/wBA,  
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CAAJ,C;;QAET,OAAO,W;O;KafX,C;4FAkBA,yB;MAAA,kC;MAAA,4C;MAAA,wE;QAQW,sC;QAAA,8C;O;  
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AU,IAAV,CAAJ,C;;QAxehB,OAYeO,W;O;KAhFX,C;4FAUA,yB;MAAA,kF;MAAA,gE;MA+BA,wE;MA/BA,u  
C;QAOW,kBAAa,eAAa,mCAAwB,EAAxB,CAAb,C;QAgCP,gB;QADb,YAAAY,C;QACC,2B;QAAb,OAAa,cAAb,  
C;UAAa,sB;UACT,WAAAY,WAJC+C,SAiC3C,CAAU,oBAAmB,cAAnB,EAAMB,sBAAnB,UAAV,EAAuC,IAAv  
C,CAAJ,C;;QAJChB,OAKCO,W;O;KAZCX,C;0GAUA,yB;MAAA,+D;MAoSA,wE;MApSA,uC;QAOW,kBAAoB,  
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X,C;8GAUA,yB;MA0RA,wE;MA1RA,oD;QAIsiB,gB;QADb,YAAAY,C;QACC,2B;QAAb,OAAa,cAAb,C;UAAa,s  
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AsC,6B;;;QAR3D,OASO,W;O;KAhBX,C;gGAUA,yB;MAAA,oD;QAqPoB,Q;QAAA,2B;QAAhB,OAAgB,cAAh  
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B,C;;MAGtB,OAAO,W;K;wGAGX,yC;MAUI,kBAakB,O;MACIB,IAAI,CAAC,mBAAL,C;QACI,eAAe,+BAAa,



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AQ,C;;QA3pGhB,OAAO,OAAc,sBAAI,KAAJ,CAAtC,GAAsD,aAAa,KAAb,C;O;KAPjE,C;2FAUA,yB;MAGqG  
I,8D;MAhqGJ,iD;QAOe,oBAAS,C;QAAT,S;UAAc,gBAypGT,cAAR,iBAAQ,C;;QAzpGhB,OAAO,OAAc,sBAA  
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T,S;UAAc,gBAupGT,cAAR,iBAAQ,C;;QAvpGhB,OAAO,OAAc,sBAAI,KAAJ,CAAtC,GAAsD,aAAa,KAAb,C;  
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C;MAAT,S;QAAC,gBAknGT,gBAAR,iBAAQ,C;;MALnGhB,OAAO,OAAc,sBAAI,KAAJ,CAAtC,GAAsD,I;K;I  
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;MAAA,sC;MnB3ZA,+B;MmB2ZA,0BAOGC,yB;QnBlahC,+B;emBkagC,6B;UAAA,qB;YAAE,yBnBxZQ,emBw  
ZE,EnBxZF,CmBwZR,C;W;S;OAAF,C;MAPhC,uC;QAOMb,kBAAR,iB;QAAQ,uB;;UtC1Bf,0D;YACI,IsC11B0  
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,qB;YAAE,yBnCrcM,cmCqcI,EnCrcJ,CmCqcN,C;W;S;OAAF,C;MAP/B,uC;QAOmB,kBAAR,iB;QAAQ,sB;;UtC  
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BP,yB;O;KAPJ,C;+FAUA,yB;MAAA,sC;MtCw5BA,0D;MAAA,+C;MmB31CA,+B;MmBmcA,yBAO+B,yB;QnB  
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T,C;W;S;OAAF,C;MAP/B,uC;QAOmB,kBAAR,iB;QAAQ,sB;;UtCu2BD,Q;UAAA,OAAQ,SAAR,wBAAQ,CAA  
R,W;UAAAd,OAAc,cAAd,C;YAAc,uB;YACV,IsCx2ByB,UpCvgBS,eF+2CpB,YAAK,KAAL,CE/2CoB,CoCugBT,  
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C;MAAA,iE;MAg2FI,0D;MAh2FJ,uC;QAWkB,Q;QAAA,OAAa,SAq1FX,YAr1FF,SAq1FN,QAAQ,CAr1FW,CA  
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 A,2B;MAaHb,OAAgB,cAAhB,C;QAAGb,yB;QAAM,IAAI,CAAC,UAAU,OAAV,CAAL,C;UAAyB,WAAy,WAAI,  
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,iB;UACA,IAAK,WAAI,OAAJ,C;;QAET,OAAO,W;O;KAjBX,C;2FAoBA,yB;MAAA,+D;MAAA,sE;QAaoB,Q;Q  
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;KAIBX,C;2FAqBA,yB;MAAA,+D;MAAA,sE;QAaoB,Q;QAAA,2B;QAAhB,OAAGB,cAAhB,C;UAAgB,yB;UA  
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BkhUnD,GnBlhU8D,KAAK,KmBkhU5D,SAAS,OAAT,CnBlhUuE,KAAx,CAAhB,C;;QmBohUvD,OAAO,G;O;  
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T+B,CAAX,C;QmBiuTrB,2B;QAAhB,OAAGB,cAAhB,C;UAAgB,yB;UACZ,MnBriUmD,emBqiUnD,GnBriU8D,  
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,SAAS,OAAT,CnBxjUuE,KAAx,CAAhB,C;;QmB0jUvD,OAAO,G;O;KAhBX,C;IAmBA,kC;MA2DI,WpBv8TO,  
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H,KAyDkB,OpB19Tf,C;MoB29Td,WAAW,iBAaA,IAAb,C;MACX,aAAU,CAAV,MAAkB,IAAIB,M;QACI,IAA  
K,WA5DqB,GA4DP,sBAAK,CAAL,CA5DO,EAAAnB,KA4DqB,CAAM,CAAN,CA5DF,CA4DrB,C;;MA5DT,OA  
8DO,I,K;IA3DX,kC;MAyEI,WpB7+TO,MAAO,KoB6+TG,cpB7+TH,EoB66TH,KAgEkB,OpB7+Tf,C;MoB8+Td,  
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MAA4B,sB;K;;IAMhC,wB;K;kCAEI,Y;MAA4B,mC;K;;IAMhC,yB;K;mCAEI,Y;MAA4B,uB;K;;IAMhC,uB;K;iC  
AEI,Y;MAA4B,qB;K;;IAMhC,wB;K;kCAEI,Y;MAA4B,sB;K;;IAMhC,yB;K;mCAEI,Y;MAA4B,uB;K;;IAMhC,0  
B;K;oCAEI,Y;MAA4B,wB;K;;IAMhC,2B;K;qCAEI,Y;MAA4B,yB;K;;ICtDM,oD;MAA2C,uB;MAAjB,gB;MAC5  
D,sBAAGC,InBkCu,I;MmBjC1C,iBAAmC,YAAO,CAAX,GAAc,SAAS,IAAvB,GAAiC,SAAS,I;MACzE,cAA4B,  
cAA5B,GAAqC,KnBgCK,ImBhC1C,GAAqD,mB;K;gDAErD,Y;MAAkC,qB;K;iDAEIC,Y;MACI,YAAy,W;MAC  
Z,IAAI,UAAS,mBAAb,C;QACI,IAAI,CAAC,cAAL,C;UAAc,MAAa,6B;QAC3B,iBAAU,K;;QAGV,4BAAQ,SAAR,  
I;;MAEJ,OAAa,OAAN,KAAM,C;K;;IAQgB,mD;MAAyC,sB;MAAjB,gB;MACzD,sBAAGC,I;MACHc,iBAAm  
C,YAAO,CAAX,GAAc,SAAS,IAAvB,GAAiC,SAAS,I;MACzE,cAA4B,cAAJ,GAAa,KAAb,GAAwB,mB;K;+CA  
EhD,Y;MAAkC,qB;K;+CAEIC,Y;MACI,YAAy,W;MACZ,IAAI,UAAS,mBAAb,C;QACI,IAAI,CAAC,cAAL,C;  
UAAc,MAAa,6B;QAC3B,iBAAU,K;;QAGV,4BAAQ,SAAR,I;;MAEJ,OAAO,K;K;;IAQuB,oD;MAA4C,uB;MAA  
lB,gB;MAC5D,sBAAiC,I;MACjC,iBAAmC,uBAAO,CAAX,GAAc,sBAAS,IAAT,MAAd,GAAiC,sBAAS,IAAT,  
M;MACHc,cAA6B,cAAJ,GAAa,KAAb,GAAwB,mB;K;gDAEjD,Y;MAAkC,qB;K;iDAEIC,Y;MACI,YAAy,W;M  
ACZ,IAAI,cAAS,mBAAT,CAAJ,C;QACI,IAAI,CAAC,cAAL,C;UAAc,MAAa,6B;QAC3B,iBAAU,K;;QAGV,8B

AAQ,SAAR,C;;MAEJ,OAAO,K;K;;IC9DX,oD;MA6CA,uC;MAtCI,IAAI,SAAQ,CAAZ,C;QAAe,MAAa,gCAAyB ,wBAAzB,C;MAC5B,IAAI,SAAQ,WAAZ,C;QAA2B,MAAa,gCAAyB,wEAAzB,C;MAG5C,aAGyB,K;MAEzB,Y AGuF,OAA/D,0BAA0B,KpBcR,IoBdlB,EAAc,YpBcpB,IoBdlB,EAAyD,IAAzD,CAA+D,C;MAEvF,YAGuB,I;K ;yCAEvB,Y;MAAwC,mCAAwB,UAAxB,EAA+B,SAA/B,EAAqC,SAArC,C;K;wCAExC,Y;MAMqC,OAAI,YAA O,CAAX,GAAc,aAAQ,SAAtB,GAAgC,aAAQ,S;K;uCAE7E,iB;MACI,iDAA6B,kBAaA,KAAM,UAAAnB,KAC7B, eAAS,KAAM,MAAf,IAAwB,cAAQ,KAAM,KAAtC,IAA8C,cAAQ,KAAM,KAD/B,CAA7B,C;K;yCAGJ,Y;MAC I,OAAI,cAAJ,GAAe,EAAf,GAAwB,OAAM,OAkK,UpBRG,IoBQR,UAAkB,SpBRV,IoBQR,KAAN,SAAqC,SA ArC,I;K;yCAE5B,Y;MAAkC,OAAI,YAAO,CAAX,GAAc,oBAAE,UAAF,+BAAU,SAAV,eAAqB,SAAnC,GAA8 C,oBAAE,UAAF,qCAAgB,SAAhB,gBAA4B,CAAC,SAAD,IAA5B,C;K;IAEhF,qC;MAAA,yC;K;kEACI,sC;MA Q2F,2BAAgB,UAAhB,EAA4B,QAA5B,EAAc,IAAtC,C;K;;IAT/F,iD;MAAA,gD;QAAA,+B;;MAAA,yC;K;;IAi BA,mD;MA6CA,sC;MAtCI,IAAI,SAAQ,CAAZ,C;QAAe,MAAa,gCAAyB,wBAAzB,C;MAC5B,IAAI,SAAQ,WA AZ,C;QAA2B,MAAa,gCAAyB,wEAAzB,C;MAG5C,aAGwB,K;MAExB,YAGuB,0BAA0B,KAA1B,EAAiC,YAA jC,EAA+C,IAA/C,C;MAEvB,YAGuB,I;K;wCAEvB,Y;MAAuC,kCAAuB,UAAvB,EAA8B,SAA9B,EAAoC,SAA pC,C;K;uCAEvC,Y;MAMqC,OAAI,YAAO,CAAX,GAAc,aAAQ,SAAtB,GAAgC,aAAQ,S;K;sCAE7E,iB;MACI,g DAA4B,kBAaA,KAAM,UAAAnB,KAC5B,eAAS,KAAM,MAAf,IAAwB,cAAQ,KAAM,KAAtC,IAA8C,cAAQ,KA AM,KADhC,CAA5B,C;K;wCAGJ,Y;MACI,OAAI,cAAJ,GAAe,EAAf,GAAwB,OAAM,MAAK,UAAAL,QAAa,SA Ab,IAAN,SAA2B,SAA3B,I;K;wCAE5B,Y;MAAkC,OAAI,YAAO,CAAX,GAAgB,UAAF,qBAAU,SAAV,cAAqB ,SAAnC,GAAgD,UAAF,2BAAgB,SAAhB,eAA4B,CAAC,SAAD,IAA5B,C;K;IAEhF,oC;MAAA,wC;K;iEACI,sC; MAQwF,0BAAe,UAAf,EAA2B,QAA3B,EAAqC,IAArC,C;K;;IAT5F,gD;MAAA,+C;QAAA,8B;;MAAA,wC;K;;I AiBA,oD;MA6CA,uC;MAtCI,IAAI,gBAAJ,C;QAAgB,MAAa,gCAAyB,wBAAzB,C;MAC7B,IAAI,sCAAJ,C;QA A4B,MAAa,gCAAyB,yEAAzB,C;MAG7C,aAGyB,K;MAEzB,YAGwB,4BAA0B,KAA1B,EAAiC,YAAjC,EAA+ C,IAA/C,C;MAExB,YAGwB,I;K;yCAExB,Y;MAAwC,mCAAwB,UAAxB,EAA+B,SAA/B,EAAqC,SAArC,C;K; wCAExC,Y;MAMqC,OAAI,uBAAO,CAAX,GAAc,2BAAQ,SAAR,KAAd,GAAgC,2BAAQ,SAAR,K;K;uCAErE, iB;MACI,iDAA6B,kBAaA,KAAM,UAAAnB,KAC7B,mBAAS,KAAM,MAAf,KAawB,kBAAQ,KAAM,KAAd,CA AxB,IAA8C,kBAAQ,KAAM,KAAd,CADjB,CAA7B,C;K;yCAGJ,Y;MACI,OAAI,cAAJ,GAAe,EAAf,GAAwB,iC AAM,iCAAM,eAAW,8BAAW,EAAx,CAAX,CAAN,MAAoC,cAAU,6BAAU,EAAV,CAAV,CAApC,CAAN,MA AuE,cAAU,6BAAU,EAAV,CAAV,CAAvE,CAAiG,Q;K;yCAE7H,Y;MAAkC,OAAI,uBAAO,CAAX,GAAgB,UA AF,qBAAU,SAAV,yBAAqB,SAArB,WAAAd,GAAgD,UAAF,2BAAgB,SAAhB,yBAA6B,SAAD,aAA5B,W;K;IAE hF,qC;MAAA,yC;K;kEACI,sC;MAQ4F,2BAAgB,UAAhB,EAA4B,QAA5B,EAAc,IAAtC,C;K;;IAThG,iD;MA AA,gD;QAAA,+B;;MAAA,yC;K;;;6CCIKA,iB;MAGkD,+BAAS,UAAU,UAAkB,wBAAS,iBAAT,M;K;oCAEpE, Y;MAKgC,oCAAQ,iBAAR,K;K;;I7CpBd,wC;MASBiB,iC;MAtBsD,2BAAgB,KAhB,EAAuB,YAAvB,EAAqC, CAArC,C;K;kFAC7B,Y;MAAQ,8B;K;yFACD,Y;MAAQ,6B;K;2CAExC,iB;MAA8C,qBAAS,KAAT,IAAkB,SAA S,S;K;kCAEzE,Y;MAKkC,oBAAQ,S;K;iCAE1C,iB;MACI,2CAAuB,kBAaA,KAAM,UAAAnB,KACvB,eAAS,KA AM,MAAf,IAAwB,cAAQ,KAAM,KADf,CAAvB,C;K;mCAGJ,Y;MACI,OAAI,cAAJ,GAAe,EAAf,GAAwB,OA A K,UwBkBS,IxBiBd,UAAkB,SwBkBJ,IxBiBd,K;K;mCAE5B,Y;MAAkC,2BAAE,UAAF,+BAAU,SAAV,C;K;IAEI C,+B;MAAA,mC;MACI,aAC8B,cAAY,OAAF,CAAE,CAAZ,EAAwB,OAAF,CAAE,CAAxB,C;K;;IAFIC,2C;M AAA,0C;QAAA,yB;;MAAA,mC;K;;IASiB,uC;MASBjB,gC;MAtBmD,0BAAe,KAaf,EAAcB,YAAtB,EAAoC,CA ApC,C;K;iFAC3B,Y;MAAQ,iB;K;wFACD,Y;MAAQ,gB;K;0CAEvC,iB;MAA6C,qBAAS,KAAT,IAAkB,SAAS,S ;K;iCAExE,Y;MAKkC,oBAAQ,S;K;gCAE1C,iB;MACI,0CAASB,kBAaA,KAAM,UAAAnB,KACtB,eAAS,KAAM, MAAf,IAAwB,cAAQ,KAAM,KADhB,CAAtB,C;K;kCAGJ,Y;MACI,OAAI,cAAJ,GAAe,EAAf,GAAwB,MAAK, UAAL,QAAa,SAAb,I;K;kCAE5B,Y;MAAkC,OAAE,UAAF,qBAAU,S;K;IAE5C,8B;MAAA,kC;MACI,aAC6B,a AAS,CAAT,EAAy,CAAZ,C;K;;IAFjC,0C;MAAA,yC;QAAA,wB;;MAAA,kC;K;;IASkB,wC;MASBiB,iC;MAtBs D,2BAAgB,KAhB,EAAuB,YAAvB,K;K;kFAC7B,Y;MAAQ,iB;K;yFACD,Y;MAAQ,gB;K;2CAExC,iB;MAA8 C,kCAAS,KAAT,UAAkB,sBAAS,SAAT,M;K;kCAEhE,Y;MAKkC,kCAAQ,SAAR,K;K;iCAEIC,iB;MACI,2CAA uB,kBAaA,KAAM,UAAAnB,KACvB,mBAAS,KAAM,MAAf,KAawB,kBAAQ,KAAM,KAAd,CADD,CAAvB,C; K;mCAGJ,Y;MACI,OAAI,cAAJ,GAAe,EAAf,GAAwB,iCAAM,eAAW,8BAAW,EAAx,CAAX,CAAN,MAAoC,c AAU,6BAAU,EAAV,CAAV,CAApC,CAA8D,Q;K;mCAE1F,Y;MAAkC,OAAE,UAAF,qBAAU,SAAV,W;K;IAEI C,+B;MAAA,mC;MACI,aAC8B,qB;K;;IAFIC,2C;MAAA,0C;QAAA,yB;;MAAA,mC;K;;I8C9EJ,gB;MAAA,oB;

K;8BAII,Y;MAA0B,oB;K;;IAJ9B,4B;MAAA,2B;QAAA,U;;MAAA,oB;K;ICEA,yC;MAAA,e;MAAA,iB;MAAA,uB;K;IAAA,uC;MAAA,0C;O;MAII,kE;MAEA,wF;MAEA,oF;MAEA,wE;MAEA,kE;MAEA,oF;MAEA,sF;MAEA,8E;MAEA,wE;MAEA,sF;MAEA,uF;MAEA,iE;MAEA,6E;MAEA,iE;MAEA,2E;K;;IA5BA,8C;MAAA,6B;MAAA,sC;K;;IAEA,yD;MAAA,6B;MAAA,iD;K;;IAEA,uD;MAAA,6B;MAAA,+C;K;;IAEA,iD;MAAA,6B;MAAA,yC;K;;IAEA,8C;MAAA,6B;MAAA,sC;K;;IAEA,uD;MAAA,6B;MAAA,+C;K;;IAEA,wD;MAAA,6B;MAAA,gD;K;;IAEA,oD;MAAA,6B;MAAA,4C;K;;IAEA,iD;MAAA,6B;MAAA,yC;K;;IAEA,wD;MAAA,6B;MAAA,gD;K;;IAEA,wD;MAAA,6B;MAAA,gD;K;;IAEA,6C;MAAA,6B;MAAA,qC;K;;IAEA,mD;MAAA,6B;MAAA,2C;K;;IAEA,6C;MAAA,6B;MAAA,qC;K;;IAEA,kD;MAAA,6B;MAAA,0C;K;;IAhCJ,mC;MAAA,+oB;K;;IAAA,wC;MAAA,a;aaaa,O;UAAA,2C;aaaa,kB;UAAA,sD;aaaa,gB;UAAA,oD;aaaa,U;UAAA,8C;aaaa,O;UAAA,2C;aaaa,gB;UAAA,oD;aaaa,iB;UAAA,qD;aaaa,a;UAAA,iD;aaaa,U;UAAA,8C;aaaa,iB;UAAA,qD;aaaa,iB;UAAA,qD;aaaa,M;UAAA,0C;aaaa,Y;UAAA,gD;aaaa,M;UAAA,0C;aaaa,W;UAAA,+C;;UAAA,uE;;K;;IAqCA,4C;MAAA,e;MAAA,iB;MAAA,uB;K;IAAA,0C;MAAA,6C;O;MAMI,0E;MAEA,0E;MAEA,4E;K;;IAJA,kD;MAAA,gC;MAAA,0C;K;;IAEA,kD;MAAA,gC;MAAA,0C;K;;IAEA,mD;MAAA,gC;MAAA,2C;K;;IAVJ,sC;MAAA,sI;K;;IAAA,2C;MAAA,a;aaaa,Q;UAAA,+C;aaaa,Q;UAAA,+C;aaaa,S;UAAA,gD;;UAAA,0E;;K;;IAwB8B,gC;MAAAC,oC;K;;IAQE,0B;MAAC,qB;QAAA,iD;MAAA,kB;K;;IAEIC,sB;K;;IAMA,4B;K;;IC/EA,yB;K;;IAQA,6B;K;;IAUA,oC;K;;IC7BA,mB;MAEI,UAAU,IAAI,CAAJ,I;MACV,OAAW,OAAO,CAAX,GAAC,GAAD,GAAuB,MAAM,CAAN,I;K;IAGIC,qB;MACI,UAAU,SAAI,CAAJ,C;MACV,OAAW,kBAAO,CAAX,GAAC,GAAD,GAAuB,QAAAM,CAAN,C;K;IAGIC,mC;MAEI,OAAO,IAAI,IAAI,CAAJ,EAAO,CAAP,IAAY,IAAI,CAAJ,EAAO,CAAP,CAAZ,IAAJ,EAA2B,CAA3B,C;K;IAGX,qC;MACI,OAAO,MAAI,MAAI,CAAJ,EAAO,CAAP,WAAy,MAAI,CAAJ,EAAO,CAAP,CAAZ,CAAJ,EAA2B,CAA3B,C;K;IAGX,qD;MAkBI,WAAO,CAAP,C;QAD2E,OAC3D,SAAS,GAAb,GAAkB,GAAIB,GAA2B,MAAM,iBAAiB,GAAjB,EAAsB,KAAtB,EAA6B,IAA7B,CAAN,I;WACvC,WAAO,CAAP,C;QAF2E,OAE3D,SAAS,GAAb,GAAkB,GAAIB,GAA2B,MAAM,iBAAiB,KAAjB,EAAwB,GAAxB,EAA6B,CAAC,IAAD,IAA7B,CAAN,I;;QAC/B,MAAa,gCAAyB,eAAzB,C;K;IAGzB,uD;MAkBI,sBAAO,CAAP,C;QAD+E,OAC/D,sBAAS,GAAT,MAAJ,GAAkB,GAAIB,GAA2B,aAAM,mBAAiB,GAAjB,EAAsB,KAAtB,EAA6B,IAA7B,CAAN,C;WACvC,sBAAO,CAAP,C;QAF+E,OAE/D,sBAAS,GAAT,MAAJ,GAAkB,GAAIB,GAA2B,QAAAM,mBAAiB,KAAjB,EAAwB,GAAxB,EAA8B,IAAD,aAA7B,CAAN,C;;QAC/B,MAAa,gCAAyB,eAAzB,C;K;IC7DjB,kD;MAAA,8B;MACI,aAAy,C;K;oDACZ,Y;MAAyB,oBAAQ,gBAAI,O;K;iDACrC,Y;MAAgD,Q;MAAI B,IAAI,aAAQ,gBAAI,OAAhB,C;QAAA,OAAsB,iBAAI,iBAAJ,EAAI,yBAAJ,O;;QAAkB,MAAM,2BAAYB,UAAAF,WAAvB,C;K;;IAJnF,qC;MACyD,oD;K;IAON,wD;MAAA,kC;MAAS,uB;MACxD,aAAy,C;K;wDACZ,Y;MAAyB,oBAAQ,kBAAM,O;K;yDACvC,Y;MAAwD,Q;MAA9B,IAAI,aAAQ,kBAAM,OAAIB,C;QAAA,OAAwB,mBAAM,iBAAN,EAAM,yBAAN,O;;QAAoB,MAAM,2BAAYB,UAAAF,WAAvB,C;K;;IAJhF,qC;MACyD,oD;K;IAON,wD;MAAA,kC;MAAS,uB;MACxD,aAAy,C;K;wDACZ,Y;MAAyB,oBAAQ,kBAAM,O;K;yDACvC,Y;MAAwD,Q;MAA9B,IAAI,aAAQ,kBAAM,OAAIB,C;QAAA,OAAwB,mBAAM,iBAAN,EAAM,yBAAN,O;;QAAoB,MAAM,2BAAYB,UAAAF,WAAvB,C;K;;IAJhF,kC;MACmD,iD;K;IAOE,yD;MAAA,kC;MAAS,wB;MAC1D,aAAy,C;K;yDACZ,Y;MAAyB,oBAAQ,kBAAM,O;K;2DACvC,Y;MAAyD,Q;MAA9B,IAAI,aAAQ,kBAAM,OAAIB,C;QAAA,OAAwB,mBAAM,iBAAN,EAAM,yBAAN,O;;QAAoB,MAAM,2BAAYB,UAAAF,WAAvB,C;K;;IAJhF,kC;MACmD,iD;K;IAOF,uD;MAAA,kC;MAAS,sB;MACtD,aAAy,C;K;uDACZ,Y;MAAyB,oBAAQ,kBAAM,O;K;uDACvC,Y;MAAuD,Q;MAA9B,IAAI,aAAQ,kBAAM,OAAIB,C;QAAA,OAAwB,mBAAM,iBAAN,EAAM,yBAAN,O;;QAAoB,MAAM,2BAAYB,UAAAF,WAAvB,C;K;;IAJ/E,iC;MACiD,gD;K;IAOI,yD;MAAA,kC;MAAS,wB;MAC1D,aAAy,C;K;yDACZ,Y;MAAyB,oBAAQ,kBAAM,O;K;2DACvC,Y;MAAyD,Q;MAA9B,IAAI,aAAQ,kBAAM,OAAIB,C;QAAA,OAAwB,mBAAM,iBAAN,EAAM,yBAAN,O;;QAAoB,MAAM,2BAAYB,UAAAF,WAAv

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,GAAMB,KAAM,WAAzB,GAAyC,I;;QAEzC,c;;MAHJ,wB;MAKA,kBAakB,K;MACIB,iBAAiB,W;MACjB,OA  
AO,S;K;IAIa,sB;MAAC,U;K;iCACrB,iB;MACI,OAAO,mCAAsB,WAAK,KAAM,E;K;mCAG5C,Y;MACI,OAA  
O,M;K;mCAGX,Y;MACI,OAAuC,oBAAnB,UAA5B,IAAe,EAAa,CAAMB,C;K;0CAG3C,iB;MACI,OAAR,IAAI,  
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,MAAK,GAAL,C;;UAE1B,MAAM,CAAN,IAAW,G;;MAGnB,OAAO,EAAS,OAAO,OAAM,EAAN,EAAGB,KA  
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AE1B,MAAM,CAAN,IAAW,G;;MAYnB,OATO,EAAS,OAAO,OAAM,EAAN,EAAGB,KAAhB,C;K;IAY3B,oC;  
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CAAN,IAAW,EAAS,MAAM,MAAK,GAAL,C;;YAE1B,MAAM,CAAN,IAAW,G;;QA4Bf,OAzBG,EAAS,OAA  
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Q,QAAoB,OAAPB,IAAQ,CAAH,GAAG,CAAY,OAAPB,oCAAR,K;;QAEJ,aAAa,IAAjB,CAAC,YAAGB,CAAH,  
IAAG,C;QE3FjB,IF4FyB,CE5FhB,OAAL,KAAkB,SAAtB,C;UF4F4B,ME3FxB,UF2FqB,CE3FF,O;;QF4FnB,OA  
AO,C;QACP,0BAAU,IAAV,e;UAE0B,YACX,M;UAFX,YAAU,IAAQ,CAAH,GAAG,C;UACI,SAAJ,KAAI,O;U  
AAtB,aAAU,CAAV,kB;YACI,OAAO,aAAP,EAAO,qBAAP,YAAiB,MAAI,CAAJ,C;;QAGzB,OAAO,M;;K;IAIf,  
0B;MACgC,WAAS,c;MAAT,YAAhC,EAAE,MAAM,KAAiD,CAA3C,SAA2C,C;MAWrD,eAAiB,I;MAXW,OAY  
rB,K;K;IAVX,uB;MAC6B,WAAS,W;MAAT,YAAsB,IAA/C,WAA+C,CAAnC,SAAMC,C;MAQ/C,eAAiB,I;MAR  
Q,OASIB,K;K;IAPX,uB;MAC6B,WAAS,W;MAAT,YAA7B,EAAE,MAAM,KAA2C,CAArC,SAAqC,C;MAK/C,e  
AAiB,I;MALQ,OAMIB,K;K;2DAJX,uB;MAGI,eAAiB,I;MACjB,OAAO,K;K;kEG9MX,yB;MAAA,0B;MAAA,u  
B;QASI,OAAoB,OAAb,ItD0Q+B,KAAL,GAAiB,KsD1Q9B,C;O;KATxB,C;ICIqC,2C;MAAC,8C;MACIC,eAAsB  
,C;MACtB,wBAA+B,C;MAC/B,gBAA6B,I;MAC7B,mBAAsC,I;MACtC,qBAAyC,I;MAEzC,yBAAgD,yBAAmB,  
Q;MAEnE,sBAAgD,I;K;wFAFhD,Y;MAAA,6B;K;0CAIA,Y;MAEY,kBADr,M;MAAA,U;MAAA,2C;QAAA,e;;  
QAES,gBADD,2CAAQ,yCAAR,gDAAwD,IAAxD,6BAAiE,I;QACzD,sB1CwEd,S;Q0C1EF,S1C2EG,S;;M0C3E  
H,a;K;iDAIJ,kB;MACI,kBAAC,IAAd,C;MACiC,oB;MCuBrB,Q;MADR,IdtBsB,MCsBtB,W;QADJ,mBACiB,I;;Q  
ADjB,mBAEY,QDvBc,MCuBd,+D;;MDvBZ,yC;MACA,2BAAMC,MAAO,kBAA1C,C;MAGA,OAAO,IAAP,C;Q  
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C;YETHB,8BDgDQ,WAAO,qBAAP,CChDR,C;YFSgB,a;;YAAA,a;UAAA,mB;YAEK,UEpBrB,oBDgDQ,WD5B  
+B,eC4B/B,CChDR,C;;UFqBgB,M;;K;mDAMhB,Y;MACI,kBAakB,mB;MACIB,IAAI,uBAAuB,gBAAgB,IAA3  
C,C;QACI,uCAAQ,yCAAR,EAAMC,wCAA+B,WAA/B,C;;MAEvC,sBAAoB,mC;K;;IAM5B,iC;MAAA,qC;K;gG  
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,uC7CuDuE,WAA9B,C;K;+C6CpDnD,Y;MAAkC,8C;K;;IARtC,6C;MAAA,4C;QAAA,2B;;MAAA,qC;K;IGyDA,  
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B,iBAAiB,MAAa,eAAc,IAAd,C;MAC9B,OA AW,gBA Ae,UAA nB,GAA+B,SAA/B,GAAyC,CAAC,S;K;0ECUrD,  
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,qB;MAAQ,OAAK,SAAY,c;K;IC3D5D,0D;MAGI,OAAO,I;K;ICHX,sC;MAMsD,OAAA,SAAY,UAAS,WAAW,  
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3B,C;QAAA,OAAsC,UeznBtB,KfynBsB,C;;QeznBb,MAAM,8BAA0B,iCAAuB,gBAAvB,MAA1B,C;;MAAtC,W;  
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W,Q;MAAA,Ie3nBgB,Kf2nBZ,IAAS,CAAT,Ie3nBY,Kf2nBE,IAAS,0BAA3B,C;QAAA,OAAsC,Ue3nBtB,Kf2nB  
sB,C;;Qe3nBb,MAAM,8BAA0B,iCAAuB,gBAAvB,MAA1B,C;;MAAtC,W;K;IAGJ,2B;MAII,OA AO,cAAa,SAAb  
,C;K;oFAGX,yB;MAAA,gD;MAAA,4B;QAKI,OAAsC,OAA/B,SAA+B,C;O;KAL1C,C;oFAQA,yB;MAAA,gD;M  
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AY,OA AZ,C;K;;IApB/B,6B;MAII,0C;K;IAqBJ,+C;MAaI,OAA Y,kBAAL,SAAK,EA AkB,KAAIB,C;K;IAqBhB,0  
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MAAgf,iC;K;kCAEHf,e;MAA+C,OAAA,0BAAY,WAAI,GA AJ,C;K;oCAE3D,sB;MAAgD,OAAA,0BAAY,aAAI  
,GA AJ,EAAS,KAAT,C;K;qCAE5D,e;MAAyC,OAAA,0BAAY,cAAO,GAAP,C;K;+EAEvB,Y;MAAQ,OAAA,0B  
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;MAFhC,Y;K;IAKA,+B;MAAA,iD;MAGuB,aAAK,kEAAL,Q;MAHvB,Y;K;IAKA,4D;MAAA,iD;MAQ8D,qB;M/  
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AnB,C;MAA2E,wB;MAAlF,O5EvCO,S;K;;M6EjEP,uB;;kCAYCA,mB;MACl,UAAU,gBAAl,aAAI,OAAJ,EAaA,I  
AAb,C;MACd,OAAO,W;K;8BAGX,Y;MACl,gBAAl,Q;K;uCAOR,mB;MAA6D,OAAA,gBAAl,mBAAY,OAAZ,  
C;K;gCAEjE,Y;MAAyC,OAAA,gBAAl,U;K;iCAE7C,Y;MAAqD,OAAA,gBAAl,KAAK,W;K;qCAE9D,mB;MA  
AkD,OAAA,gBAAl,cAAO,OAAP,CAAJ,Q;K;+EAEpB,Y;MAAQ,OAAA,gBAAl,K;K;;IA5D1C,6B;MAAA,iD;M  
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BAAM,eAAGB,QAAS,KAAzB,C;MACN,qBAAO,QAAP,C;MALJ,Y;K;IAQA,4D;MAAA,iD;MAQ2D,8B;MAhC/  
D,mB;MAiCQ,oBAAM,eAAGB,eAAhB,EAaiC,UAAjC,C;MATV,Y;K;IAYA,gD;MAAA,iD;MAA2C,eAAK,eAA  
L,EAAsB,GAAtB,Q;MAA3C,Y;K;IAEA,oC;MAAA,iD;MAM0C,8B;MA5C9C,mB;MA6CQ,oBAAW,G;MAPf,Y;  
K;IAmCJ,+B;MAKuC,gBAA5B,eAAQ,eAAR,C;MAAoC,6B;MAA3C,O7ENO,S;K;I8EzD6B,uC;MAAC,kC;MAE  
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K;gDAGA,sB;MACl,eAAe,aAAS,qBAAY,GA AZ,C;MACxB,mBAAMB,6BAAsB,QAAtB,C;MACnB,IAAI,oBA  
AJ,C;QAEI,kBAAW,QAAX,IAAuB,mCAAY,GA AZ,EAaiB,KAAjB,C;;QAEvB,IAAI,6BAAJ,C;UAEI,YAA+B,  
Y;UAC/B,IAAI,aAAS,gBAAO,KAAM,IAAb,EAakB,GAAlB,CAAb,C;YACl,OAAO,KAAM,gBAAS,KAAT,C;;  
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MAEA,OAAO,I;K;iDAGX,e;MAEuB,Q;MADnB,eAAe,aAAS,qBAAY,GA AZ,C;MACl,oCAAsB,QAAtB,C;MA  
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BAAO,KAAM,IAAb,EAakB,GAAlB,CAAb,C;U9BzDR,O8B0D6B,iB9B1DvB,C8B0DmC,Q9B1DnC,C;U8B2D  
M,6B;UACA,OAAO,KAAM,M;;UAEb,OAAO,I;;QAGX,YAAuC,Y;QACvC,8BAAc,KAAd,iB;UACl,cAAY,MA  
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Aa,kB;MACb,YAAO,C;K;mDAGX,e;MAAyC,uBAAS,GAAT,S;K;8CAEzC,e;MAA+B,Q;MAAA,+BAAS,GAAT  
,8B;K;+CAE/B,e;MACuB,Q;MAAA,oCAAsB,aAAS,qBAAY,GA AZ,CAA/B,C;MAAA,iB;QAAoD,OAAO,I;;MA  
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AAjB,C;;K;uDAlrB,0B;MACl,sB;;Q/FsoCY,Q;QA AhB,iD;UAAgB,cAAhB,e;UAAsB,I+FtoCK,aAAS,gB/FsoCA,  
O+FtoCa,IAAb,M/FsoCd,C;YAAwB,qBAAO,O;YAAP,uB;;QAC9C,qBAAO,I;;M+FvoCH,yB;K;IAIO,8E;MAA  
A,wD;MACH,aAAY,E;MAEZ,YAA0B,MAAa,MAAK,qCAAL,C;MACvC,gBAAe,E;MAEf,oBAA4B,I;MAC5B,e  
AAc,K;MACd,iBAAgB,E;MAChB,iBAAqC,I;K;yEAER,C;Y;MACl,IAAI,6BAAwB,YAA5B,C;QACl,gBAAqB,iB  
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O,C;;K;mEAlf,Y;MACl,IAAI,eAAS,EAAb,C;QACl,aAAQ,oB;MACZ,OAAO,eAAS,C;K;gEAGpB,Y;MAEoB,Q;  
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AX,MAAoB,S;K;4CAG/B,e;MACI,IAAI,0BAAJ,C;QAAoB,OAAO,I;MAC3B,YAAY,kBAAW,GAAX,C;MACZ,  
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B,CAAJ,C;QACI,cAdW,e;QAEX,MAAM,6BAAsB,OAAQ,WAA9B,C;;MoFxBE,WAAC,iB;MAGP,oCAAP,0BAA  
O,C;MACP,gCAAI,cAAO,0BAAO,IAAd,C;MAEJ,cAAO,I;K;;iDAIf,mB;MAAyD,MAAM,qCAA8B,iCAA9B,C;  
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C7BsC,oE;MACIC,0B;MACA,wC;MACA,kC;MACA,oC;K;sEAHA,Y;MAAA,0B;K;6EACA,Y;MAAA,iC;K;0EA  
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+E,sCAA/E,C;MAErB,yBACwB,wBAAoB,KAApB,EAAqE,cAArE,EAAqF,yCAArF,C;MAExB,sBACqB,wBAA  
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E,C;MAErB,uBACsB,wBAAoB,YAApB,EAA0E,YAA1E,EAAwF,uCAAxF,C;MAEtB,wBACuB,wBAAoB,YAA  
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B;K;IAGZ,+C;MAAE,6B;K;IAGC,gD;MAAE,6B;K;IAGR,8C;MAAE,6B;K;IAGI,gD;MAAE,6B;K;IAGC,iD;MA  
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f,C;aACI,Q;UAA6B,OAAjB,8BAAiB,Y;UAA7B,K;aACA,Q;UAAy,OAAl,CAAY,CjEbhC,GiEamC,CAAf,MAA  
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B,K;aACA,U;UAA+B,OAAjB,8BAAiB,eAAgB,CAAY,OAA5B,C;UAA/B,K;;UAGQ,6B;YAAc,OAAjB,8BAAi  
B,kB;eACtC,0B;YAAmC,OAAjB,8BAAiB,e;eACnC,0B;YAAmC,OAAjB,8BAAiB,e;eACnC,2B;YAAoC,OAAjB,  
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;qEAchB,4B;MAIkE,iBAAy,KAAZ,C;K;2EAEIE,qB;MAI8D,gB;K;IClDb,2C;MAC7C,qBAAwC,Q;K;iDAExC,Y  
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;K;uDACL,oB;MAEQ,IADE,QACF,IAAG,CAAH,IADE,QACF,IAAM,EAAN,C;QADJ,OACgB,sBAAS,QAAT,C;  
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B,gC;MAE9B,gBAAiC,YAAY,SAAhB,GAA2B,OAA3B,GAAwC,E;K;uFAGjE,Y;MAAQ,OAAO,aAAY,O;K;yC  
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,C;QAAA,OAAc,qBuGrGxB,KvGqGwB,C;;QuGrGf,MAAM,8BAA0B,mCAAYB,WAAzB,MAA1B,C;;MAAhC,  
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,OAAO,I;K;yDAGX,6B;MAIwB,Q;MAHPB,mBAAwB,C;MACxB,gBAAqB,C;MACrB,mBAAwB,C;MACJ,O3H  
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;;IA3BJ,+B;MAAA,4Q;K;;IAAA,oC;MAAA,a;aAAA,a;UAAA,6C;aAAA,c;UAAA,8C;aAAA,c;UAAA,8C;aAAA,  
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,CAAtB,C;QAA2B,iBAA8C,uBAArC,UAAW,cAAX,GAAMb,UAAW,cAAO,CAA9C,C;;QACnB,Y;MAXZ,W;K;  
;;ICxCJ,+B;MAAA,mC;MAUuB,wB;MALf,aAAR,OAAO,OAAQ,KAAI,WAAY,IAAG,OAAO,SAAX,IAAwB,C  
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A,4GACO,+B;K;4CAIf,Y;MAA+C,OAAA,mBAAa,U;K;wDAC5D,oB;MAAqE,OAAA,mBAAa,qBAAy,QAAZ,  
C;K;0DACIF,8B;MACI,OAAA,mBAAa,uBAAc,QAAAd,EAAwB,QAAxB,C;K;;IAIbRb,2C;MAAA,0C;QAAA,yB;  
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F,4C;MAAC,8B;K;6CAEjC,Y;MAA6B,OAAA,gBAAy,M;K;8CAEzC,Y;MAAwC,8CAAc,aAAAd,C;K;0DACxC,o  
B;MAAwE,IAAS,I;MAAnB,OtI6CZ,asI7Ca,iBAAS,QAAS,OAAT,QAAS,gBAAT,oCAAT,CtI6Cb,4B;K;4DsI5Cl  
D,8B;MAC8B,IAAS,I;MAAnC,8CAAc,YAAY,SAAS,OAAT,QAAS,gBAAT,wCAA6B,QAAS,0DAAID,CAAd,C;  
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AhB,sB;QQ/XC,0C;QACA,IAAI,EjH8QoC,0BAAU,CiH9Q9C,CAAJ,C;UACI,2BAAO,GAAP,C;;QAEW,sCAAa,  
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AF,IAAe,O;MACf,EAAE,WAAF,IAAiB,S;MACjB,EAAE,oBAAF,IAA0B,kB;MAC1B,EAAE,uBAAF,IAA6B,qB  
;MAC7B,EAAE,iCAAF,IAAuC,+B;MACvC,EAAE,8BAAF,IAAoC,4B;MACpC,OAAO,C;K;+GAw0BX,wD;MA  
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,U;MACIB,EAAE,UAAF,IAAgB,Q;MACHb,OAAO,C;K;6EA6CX,4B;MAE6D,iBAAY,KAAZ,C;K;6EAE7D,mC;  
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uBjG,4B;MAE+D,iBAAY,KAAZ,C;K;6EAE/D,mC;MAEsE,UAAy,KAAZ,IAAqB,K;K;6EAuB3F,4B;MAEgE,iB  
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B,K;K;8EAuB7F,4B;MAEKE,iBAAY,KAAZ,C;K;6EAEIE,mC;MAEyE,UAAy,KAAZ,IAAqB,K;K;6GC3oC9F,w  
D;MAEqC,6B;QAAA,gBAA+B,I;MAAM,uB;QAAA,UAAoB,K;MAAO,0B;QAAA,aAAuB,K;MAAO,wB;QAAA  
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IAAkB,U;MACIB,EAAE,UAAF,IAAgB,Q;MACHb,OAAO,C;K;mIAiCX,+B;MAEgD,mC;QAAA,sBAAGC,K;M  
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AV,C;O;KAT/D,C;4FAWA,8B;MAKI,SAK,WAAI,OAAJ,C;K;4FAGT,yB;MAAA,gD;MAAA,sC;QAKS,OAAL  
,SAK,EAAO,QAAP,C;O;KALT,C;4FAQA,yB;MAAA,gD;MAAA,sC;QAKS,OAAL,SAK,EAAO,QAAP,C;O;  
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,SAK,cAAO,OAAP,C;K;8FAGT,yB;MAAA,sD;MAAA,sC;QAKS,UAAL,SAK,EAAU,QAAV,C;O;KALT,C;8  
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,C;K;8DAGhB,Y;MAMiB,Q;MALb,IAAI,mBAAa,EAAjB,C;QACI,iB;MACJ,IAAI,mBAAa,CAAjB,C;QACI,MA  
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,EAAjB,C;QACI,iB;MACJ,OAAO,mBAAa,C;K;;2CAIC5B,Y;MAAuC,yD;K;;IA2Cb,uC;MAC1B,0B;MACA,oB;  
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BAAS,W;MACxB,YAAW,yB;K;2DAEX,Y;MAEI,OAAO,YAAO,CAAP,IAAY,aAAS,UAA5B,C;QACI,aAAS,O;  
QACT,6B;;K;yDAIR,Y;MACI,a;MACA,OAAO,aAAS,O;K;4DAGpB,Y;MACI,a;MACA,OAAO,aAAS,U;K;;sCA  
nBxB,Y;MAAuC,oD;K;;IA6B3C,gD;MACI,0B;MACA,4B;K;IAGuC,0E;MAAA,oD;MACnC,gBAAe,iCAAS,W;  
MACxB,iBAAqB,E;MACrB,gBAAmB,I;K;gEAEnB,Y;MACI,OAAO,aAAS,UAAhB,C;QACI,WAAW,aAAS,O;Q  
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,EAAjB,C;QACI,a;MACJ,OAAO,mBAAa,CAAb,IAAkB,aAAS,U;K;;2CAIC1C,Y;MAAuC,yD;K;;IAuCN,+C;MA  
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;MAAE,sB;MAAiC,gC;MACIE,kBAAuB,c;K;6CAEvB,Y;MACI,OAAO,aAAO,UAAAd,C;QACI,WAAW,aAAO,O  
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;IAIB5B,gD;MAeI,OAAI,YAAJ,GACI,2BADJ,GAGI,sBAAkB,+BAAIB,EAA4B,YAA5B,C;K;IAER,wD;MAcI,6  
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,U;K;kCACrE,Y;MAA+B,Q;K;kCAC/B,Y;MAAkC,W;K;gFAEX,Y;MAAQ,Q;K;iCAC/B,Y;MAAkC,W;K;wCACI  
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CA,0C;QarCsC,gBAA3B,mBb2DiB,Qa3DjB,C;Qb2D2B,aS7EIC,W;QT6EA,OS5EO,SiIBgD,Q;O;KbqC3D,C;sFA  
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,mB;QACA,iB;;MAGJ,MAAM,C;MACN,OAAO,OAAO,IAAd,C;QACI,OAAO,IAAP,IAAe,wBAAO,GAAP,gE;Q  
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X,C;K;IAGa,8C;MACpB,kD;MADqB,wB;K;IACrB,gD;MAAA,oD;MACI,4B;K;;;IADJ,4D;MAAA,2D;QAAA,0C  
;;MAAA,oD;K;yDAIA,Y;MAA0C,gBAAT,a;M/L09YrB,Q;MADhB,kB+Lz9YmD,mC;M/L09YnD,wBAAgB,SA  
hB,gB;QAAgB,cAAA,SAAhB,M;QAASB,cAAwB,yBAAa,OAAb,C;;M+L19YT,O/L29Y9B,W;K;;;Igm7oZX,oE;  
MA4BI,MAAM,wBAAoB,sEAAPB,C;K;8GA5BV,yB;MAAA,2D;MAAA,sC;QA4BI,MAAM,6BAAoB,sEAAPB,  
C;O;KA5BV,C;IA0CoC,mC;MAAQ,4D;K;IAE5C,4C;MAAA,e;MAAA,iB;MAAA,uB;K;IAAA,0C;MAAA,6C;O;

MAK0C,oG;MAAqB,gF;MAAW,4E;K;;IAAhC,+D;MAAA,gC;MAAA,uD;K;;IAAqB,qD;MAAA,gC;MAAA,6C; K;;IAAW,md;MAAA,gC;MAAA,2C;K;;IAL1E,sC;MAAA,sJ;K;;IAAA,2C;MAAA,a;aaaa,qB;UAAA,4D;aAAA ,W;UAAA,kD;aAAA,S;UAAA,gD;;UAAA,qF;;K;;6ECnDA,yB;MAAA,0B;MAAA,mC;QAGsD,OAAiC,OAA3B, SAAL,GAAuB,KAAS,C;O;KAHvF,C;2EAKA,yB;MAAA,0B;MAAA,mC;QAGqD,OAAgC,OAA1B,SAAL,GAAs B,KAAS,C;O;KAHrF,C;6EAKA,yB;MAAA,0B;MAAA,mC;QAGsD,OAAiC,OAA3B,SAAL,GAAuB,KAAS,C;O; KAHvF,C;6EAKA,yB;MAAA,0B;MAAA,4B;QAGqC,OAAqB,OAAP,CAAR,SAAe,C;O;KAH1D,C;+EAMA,yB; MAAA,4B;MAAA,mC;QAGyD,OAAiC,QAA3B,SAAL,GAAuB,KAAS,C;O;KAH1F,C;6EAKA,yB;MAAA,4B;M AAA,mC;QAGwD,OAAgC,QAA1B,SAAL,GAAsB,KAAS,C;O;KAHxF,C;+EAKA,yB;MAAA,4B;MAAA,mC;Q AGyD,OAAiC,QAA3B,SAAL,GAAuB,KAAS,C;O;KAH1F,C;+EAKA,yB;MAAA,4B;MAAA,4B;QAGuC,OAAq B,QAAP,CAAR,SAAe,C;O;KAH5D,C;ICpCA,qC;K;;ICAA,mB;K;;IAOA,iB;K;;IAOA,2C;K;;IAOA,wB;K;;IAQA ,0B;K;;IAOA,sB;K;;IAOA,4B;K;;IAOA,6C;K;;IA+BuC,wE;MAEnC,uB;QAAA,UAAsB,E;MACtB,qB;QAAA,8B; MACA,2B;QAAA,qE;MACA,yB;QAAA,YAAqB,E;MAJrB,sB;MACA,sB;MACA,kB;MACA,8B;MACA,0B;K;;I AGJ,iD;MAAA,e;MAAA,iB;MAAA,uB;K;IAAA,+C;MAAA,kD;O;MAKI,wG;MACA,wG;MACA,8F;K;;IAFA,iE ;MAAA,qC;MAAA,yD;K;;IACA,iE;MAAA,qC;MAAA,yD;K;;IACA,4D;MAAA,qC;MAAA,oD;K;;IAPJ,2C;MA AA,6K;K;;IAAA,gD;MAAA,a;aaaa,kB;UAAA,8D;aAAA,kB;UAAA,8D;aAAA,a;UAAA,yD;;UAAA,6E;;K;;IA UA,wB;K;;ICjGA,qB;MAAA,yB;K;0CAII,Y;MAO6D,uB;K;2HAE7D,yB;MAAA,+D;MAAA,kC;MAAA,0F;MA AA,6F;MAAA,4E;QAUI,wC;QAAS,2C;O;MAVb,mEAWQ,wC;QAA6E,sBAAS,QAAT,EAAmB,QAAnB,EAA6B ,QAA7B,C;O;MAXrF,oG;MAAA,yC;QAUI,wDAA+B,YAA/B,C;O;KAVJ,C;uHAcA,yB;MAAA,+D;MAAA,kC; MAAA,wF;MAAA,yF;MAAA,0E;QAcI,wC;QAAS,2C;O;MAdB,kEAeQ,wC;QAAuF,6BAAS,QAAT,EAAmB,QA AnB,EAA6B,QAA7B,C;O;MAf/F,kG;MAAA,yC;QAcI,sDAA+B,YAA/B,C;O;KAdJ,C;;IA3BJ,iC;MAAA,gC;QA AA,e;;MAAA,yB;K;IAgDiC,sB;MAC7B,eAAwB,I;K;4CAExB,6B;MACW,Q;MAAA,mB;MAAA,iB;QAAS,MAA M,6BAAsB,cAAy,QAAS,aAArB,uCAAtB,C;;MAAtB,OAAO,I;K;4CAGX,oC;MACI,eAAa,K;K;;;kDC9CjB,6B; ;K;;;iEA+CA,6B;;K;;ICrDuC,0C;MACvC,uBAAoB,Y;K;wDAEpB,wC;MAM6F,W;K;uDAE7F,wC;K;ODAMA ,6B;MACI,OAAO,oB;K;ODAGX,oC;MACI,eAAe,IAAK,gB;MACpB,IAAI,CAAC,0BAAa,QAAb,EAAuB,QAAv B,EAAiC,KAAjC,CAAL,C;QACI,M;;MAEJ,uBAAa,K;MACb,yBAAY,QAAZ,EAAsB,QAAtB,EAAgC,KAAhC, C;K;;4EC9BR,wC;MAqBI,OAAO,e;K;4EAGX,+C;MAuBI,cAAI,KAAJ,C;K;4EAIJ,wC;MAmBI,OAAO,cAAI,OA AJ,C;K;4EAGX,+C;MAqBI,cAAI,OAAJ,EAAa,KAAb,C;K;IC/FJ,kB;MA6PI,4B;K;+BatOA,Y;MAOiC,6BAAS,E AAT,C;K;uCAEjC,iB;MAW2C,4BAAQ,CAAR,EAAW,KAAx,C;K;uCAE3C,uB;MAakB,Q;MAHd,iBAAiB,IAAj B,EAAuB,KAAvB,C;MACA,QAAQ,QAAQ,IAAR,I;MACR,IAAI,IAAI,CAAJ,IAAS,MAAK,WAAIB,C;QACc,IA AI,MAAM,CAAC,CAAD,IAAN,OAAy,CAAhB,C;UACN,eAAe,SAAS,CAAT,C;UACf,6BAAS,QAAT,C;;UAEA ,K;;YAEI,WAAW,cAAU,KAAK,C;YAC1B,IAAI,OAAO,CAAP,I;;UACC,gBAAO,CAAP,IAAY,CAAZ,GAAgB, CAAhB,SAAqB,CAArB,C;UACT,Q;;QATJ,c;QAWA,OAAO,OAAO,GAAP,I;;QAEP,OAAO,IAAP,C;UACI,YA AU,c;UACV,IAAW,IAAP,qBAakB,KAAtB,C;YAA6B,OAAO,K;;K;gCAKhD,Y;MAOmC,OAAU,oBAAV,cAA U,CAAS,WAAI,EAAJ,CAAnB,yBAA6B,cAA7B,E;K;wCAEnC,iB;MAW8C,iCAAY,KAAZ,C;K;wCAE9C,uB;M AiBkB,Q;MAPd,mBAAiB,IAAjB,EAAuB,KAAvB,C;MACA,QAAQ,eAAQ,IAAR,C;MACR,IAAI,eAAI,CAAR,C ;QACI,O;QACA,IAAI,aAAO,CAAD,aAAN,GAAY,CAAZ,CAAJ,C;UACI,WAAW,CAAE,Q;UACb,YAAa,qBAA O,EAAP,CAAW,Q;UAEpB,aAAQ,CAAR,C;YACI,eAAe,SAAS,IAAT,C;YAEf,OAAMB,oBAAAnB,sBAAS,QAAT ,CAAMB,CAAnB,iB;iBAEJ,cAAS,CAAT,C;YAEI,OAAU,oBAAV,cAAU,CAAV,iB;;YAEA,iBAAe,SAAS,KAA T,C;YACf,OAAMB,oBAAAnB,sBAAS,UAAT,CAAMB,CAAS,WAAI,EAAJ,CAA5B,KAAiD,oBAAV,cAAU,CAA V,iBAAvC,C;;UAXR,U;;UAeA,K;;YAEI,WAAW,eAAW,oBAAK,CAAL,C;YACtB,IAAI,YAAO,CAAP,C;;UAC C,sBAAO,CAAP,MAAY,+BAAI,CAAJ,EAAZ,eAAqB,CAArB,C;UACT,MAAM,C;;QAEV,OAAO,SAAO,GAAP ,C;;QAEP,OAAO,IAAP,C;UACI,YAAU,e;UACV,IAAW,IAAP,0CAakB,KAAIB,CAAJ,C;YAA6B,OAAO,K;;K; mCAKhD,Y;MAKyC,6BAAS,CAAT,MAAe,C;K;kCAExD,Y;MAKuC,uBAAgB,sBAAS,EAAT,CAAhB,EAA8B, sBAAS,EAAT,CAA9B,C;K;0CAEvC,iB;MASoD,+BAAW,GAAX,EAAgB,KAAhB,C;K;0CAEpD,uB;MACy,Q; MAFR,mBAAiB,IAAjB,EAAuB,KAAvB,C;MACA,WAAW,QAAQ,I;MACX,IAAS,WAAI,IAAK,CAAL,IAA0B, SAAL,IAAK,CAA1B,IAA8C,SAAN,KAAM,CAAI,D,C;QACJ,SAAS,qBAAgB,QAAQ,CAAR,GAAY,OAAO,CA AnC,C;QACT,cAAO,EAAp,GAAY,E;;QAEZ,cAAO,oBAAe,I;;MAJ1B,Y;MAMA,OAAW,KAAK,KAAT,GAAsB ,SAAN,KAAM,CAAtB,GAAsC,C;K;iCAGjD,Y;MAKqC,6BAAS,EAAT,IAA0B,Q;K;IAWK,oF;MAAA,mB;QAA

E,uBAAa,iBAAb,sBAAqC,eAArC,+BAAqE,aAAM,OAA3E,M;O;K;iDATtE,qC;M1LjLA,IAAI,E0L0LqB,CAAb,8BAAgB,KAAM,O1L1L9B,G0L0LiD,CAAX,0BAAc,KAAM,O1L1L1D,G0L0LsC,K1L1L1C,CAAJ,C;QACI,c0LyLgE,kD1LzLID,E;QACd,MAAM,gCAAYB,OAAQ,WAAjC,C;;MAFV,IAAI,E0L2LQ,aAAa,O1L3LrB,CAAJ,C;QACI,gB0L0LgC,mF;Q1LzLhC,MAAM,gCAAYB,SAAQ,WAAjC,C;;M0L2LN,YAAy,CAAC,UAAU,SAAV,IAAD,IAAwB,CAAxB,I;MAEZ,mBAAe,SAAf,C;MvLzEJ,iBAAc,CAAd,UuL0EW,KvL1EX,U;QuL2EQ,QAAQ,c;QACR,MAAM,UAAAN,IAAoB,OAAF,CAAE,C;QACpB,MAAM,aAAW,CAAX,IAAN,IAAgC,OAAV,CAAE,KAAK,CAAG,C;QACChC,MAAM,aAAW,CAAX,IAAN,IAAiC,OAAx,CAAE,KAAK,EAAI,C;QACjC,MAAM,aAAW,CAAX,IAAN,IAAiC,OAAx,CAAE,KAAK,EAAI,C;QACjC,0BAAy,CAAz,I;;MAGJ,gBAAgB,UAAU,UAAV,I;MACHB,SAAS,sBAAS,YAAy,CAAz,IAAT,C;MACT,aAAU,CAAV,MAAkB,SAAIb,M;QACI,MAAM,aAAW,CAAX,IAAN,IAAqC,OAAf,EAAG,MAAK,IAAI,CAAJ,IAAL,CAAY,C;;MAGzC,OAAO,K;K;yCACX,uD;MAvB4C,yB;QAAA,YAAiB,C;MAAG,uB;QAAA,UAAe,KAAM,O;aARrF,0H;K;yCAiCA,iB;MAOyD,8BAAU,KAAV,EAaiB,CAAjB,EAAoB,KAAM,OAA1B,C;K;yCAEzD,gB;MAKkD,8BAAU,cAAU,IAAV,CAAV,C;K;IAGID,0B;MAAA,8B;MAO2B,iB;MACvB,uBAAoC,uB;K;IAEpC,qC;MAAA,yC;MACI,4B;K;wDAEA,Y;MAAiC,mC;K;;IAHrC,iD;MAAA,gD;QAAA,+B;;MAAA,yC;K;8CAMA,Y;MAAkC,8C;K;gDAEIC,oB;MAA4C,OAAA,oBAAc,kBAAS,QAAT,C;K;uCAC1D,Y;MAA8B,OAAA,oBAAc,U;K;+CAC5C,iB;MAAwC,OAAA,oBAAc,iBAAQ,KAAr,C;K;+CACtD,uB;MAAmD,OAAA,oBAAc,iBAAQ,IAAR,EAAC,KAAc,C;K;wCAEjE,Y;MAAgC,OAAA,oBAAc,W;K;gDAC9C,iB;MAA2C,OAAA,oBAAc,kBAAS,KAAT,C;K;gDACzD,uB;MAAuD,OAAA,oBAAc,kBAAS,IAAT,EAAC,KAAf,C;K;2CAErE,Y;MAAsC,OAAA,oBAAc,c;K;0CAEpD,Y;MAAoC,OAAA,oBAAc,a;K;kDACID,iB;MAAiD,OAAA,oBAAc,oBAAW,KAAX,C;K;kDAC/D,uB;MAA+D,OAAA,oBAAc,oBAAW,IAAX,EAaiB,KAAjB,C;K;yCAE7E,Y;MAAkC,OAAA,oBAAc,Y;K;iDAEhD,iB;MAAsD,OAAA,oBAAc,mBAAU,KAAV,C;K;iDACpE,gB;MAA+C,OAAA,oBAAc,mBAAU,IAAV,C;K;yDAC7D,qC;MACI,OAAA,oBAAc,mBAAU,KAAV,EAaiB,SAAjB,EAA4B,OAA5B,C;K;;IAtCtB,sC;MAAA,qC;QAAA,oB;;MAAA,8B;K;;IA0CJ,wB;MAAuC,yBAAa,IAAb,EAAM,IAAK,IAAI,EAA5B,C;K;IAEvC,wB;MAawC,yBAAa,IAAK,QAAIB,EAA2B,IAAK,YAAI,EAAC,AAQ,QAAxC,C;K;IAGxC,mC;MAUI,IAAA,KAAM,UAAAN,C;QAAMB,MAAM,gCAAYB,uCAAoC,KAA7D,C;WACzB,IAAA,KAAM,KAAN,GAAa,UAAb,C;QAF8C,OAEhB,0BAAQ,KAAM,MAAd,EAAqB,KAAM,KAAN,GAAa,CAAb,IAArB,C;WAC9B,IAAA,KAAM,MAAN,GAAc,WAAAd,C;QAH8C,OAGf,0BAAQ,KAAM,MAAN,GAAc,CAAd,IAAR,EAAYB,KAAM,KAA/B,IAAuC,CAAvC,I;;QAHe,OAIc,mB;K;IAGZ,oC;MAUI,IAAA,KAA M,UAAAN,C;QAAMB,MAAM,gCAAYB,uCAAoC,KAA7D,C;WACzB,IAAA,KAAM,KAAN,+C;QAFiD,OAEIB,2BAAS,KAAM,MAAf,EAAsB,KAAM,KAAN,yBAAa,CAAb,EAAtB,C;WAC/B,IAAA,KAAM,MAAN,+C;QAHID,OAGjB,2BAAS,KAAM,MAAN,8BAAc,CAAd,EAAT,EAA0B,KAAM,KAAhC,0BAAwC,CAAxC,E;;QAHIB,OAIzC,oB;K;IAOZ,yB;MAAyC,YjFrTkB,YiFqTb,KjFrTa,CiFqTIB,I;K;IAEzC,4C;MAEI,OAAA,SAAK,KAAK,EAAL,GAAU,QAAf,GAAyC,CAAX,CAAC,QAAD,IAAW,KAAI,E;K;IAEjD,uC;M1LVI,IAAI,E0LsVuD,QAAQ,I1LtV/D,CAAJ,C;QACI,c0LqVuE,+B;Q1LpVvE,MAAM,gCAAYB,OAAQ,WAAjC,C;;K;I0LqVd,yC;M1LvVI,IAAI,E0LuVyD,sBAAQ,IAAR,K1LvVzD,CAAJ,C;QACI,c0LsVyE,+B;Q1LrVzE,MAAM,gCAAYB,OAAQ,WAAjC,C;;K;I0LsVd,yC;M1LxVI,IAAI,E0LwV6D,QAAQ,I1LxVrE,CAAJ,C;QACI,c0LuV6E,+B;Q1LtV7E,MAAM,gCAAYB,OAAQ,WAAjC,C;;K;I0LwVd,yC;MAAyD,oCAA0B,IAA1B,qBAAiC,KAAjC,kB;K;ICrXzD,6B;MAOqC,OtmYe,SsMnYf,mBtMmYe,C;K;IsMjYvC,sC;MASgD,6BAAS,WAAT,EAAa,KAAb,C;K;IAEhD,4C;MAUI,qBAAqB,IAArB,EAA2B,KAA3B,C;MAEA,iBAAiB,ItMqQgB,KsMrQhB,GAAiB,W;MACIC,kBAAkB,KtMoQe,KsMpQf,GAAkB,W;MAEpC,mBAAmB,0BAAQ,UAAAR,EAoB,WAApB,IAAqC,W;MACxD,OtMsWmC,SsMtW5B,YtMsW4B,C;K;IsMnWvC,sC;MAWI,IAAA,KAAM,UAAAN,C;QAAMB,MAAM,gCAAYB,uCAAoC,KAA7D,C;;QACzB,ItMGkE,YsMHIE,KAAM,KtMG6E,KAAjB,EsMHRd,4BAAK,UtMG6E,KAA7B,CsMHIE,K;UAFiD,OAEIB,sBAAS,KAAM,MAAf,EtMqBsB,SsMrBA,KAAM,KtMqBl,KAAK,GAAW,CsMrBb,WtMqBa,MAAX,IAAf,CsMrBtB,C;;UAC/B,ItMEkE,YsMFIE,KAAM,MtME6E,KAAjB,EsMFPd,4BAAK,UtME4E,KAA7B,CsMFIE,K;YAHID,OtMuBI,SsMpBrB,sBtMiCsB,SsMjCb,KAAM,MtMiCiB,KAAK,GAAy,CsMjC1B,WtMiC0B,MAAZ,IAAf,CsMjCtB,EAA2B,KAAM,KAAjC,CtMoB+B,KAAK,GAAW,CsMpBN,WtMoBM,MAAX,IAAf,C;;YsMvBJ,OAIzC,mB;;K;IAGZ,8B;MAOuC,OtL0VG,UsL1VH,oBtL0VG,C;K;IsLxV1C,uC;MASmD,8BAAU,2BAAV,EAAe,KAAf,C;K;IAEnD,6C;MAUI,sBAAsB,IAAtB,EAA4B,KAA5B,C;MAEA,iBAAiB,ItLwNkB,KsLxNIB,8B;MACjB,kBAAkB,KtLuNiB,KsLvNjB,8B;MAEIB,mBAAmB,2BAAS,UAAAT,EAAqB,WAArB,+B;MACnB,OtL6TsC,UsL7T/B,

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CzB,ItL7CmE,asL6CnE,KAAM,KtL7C+E,KAAIB,EsL6CtD,6BAAM,UtL7C8E,KAA9B,CsL6CnE,K;UAFoD,OA  
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MtOyB,WtMsOzB,MAAK,CAAL,iBAAN,CgBtQ6C,MAAX,CAAhB,CsLgCvB,C;;UACHC,ItL9CmE,asL8CnE,K  
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C,C;;K;I4LpBc,6C;MAsCxB,oC;MA/BA,iB;MANA,Y;MACA,Y;MACA,Y;MACA,Y;MACA,Y;MACA,sB;M5LY  
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;QyLxHiB,c;;K;qCAGjB,Y;MAGI,QAAQ,Q;MACR,IAAI,IAAO,MAAO,C;MACIB,WAAI,Q;MACJ,WAAI,Q;M  
ACJ,WAAI,Q;MACJ,SAAS,Q;MACT,WAAI,E;MACJ,IAAK,IAAO,KAAM,CAAd,GAAsB,EAAtB,GAA8B,MA  
AO,C;MACzC,WAAI,C;MACJ,gCAAU,MAAV,I;MACA,OAAO,IAAI,aAAJ,I;K;8CAGX,oB;MACI,OAAU,cAA  
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BA,gD;MAAA,sD;MACQ,yBAAK,KAAL,EAAy,KAAZ,EAAmB,CAAnB,EAAsB,CAAtB,EAA+B,CAAN,KAA  
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EAAf,GAAuB,MAAW,SAAN,UAAm,CAAX,QAAqC,SAAb,iBAaA,CAArC,I;K;yCAGIC,Y;MAAkC,OAAE,UA  
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AjB,EAAwB,iBAAxB,C;K;;IAcR,gD;MAI3B,gBAAqB,K;MACrB,uBAA4B,Y;K;0FACD,Y;MAAQ,oB;K;iGACD  
,Y;MAAQ,2B;K;2DAE1C,gB;MAA+D,YAAK,C;K;mDAEpE,iB;MAAGD,gBAAS,aAAT,IAAmB,SAAS,oB;K;0C  
AC5E,Y;MAAkC,SAAE,iBAAU,oBAAZ,C;K;yCAEIC,iB;MACI,OAAO,4CAA+B,kBAAa,KAAM,UAAAnB,KAC  
9B,kBAAU,KAAM,SAAhB,IAA0B,yBAAiB,KAAM,gBADnB,CAA/B,C;K;2CAIX,Y;MACI,OAAW,cAAJ,GAA  
e,EAAf,GAAuB,MAAY,SAAP,aAAO,CAAZ,QAAuB,SAAd,oBAAc,CAAvC,I;K;2CAGIC,Y;MAAkC,OAAE,aA  
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ACrB,uBAA4B,Y;K;yFACF,Y;MAAQ,oB;K;gGACD,Y;MAAQ,2B;K;0DAEzC,gB;MAA6D,YAAK,C;K;kDAEIE  
,iB;MAA+C,gBAAS,aAAT,IAAmB,SAAS,oB;K;yCAC3E,Y;MAAkC,SAAE,iBAAU,oBAAZ,C;K;wCAEIC,iB;M  
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B,CAA9B,C;K;0CAIX,Y;MACI,OAAW,cAAJ,GAAe,EAAf,GAAuB,MAAY,SAAP,aAAO,CAAZ,QAAuB,SAAd,  
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uB,IAAvB,C;K;oFAGIF,8B;MAQI,0BAAmB,2BAAS,OAAT,C;K;IAGvB,+C;MACI,IAAI,CAAC,UAAL,C;QAAi  
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B;MAIA,gB;M/LQA,IAAI,E+LDS,iBAAy,IAAb,MAAuB,iBAAvB,C/LCR,CAAJ,C;QACI,c+LDQ,iBAAy,IAAh  
B,GACI,8CADJ,GAGI,sCAA0B,aAA1B,qC;Q/LDR,MAAM,gCAAYB,OAAQ,WAAjC,C;;K;yC+LKV,Y;MAAwC  
,Q;MAAA,oB;MACpC,iB;QAD8B,OACtB,G;WACR,oD;QAF8B,OAef,SAAL,SAAK,C;WAC5B,6C;QAH8B,O  
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AEJ,gB;MAMI,uDAA8B,IAA9B,C;K;4DAEJ,gB;MAMI,wDAA+B,IAA/B,C;K;;;IArCR,iD;MAAA,gD;QAAA,+B  
;;MAAA,yC;K;;2CArCJ,Y;MAWI,oB;K;2CAXJ,Y;MAeI,gB;K;6CafJ,0B;MAAA,2BAWI,8CAXJ,EAeI,kCafJ,C;  
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Q,KAAxB,C;QACI,MAAM,gCAAYB,WAAQ,SAAR,mDAAwD,KAAjF,C;;MAEH,IAAI,YAAO,EAAX,C;QACH  
,mBAAM,SAAN,C;;QAEA,0BAAM,SAAN,IAAa,EAAb,C;;MAHJ,W;K;IAuFJ,8B;MAWSc,+B;K;0EAEtC,4B;M  
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,KAAZ,C;QAAmB,OAAO,I;MAC1B,IAAI,CAAC,UAAAL,C;QAAiB,OAAO,K;MAExB,gBAAqB,cAAL,SAAK,C;  
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hB,I;aAC5B,c;UAF4C,OAEf,I;aAC7B,c;UAH4C,OAGf,I;aAC7B,S;UAJ4C,OAIpB,G;aACxB,S;UAL4C,OAKpB,  
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E,I;UAHoE,8C;aAIpE,G;UAJoE,yC;aAKpE,G;UALoE,yC;aAMpE,G;UANoE,uC;aAOpE,G;UAPoE,sC;;UAQ5D,  
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A,+B;MACI,iBAGoC,UAAW,CAAN,C;MAEPc,iBAGoC,UAAW,MAAN,C;MAEPc,kBAGmC,C;MAEnC,iBAG  
kC,C;K;;IANtC,uC;MAAA,sC;QAAA,qB;;MAAA,+B;K;kGAsBA,iB;MAOmE,OAAa,0BA201C,SAAL,GAAiB  
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O,I;QAIf,SrOnHkD,SAAE,YqOmHjE,MrOnH4D,KAAK,EqOmHvD,MrOnHmE,KAAZ,CAAF,C;QqOqHID,mBA  
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f,C;QqOiJjD,IrOnK8D,YqOmK1D,MrOnK2E,KAAjB,EqOmKjD,YrOnK8E,KAA7B,CqOmK1D,IAAJ,C;UAA2B,  
OAAO,I;MAGtC,OAAO,M;K;IAGX,kC;MAM4C,kCAAsB,EAAtB,C;K;IAE5C,2C;MASI,WAAW,KAAX,C;MA  
EA,aAAa,SAAK,O;MACiB,IAAI,WAAU,CAAd,C;QAAiB,OAAO,I;MAExB,YAAmB,6BAAM,U;MACzB,S;MA  
EA,gBAAGb,qBAAK,CAAL,C;MACHb,IAAI,YAAy,EAHb,C;QACI,IAAI,WAAU,CAAV,IAAe,cAAa,EAHb,C  
;UAAqC,OAAO,I;QAC5C,QAAQ,C;QAER,QAAQ,C;MAIZ,uBAAuB,gD;MAEvB,qBAAqB,gB;MACrB,arN0  
IqC,UAAW,oBqN1InC,KrN0ImC,CAAX,C;MqNzIrC,aAAa,2B;MACb,aAAU,KAAV,MAAsB,MAAtB,M;QACI,  
YAAy,QAAQ,qBAAK,CAAL,CAAR,EAAiB,KAAjB,C;QAEZ,IAAI,QAAQ,CAAZ,C;UAAe,OAAO,I;QACtB,Ir  
N5M+D,aqN4M3D,MrN5M6E,KAAIB,EqN4MID,crN5MgF,KAA9B,CqN4M3D,IAAJ,C;UACI,IAAI,+CAAkB,g  
BAAIB,QAAJ,C;YACI,iBrN1J0C,YqN0JzB,KrN1JyB,EqN0JjB,MrN1JiB,C;YqN4J1C,IrNhNuD,aqNgNnD,MrNh  
NqE,KAAIB,EqNgN1C,crNhNwE,KAA9B,CqNgNnD,IAAJ,C;cACI,OAAO,I;YAGX,OAAO,I;QAIf,SrNjLoD,  
UqNiLpD,MrNjL+D,KAAK,UqNiL1D,MrNjLsE,KAAZ,CAAhB,C;QqNmLpD,mBAAmB,M;QACnB,SrN9MmD,  
UqN8MnD,MrN9M8D,KAAK,KAAW,ChBsQ7C,UAAW,oBAAL,CAyDR,SqOjHrB,KrOiHqB,CAzDQ,MAAK,C  
AAL,iBAAN,CgBtQ6C,MAAX,CAAhB,C;QqN+MnD,IrN5N+D,aqN4N3D,MrN5N6E,KAAIB,EqN4NID,YrN5Ng  
F,KAA9B,CqN4N3D,IAAJ,C;UAA2B,OAAO,I;MAGtC,OAAO,M;K;I7N9RX,6B;MACkD,OAAuB,0BAAtB,KA  
AO,WAAe,EAAU,KAAO,WAAjB,C;K;IACzE,8B;MACqD,OAAC,gCAAuB,iBAAU,gCAAV,C;K;IAE7E,4B;MA  
CoD,ORiZZ,SAvGI,oBQ1SS,ER0Sd,KAAK,CAAL,iBQ1Sc,KR0ST,oBQ1SuB,ER0S5B,KAAK,CAAL,iBQ1Sc,C  
RiZH,QAAV,C;K;IQhZxC,+B;MACuD,OR+Yf,SAvGI,oBQxSY,ERwSjB,KAAK,CAAL,iBQxSiB,QRwSZ,oBQx  
S0B,ERwS/B,KAAK,CAAL,iBQxSiB,CR+YN,QAAV,C;K;IQ1YxC,6B;MAEI,eAAe,EqkSoB,K;MRjSnC,cAAc,E  
QiSqB,K;MRhSnC,IAAI,qBAAU,CAAd,C;QACI,OQ6C+D,aR7CpD,EQ6CsE,KAAIB,ER7C/C,EQ6C6E,KAA9B,  
CR7CpD,IAAJ,GAAa,aAb,GAA2B,a;MAItC,IAAI,uBAAy,CAAhB,C;QACI,OAAO,UAAm,aAAW,OAAX,CA  
AN,C;MAIX,eAAiB,4BAAc,CAAd,CAAD,KAAoB,OAAPB,CAAD,WAAkC,CAAIC,C;MACf,UAAU,kBAAW,k



AAAnB,C;yBiH5LL,C;gCAKY,eAAiB,OAAL,GAAK,CAAjB,EAAgC,OAAL,GAAK,CAAhC,EAA+C,OAAL,GA  
AK,CAA/C,E;uBAwDd,K;qB4ChHK,C;yBACI,C;sBACH,C;kBACJ,C;iBACD,C;mBACE,C;sB9KozCH,O;;;uBk  
D3zCzB,W8JmCkC,yB9JnCIC,C;;;CzEjFX,E;"}

Found

in path(s):

\* /opt/cola/permits/1439711585\_1665547209.6866746/0/kotlin-1-7-10-3-tgz/package/kotlin.js.map

# 1.269 protobuf-java 3.19.6

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Manifest-Version: 1.0

Automatic-Module-Name: com.google.protobuf

Bnd-LastModified: 1664485905970

Build-Jdk: 1.8.0\_181-google-v7

Built-By: mkruskal

Bundle-Description: Core Protocol Buffers library. Protocol Buffers are a way of encoding structured data in an efficient yet extensible format.

Bundle-DocURL: <https://developers.google.com/protocol-buffers/>

Bundle-License: <https://opensource.org/licenses/BSD-3-Clause>

Bundle-ManifestVersion: 2

Bundle-Name: Protocol Buffers [Core]

Bundle-SymbolicName: com.google.protobuf

Bundle-Version: 3.19.6

Created-By: Apache Maven Bundle Plugin

Export-Package: com.google.protobuf;version="3.19.6"

Import-Package: sun.misc;resolution:=optional,com.google.protobuf;version="[3.19,4)"

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.7))"

Tool: Bnd-3.0.0.201509101326

Found in path(s):

\* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/META-INF/MANIFEST.MF

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- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/timestamp.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/struct.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/wrappers.proto
- \*
- /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/type.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/empty.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/any.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/descriptor.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/duration.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/field\_mask.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/compiler/plugin.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/source\_context.proto
- \* /opt/cola/permits/1444789790\_1666041710.804059/0/protobuf-java-3-19-6-jar/google/protobuf/api.proto

# 1.270 apache-commons-text 1.10.0

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# 1.271 gson 2.10

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Found in path(s):

```
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/MapTypeAdapterFactory.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/TypeAdapterFactory.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/JsonReaderInternalAccess.java
*
/opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/TypeAdapter.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/TypeAdapters.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/JsonTreeReader.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/ObjectTypeAdapter.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/TypeAdapterRuntimeTypeWrapper.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/ReflectiveTypeAdapterFactory.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/ArrayTypeAdapter.java
* /opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/JsonTreeWriter.java
*
/opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/bind/CollectionTypeAdapterFactory.java
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```
*/opt/cola/permits/1455481167_1667022567.4713087/0/gson-2-10-sources-
jar/com/google/gson/internal/GsonBuildConfig.java
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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/bind/DateTypeAdapter.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/LazilyParsedNumber.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/bind/TreeTypeAdapter.java  
\*

/opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/sql/SqlDateTypeAdapter.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/ConstructorConstructor.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/UnsafeAllocator.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/sql/SqlTimeTypeAdapter.java

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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/internal/JavaVersion.java

\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/internal/PreJava9DateFormatProvider.java

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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonSyntaxException.java

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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/annotations/Since.java

\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/FieldNamingPolicy.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/internal/Primitives.java  
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/opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/FieldNamingStrategy.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/annotations/Expose.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/internal/ObjectConstructor.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/internal/bind/DefaultDateTypeAdapter.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/annotations/Until.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonSerializationContext.java  
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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonDeserializationContext.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonIOException.java  
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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonObject.java  
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/opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/GsonBuilder.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonParseException.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/annotations/SerializedName.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/Gson.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/reflect/TypeToken.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonNull.java

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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/ToNumberStrategy.java

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jar/com/google/gson/FieldAttributes.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/JsonStreamParser.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/LongSerializationPolicy.java  
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/opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-jar/com/google/gson/JsonParser.java  
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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/stream/JsonReader.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/stream/JsonScope.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/stream/JsonToken.java

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/opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/stream/MalformedJsonException.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/stream/JsonWriter.java  
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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/internal/bind/JsonAdapterAnnotationTypeAdapterFactory.java  
\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-  
jar/com/google/gson/annotations/JsonAdapter.java  
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\* /opt/cola/permits/1455481167\_1667022567.4713087/0/gson-2-10-sources-

# 1.272 kpartx 0.4.9-136.el7\_9

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## 1.273 netty-transport-native-kqueue

### 4.1.48.Final

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- \* /opt/cola/permits/1472651459\_1668436661.8519447/0/netty-transport-native-kqueue-4-1-48-final-sources-2-jar/io/netty/channel/kqueue/NativeLongArray.java
- \*
- /opt/cola/permits/1472651459\_1668436661.8519447/0/netty-transport-native-kqueue-4-1-48-final-sources-2-jar/io/netty/channel/kqueue/AbstractKQueueServerChannel.java
- \* /opt/cola/permits/1472651459\_1668436661.8519447/0/netty-transport-native-kqueue-4-1-48-final-sources-2-jar/io/netty/channel/kqueue/KQueueRecvByteAllocatorHandle.java
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jar/io/netty/channel/kqueue/AbstractKQueueStreamChannel.java
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jar/netty_kqueue_eventarray.c
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jar/io/netty/channel/kqueue/KQueueEventLoop.java
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jar/netty_kqueue_bsdsocket.h
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jar/io/netty/channel/kqueue/KQueueDomainSocketChannelConfig.java
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# 1.274 jackson-datatype-jdk8 2.14.1

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cmd/krb5/slave/kpropd\_rpc.c  
lib/gss\_mechs/mech\_krb5/et/kdb5\_err.c  
lib/gss\_mechs/mech\_spnego/mech/gssapiP\_spnego.h  
lib/gss\_mechs/mech\_spnego/mech/spnego\_mech.c  
lib/krb5/kadm5/kadm\_host\_srv\_names.c  
lib/krb5/kdb/kdb\_convert.c  
lib/krb5/kdb/kdb\_hdr.h  
lib/krb5/kdb/kdb\_log.c  
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lib/libgss/g\_accept\_sec\_context.c  
lib/libgss/g\_acquire\_cred.c  
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lib/libgss/g\_compare\_name.c  
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lib/libgss/g\_delete\_sec\_context.c  
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lib/libgss/g\_dsp\_status.c  
lib/libgss/g\_dup\_name.c  
lib/libgss/g\_exp\_sec\_context.c  
lib/libgss/g\_export\_name.c  
lib/libgss/g\_glue.c  
lib/libgss/g\_imp\_name.c  
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lib/libgss/g\_utils.c  
lib/libgss/g\_verify.c  
lib/libgss/gssd\_pname\_to\_uid.c  
uts/common/gssapi/include/gssapi\_err\_generic.h  
uts/common/gssapi/include/mechglueP.h

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The implementations of GSSAPI mechglue in GSSAPI-SPNEGO in  
"src/lib/gssapi", including the following files:

lib/gssapi/generic/gssapi\_err\_generic.et  
lib/gssapi/mechglue/g\_accept\_sec\_context.c  
lib/gssapi/mechglue/g\_acquire\_cred.c  
lib/gssapi/mechglue/g\_canon\_name.c  
lib/gssapi/mechglue/g\_compare\_name.c  
lib/gssapi/mechglue/g\_context\_time.c  
lib/gssapi/mechglue/g\_delete\_sec\_context.c  
lib/gssapi/mechglue/g\_dsp\_name.c  
lib/gssapi/mechglue/g\_dsp\_status.c  
lib/gssapi/mechglue/g\_dup\_name.c  
lib/gssapi/mechglue/g\_exp\_sec\_context.c  
lib/gssapi/mechglue/g\_export\_name.c  
lib/gssapi/mechglue/g\_glue.c  
lib/gssapi/mechglue/g\_imp\_name.c  
lib/gssapi/mechglue/g\_imp\_sec\_context.c  
lib/gssapi/mechglue/g\_init\_sec\_context.c  
lib/gssapi/mechglue/g\_initialize.c  
lib/gssapi/mechglue/g\_inquire\_context.c  
lib/gssapi/mechglue/g\_inquire\_cred.c  
lib/gssapi/mechglue/g\_inquire\_names.c  
lib/gssapi/mechglue/g\_process\_context.c  
lib/gssapi/mechglue/g\_rel\_buffer.c  
lib/gssapi/mechglue/g\_rel\_cred.c  
lib/gssapi/mechglue/g\_rel\_name.c  
lib/gssapi/mechglue/g\_rel\_oid\_set.c  
lib/gssapi/mechglue/g\_seal.c

lib/gssapi/mechglue/g\_sign.c  
lib/gssapi/mechglue/g\_store\_cred.c  
lib/gssapi/mechglue/g\_unseal.c  
lib/gssapi/mechglue/g\_userok.c  
lib/gssapi/mechglue/g\_utils.c  
lib/gssapi/mechglue/g\_verify.c  
lib/gssapi/mechglue/gssd\_pname\_to\_uid.c  
lib/gssapi/mechglue/mglueP.h  
lib/gssapi/mechglue/oid\_ops.c  
lib/gssapi/spnego/gssapiP\_spnego.h  
lib/gssapi/spnego/spnego\_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

include/iprop\_hdr.h  
kadmin/server/ipropd\_svc.c  
lib/kdb/iprop.x  
lib/kdb/kdb\_convert.c  
lib/kdb/kdb\_log.c  
lib/kdb/kdb\_log.h  
lib/krb5/error\_tables/kdb5\_err.et  
slave/kpropd\_rpc.c  
slave/kproplog.c

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## 1.277 krb5-libs 1.15.1-55.el7\_9

### 1.277.1 Available under license :

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cmd/krb5/iproplib/iproplib.x
cmd/krb5/iproplib/iproplib_hdr.h
cmd/krb5/kadmin/server/iproplib_svc.c
cmd/krb5/kproplog/kproplog.c
cmd/krb5/slave/kpropd_rpc.c
lib/gss_mechs/mech_krb5/et/kdb5_err.c
lib/gss_mechs/mech_spnego/mech/gssapiP_spnego.h
lib/gss_mechs/mech_spnego/mech/spnego_mech.c
```

lib/krb5/kadm5/kadm\_host\_srv\_names.c  
lib/krb5/kdb/kdb\_convert.c  
lib/krb5/kdb/kdb\_hdr.h  
lib/krb5/kdb/kdb\_log.c  
lib/krb5/kdb/kdb\_log.h  
lib/libgss/g\_accept\_sec\_context.c  
lib/libgss/g\_acquire\_cred.c  
lib/libgss/g\_canon\_name.c  
lib/libgss/g\_compare\_name.c  
lib/libgss/g\_context\_time.c  
lib/libgss/g\_delete\_sec\_context.c  
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lib/libgss/g\_dsp\_status.c  
lib/libgss/g\_dup\_name.c  
lib/libgss/g\_exp\_sec\_context.c  
lib/libgss/g\_export\_name.c  
lib/libgss/g\_glue.c  
lib/libgss/g\_imp\_name.c  
lib/libgss/g\_imp\_sec\_context.c  
lib/libgss/g\_init\_sec\_context.c  
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lib/libgss/g\_utils.c  
lib/libgss/g\_verify.c  
lib/libgss/gssd\_pname\_to\_uid.c  
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uts/common/gssapi/include/mechglueP.h

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- lib/gssapi/generic/gssapi\_err\_generic.et
- lib/gssapi/mechglue/g\_accept\_sec\_context.c
- lib/gssapi/mechglue/g\_acquire\_cred.c
- lib/gssapi/mechglue/g\_canon\_name.c
- lib/gssapi/mechglue/g\_compare\_name.c
- lib/gssapi/mechglue/g\_context\_time.c
- lib/gssapi/mechglue/g\_delete\_sec\_context.c
- lib/gssapi/mechglue/g\_dsp\_name.c
- lib/gssapi/mechglue/g\_dsp\_status.c
- lib/gssapi/mechglue/g\_dup\_name.c
- lib/gssapi/mechglue/g\_exp\_sec\_context.c
- lib/gssapi/mechglue/g\_export\_name.c
- lib/gssapi/mechglue/g\_glue.c
- lib/gssapi/mechglue/g\_imp\_name.c
- lib/gssapi/mechglue/g\_imp\_sec\_context.c
- lib/gssapi/mechglue/g\_init\_sec\_context.c
- lib/gssapi/mechglue/g\_initialize.c
- lib/gssapi/mechglue/g\_inquire\_context.c
- lib/gssapi/mechglue/g\_inquire\_cred.c
- lib/gssapi/mechglue/g\_inquire\_names.c
- lib/gssapi/mechglue/g\_process\_context.c
- lib/gssapi/mechglue/g\_rel\_buffer.c
- lib/gssapi/mechglue/g\_rel\_cred.c
- lib/gssapi/mechglue/g\_rel\_name.c
- lib/gssapi/mechglue/g\_rel\_oid\_set.c
- lib/gssapi/mechglue/g\_seal.c
- lib/gssapi/mechglue/g\_sign.c
- lib/gssapi/mechglue/g\_store\_cred.c
- lib/gssapi/mechglue/g\_unseal.c
- lib/gssapi/mechglue/g\_userok.c
- lib/gssapi/mechglue/g\_utils.c
- lib/gssapi/mechglue/g\_verify.c
- lib/gssapi/mechglue/gssd\_pname\_to\_uid.c
- lib/gssapi/mechglue/mglueP.h
- lib/gssapi/mechglue/oid\_ops.c
- lib/gssapi/spnego/gssapiP\_spnego.h
- lib/gssapi/spnego/spnego\_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

- include/iprop\_hdr.h
- kadmin/server/ipropd\_svc.c

lib/kdb/iprop.x  
lib/kdb/kdb\_convert.c  
lib/kdb/kdb\_log.c  
lib/kdb/kdb\_log.h  
lib/krb5/error\_tables/kdb5\_err.et  
slave/kpropd\_rpc.c  
slave/kproplog.c

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## 1.278 jctools-core 4.0.1

### 1.278.1 Available under license :

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Manifest-Version: 1.0  
Bnd-LastModified: 1662622707903  
Build-Jdk-Spec: 11  
Bundle-Description: Java Concurrency Tools Core Library  
Bundle-License: <http://www.apache.org/licenses/LICENSE-2.0.txt>  
Bundle-ManifestVersion: 2  
Bundle-Name: Java Concurrency Tools Core Library  
Bundle-SymbolicName: org.jctools.core  
Bundle-Version: 4.0.1  
Created-By: Apache Maven Bundle Plugin 5.1.6  
Export-Package: org.jctools.maps;version="4.0.1",org.jctools.util;uses:="sun.misc";version="4.0.1",org.jctools.queues;version="4.0.1",org.jctools.queues.atomic;uses:="org.jctools.queues";version="4.0.1",org.jctools.queues.unpadded;uses:="org.jctools.queues";version="4.0.1",org.jctools.counters;version="4.0.1"  
Import-Package: sun.misc;resolution:=optional  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.6))"  
Tool: Bnd-6.2.0.202202251641

Found in path(s):

\* /opt/cola/permits/1500645298\_1670406227.9308958/0/jctools-core-4-0-1-jar/META-INF/MANIFEST.MF

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Found in path(s):

\* /opt/cola/permits/1500645298\_1670406227.9308958/0/jctools-core-4-0-1-jar/META-

INF/maven/org.jctools/jctools-core/pom.xml

# 1.279 cloudevents-kafka 2.1.1

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```
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```

Found in path(s):

```
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-jar/META-INF/maven/io.cloudevents/cloudevents-kafka/pom.xml
```

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```
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*/
```

Found in path(s):

```
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
```



```

jar/io/cloudevents/kafka/impl/KafkaHeaders.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/impl/KafkaSerializerMessageWriterImpl.java
*
/opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/CloudEventDeserializer.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/KafkaMessageFactory.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/CloudEventMessageSerializer.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/CloudEventMessageDeserializer.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/impl/KafkaBinaryMessageReaderImpl.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/CloudEventSerializer.java
* /opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/impl/KafkaProducerMessageWriterImpl.java
*
/opt/cola/permits/1508291111_1670975016.7551763/0/cloudevents-kafka-2-1-1-sources-1-
jar/io/cloudevents/kafka/impl/BaseKafkaMessageWriterImpl.java

```

## 1.280 cloudevents-api 2.1.1

### 1.280.1 Available under license :

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```

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```

Found in path(s):

```

* /opt/cola/permits/1508291066_1670974985.798763/0/cloudevents-api-2-1-1-2-jar/META-
INF/maven/io.cloudevents/cloudevents-api/pom.xml

```

# 1.281 cloudevents-core 2.1.1

## 1.281.1 Available under license :

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 */
```

Found in path(s):

```
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/CloudEventUtils.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/extensions/DistributedTracingExtension.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/format/EventFormat.java
*
 /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/message/impl/BaseBinaryMessageReader.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/message/impl/MessageUtils.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/v03/V1ToV03AttributesConverter.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/impl/CloudEventReaderAdapter.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/message/impl/BaseStructuredMessageReader.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/v03/CloudEventV03.java
* /opt/cola/permits/1508291239_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-
jar/io/cloudevents/core/message/Encoding.java
*
```

/opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/format/EventSerializationException.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/v1/CloudEventBuilder.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/v1/V03ToV1AttributesConverter.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/extensions/DatarefExtension.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/impl/BaseCloudEventBuilder.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/extensions/impl/ExtensionUtils.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/builder/CloudEventBuilder.java  
\*  
/opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/provider/ExtensionProvider.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/message/MessageReader.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/message/impl/GenericStructuredMessageReader.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/message/StructuredMessageWriter.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/v1/CloudEventV1.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/message/MessageWriter.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/impl/BaseCloudEvent.java  
\*  
/opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/message/StructuredMessageReader.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/provider/EventFormatProvider.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/v03/CloudEventBuilder.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/format/EventDeserializationException.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/impl/CloudEventContextReaderAdapter.java  
\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/io/cloudevents/core/message/impl/BaseGenericBinaryMessageReaderImpl.java  
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\* /opt/cola/permits/1508291239\_1670975013.352485/0/cloudevents-core-2-1-1-sources-1-jar/META-INF/maven/io.cloudevents/cloudevents-core/pom.xml

## 1.282 rocksdbjni 7.1.2

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\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/RocksMutableObject.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/AbstractNativeReference.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/Holder.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/AbstractImmutableNativeReference.java

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```
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/AbstractTableFilter.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/MutableOptionValue.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/HashLinkedListMemTableConfig.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/AbstractMutableOptions.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/TableProperties.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/util/Environment.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/MutableOptionKey.java
*
/opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/SkipListMemTableConfig.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/SizeApproximationFlag.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/CompactionStopStyle.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/HashSkipListMemTableConfig.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/MutableDBOptionsInterface.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/TableFilter.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/TransactionLogIterator.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/NativeLibraryLoader.java
*
/opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/InfoLogLevel.java
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```

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```
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/StatsLevel.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/ThreadStatus.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/BlockBasedTableConfig.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/HistogramType.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/RocksDBException.java
* /opt/cola/permits/1515188939_1671567706.271915/0/rocksdbjni-7-1-2-sources-
jar/org/rocksdb/TableFormatConfig.java
```

\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/CompactionOptions.java  
\*  
/opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/ExternalFileIngestionInfo.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/CompactionJobInfo.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/OptimisticTransactionOptions.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/RocksObject.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/SstFileWriter.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/Statistics.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/AbstractCompactionFilterFactory.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/DbPath.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/StatisticsCollectorCallback.java  
\*  
/opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/StateType.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/TxnDBWritePolicy.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/PersistentCache.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/WalProcessingOption.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/Experimental.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/Logger.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/ReusedSynchronisationType.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/DBOptionsInterface.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/AbstractTransactionNotifier.java  
\*  
/opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/ClockCache.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/ColumnFamilyMetaData.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/WALRecoveryMode.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/WriteBatchInterface.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/CompactionOptionsFIFO.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/NativeComparatorWrapper.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/ThreadType.java  
\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/TtlDB.java  
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/opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/MutableColumnFamilyOptionsInterface.java  
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\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/AbstractWalFilter.java  
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\* /opt/cola/permits/1515188939\_1671567706.271915/0/rocksdbjni-7-1-2-sources-jar/org/rocksdb/OptionsUtil.java  
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Ajay Joshi <jaj@google.com>

Balzs Dn <balazs.dan@gmail.com>

Benoit Sigoure <tsuna@google.com>

Bharat Mediratta <bharat@menalto.com>

Bogdan Piloca <boo@google.com>

Chandler Carruth <chandlerc@google.com>

Chris Prince <cprince@google.com>

Chris Taylor <taylorc@google.com>

Dan Egnor <egnor@google.com>

Dave MacLachlan <dmaclach@gmail.com>

David Anderson <danderson@google.com>

Dean Sturtevant  
Eric Roman <eroman@chromium.org>  
Gene Volovich <gv@cite.com>  
Hady Zalek <hady.zalek@gmail.com>  
Hal Burch <gmock@hburch.com>  
Jeffrey Yasskin <jyasskin@google.com>  
Jim Keller <jimkeller@google.com>  
Joe Walnes <joe@truemesh.com>  
Jon Wray <jwray@google.com>  
Ji Sigursson <joi@google.com>  
Keir Mierle <mierle@gmail.com>  
Keith Ray <keith.ray@gmail.com>  
Kenton Varda  
<kenton@google.com>  
Kostya Serebryany <kcc@google.com>  
Krystian Kuzniarek <krystian.kuzniarek@gmail.com>  
Lev Makhlis  
Manuel Klimek <klimek@google.com>  
Mario Tanev <radix@google.com>  
Mark Paskin  
Markus Heule <markus.heule@gmail.com>  
Matthew Simmons <simmonmt@acm.org>  
Mika Raento <mikie@iki.fi>  
Mike Bland <mbland@google.com>  
Mikls Fazekas <mfazekas@szemafor.com>  
Neal Norwitz <nnorwitz@gmail.com>  
Nermin Ozkiranartli <nermin@google.com>  
Owen Carlsen <ocarlsen@google.com>  
Paneendra Ba <paneendra@google.com>  
Pasi Valminen <pasi.valminen@gmail.com>  
Patrick Hanna <phanna@google.com>  
Patrick Riley <pfr@google.com>  
Paul Menage <menage@google.com>  
Peter Kaminski <piotr@google.com>  
Piotr Kaminski <piotr@google.com>  
Preston Jackson <preston.a.jackson@gmail.com>  
Rainer Klaffenboeck <rainer.klaffenboeck@dynatrace.com>  
Russ Cox <rsc@google.com>  
Russ Rufer <russ@pentad.com>  
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Takeshi Yoshino <tyoshino@google.com>  
Tracy  
Bialik <tracy@pentad.com>  
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jar/org/jose4j/base64url/internal/apache/commons/codec/binary/BaseNCodec.java
```

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*/opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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- \* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwt/consumer/ErrorCodeValidatorAdapter.java
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- \* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwe/KeyManagementAlgorithmIdentifiers.java
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- \* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwe/AesGcmKeyEncryptionAlgorithm.java
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- \* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwe/WrappingKeyManagementAlgorithm.java
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```

* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/jwe/EcdhKeyAgreementAlgorithm.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/lang/InvalidAlgorithmException.java
*
/opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwk/Use.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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jar/org/jose4j/jwt/GeneralJwtException.java
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/opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/jwk/KeyOperations.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwx/Headers.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/keys/resolvers/JwksVerificationKeyResolver.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/jwe/ContentEncryptionHelp.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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/opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/jwt/consumer/InvalidJwtException.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwa/Algorithm.java
* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-

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jar/org/jose4j/zip/DeflateRFC1951CompressionAlgorithm.java
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwk/HttpsJwks.java
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-

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jar/org/jose4j/zip/CompressionAlgorithmIdentifiers.java  
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* /opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/jwe/kdf/ConcatKeyDerivationFunction.java
*
/opt/cola/permits/1534657383_1673960510.7888486/0/jose4j-0-6-3-sources-1-
jar/org/jose4j/jca/ProviderContext.java
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\* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwk/DecryptionJwkSelector.java  
\* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/lang/InvalidKeyException.java  
\* /opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwk/SelectorSupport.java  
\*  
/opt/cola/permits/1534657383\_1673960510.7888486/0/jose4j-0-6-3-sources-1-jar/org/jose4j/jwk/SimpleJwkFilter.java

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Found in path(s):

```
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/representer/SafeRepresenter.java
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/parser/Parser.java
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/env/EnvScalarConstructor.java
*
/opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/nodes/ScalarNode.java
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/tokens/ValueToken.java
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/events/StreamEndEvent.java
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/constructor/AbstractConstruct.java
* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/events/CollectionEndEvent.java
```

\* /opt/cola/permits/1584157893\_1677999786.1262538/0/snakeyaml-2-0-sources-jar/org/yaml/snakeyaml/emitter/ScalarAnalysis.java  
\* /opt/cola/permits/1584157893\_1677999786.1262538/0/snakeyaml-2-0-sources-jar/org/yaml/snakeyaml/events/AliasEvent.java  
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 *
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 * This class is used to encode and decode data in Base64 format as described in RFC 1521.
 *
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 * Project home page: <a href="http://www.source-code.biz/base64coder/java/">www.
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```

* /opt/cola/permits/1584157893_1677999786.1262538/0/snakeyaml-2-0-sources-
jar/org/yaml/snakeyaml/external/biz/base64Coder/Base64Coder.java

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## 1.297 zlib 1.2.7-21.el7\_9

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```
<one line  
to give the program's name and a brief idea of what it does.>  
Copyright (C) 19yy <name of author>
```

```
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```

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```
If the program is interactive, make it output a short notice like this  
when it starts in an interactive  
mode:
```

```
Gnomovision version 69, Copyright (C) 19yy name of author
```

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## 1.301 popt 1.13-16.el7

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## 1.302 python-iniparse 0.4-9.el7

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#### A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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Release from	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)

2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2			
2002	PSF	yes		
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
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# 1.303 libidn 1.28-4.el7

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## 1.309 ustr 1.0.4-16.el7

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object



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Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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# 1.311 pkg-config 0.27.1-4.el7

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Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

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its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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## 1.312 gdbm 1.10-8.el7

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

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b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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END OF TERMS AND CONDITIONS

Appendix: How to Apply These Terms to Your New Libraries

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<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

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Version 3, 29 June 2007

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The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS

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## 1. Source Code.

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A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The

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#### 6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium

customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years

and valid for as

long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

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## 1.320 texinfo 5.1-5.e17

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## 1.323 python-kitchen 1.1.1-5.el7

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THE BASIC LIBRARY FUNCTIONS

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Written by: Philip Hazel  
Email local part: ph10  
Email domain: cam.ac.uk

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Cambridge, England.

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## 1.329 libsemanage-common 2.5-14.el7

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Julian Seward, [jseward@bzip.org](mailto:jseward@bzip.org)  
bzip2/libbzip2 version 1.0.6 of 6 September 2010

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# 1.334 libgpg-error 1.12-3.el7

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## 1.335 findutils 4.5.11-6.el7

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hostname -- set the host name or show the host/domain name

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Joe Walnes <joe@truemesh.com>



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Ji Sigursson <joi@google.com>  
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\*

/opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerOnCallNotPermittedEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/internal/InMemoryCircuitBreakerRegistry.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/internal/ForcedOpenState.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/AbstractCircuitBreakerEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/Utils/CircuitBreakerUtils.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/internal/CircuitBreakerStateMachine.java

\*

/opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerOnIgnoredErrorEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/internal/ClosedState.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/internal/HalfOpenState.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerOnErrorEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/internal/CircuitBreakerState.java

\*

/opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/CircuitBreakerRegistry.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/CircuitBreakerConfig.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerOnSuccessEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerOnResetEvent.java

\* /opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/event/CircuitBreakerOnStateTransitionEvent.java

\*

/opt/cola/permits/1610149726\_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-jar/io/github/resilience4j/circuitbreaker/CircuitBreakerOpenException.java

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```
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 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 *
 *
 */
```

Found in path(s):

```
* /opt/cola/permits/1610149726_1679504940.9927049/0/resilience4j-circuitbreaker-0-13-1-sources-1-
jar/io/github/resilience4j/circuitbreaker/CircuitBreaker.java
```

## 1.343 vavr 0.9.2

### 1.343.1 Available under license :

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```
/*  _ _ _ _ _
 *  \ \ / / \ \ / / _/
 *  \ \ / / ^ \ \ / /
 *  \___/___/ \___/___/
 *
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```

\* limitations under the License.

\*/

Found in path(s):

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function3.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/LinkedHashMapMultimap.java

\*

/opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction6.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/AbstractMultimap.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/BitMappedTrie.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/control/Validation.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/control/Option.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction1.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/CharSeq.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedRunnable.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/SortedMultimap.java

\*

/opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/concurrent/GwtIncompatible.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/TreeMultimap.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/LinkedHashSet.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/SortedSet.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/Collections.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Lazy.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/HashMapMultimap.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple0.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/ArrayType.java

\*

/opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/collection/Comparators.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function8.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/BitSet.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function7.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple7.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/API.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-

jar/io/vavr/control/GwtIncompatible.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/HashSet.java

\* /opt/cola/permits/1610149757\_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function4.java

```

* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Ordered.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple6.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/LinearSeq.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Predicates.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function0.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction8.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Lambda.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Array.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple5.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/control/Either.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple1.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/concurrent/GuardedBy.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Tree.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple8.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/concurrent/Promise.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Maps.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Stream.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple2.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/MatchError.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/AbstractIterator.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function2.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/RedBlackTree.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/JavaConverters.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Seq.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/TreeMap.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction7.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction4.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function1.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/PartialFunction.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/GwtIncompatible.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Vector.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function5.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Iterator.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Set.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/Multimaps.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/PriorityQueue.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-

```

```

jar/io/vavr/concurrent/FutureImpl.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction5.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Foldable.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Multimap.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/Traversable.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedConsumer.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/IndexedSeq.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/control/Try.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/$.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/NotImplementedError.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/LinkedHashMap.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Value.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction2.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple4.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Map.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/SortedMap.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction3.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Tuple3.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/HashMapMappedTrie.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedPredicate.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/Queue.java
*
/opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/concurrent/Future.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/CheckedFunction0.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/TreeSet.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/AbstractQueue.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/List.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/collection/HashMap.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-
jar/io/vavr/collection/GwtIncompatible.java
* /opt/cola/permits/1610149757_1679504937.1964195/0/vavr-0-9-2-sources-1-jar/io/vavr/Function6.java

```

# 1.344 resilience4j-timelimiter 0.13.1

## 1.344.1 Available under license :

Apache-2.0

# 1.345 vavr-match 0.9.2

## 1.345.1 Available under license :

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```
/* _ _ _ _ _
 * \ \ / / \ \ / / _/
 * \ \ / / ^ \ \ / /
 * \ \ / / \ \ / /
 *
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 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
 * See the License for the specific language governing permissions and
 * limitations under the License.
 */
```

Found in path(s):

```
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/annotation/Patterns.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/generator/ImportManager.java
*
/opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/model/MethodModel.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/model/ParameterModel.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/UnapplyChecker.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/annotation/Unapply.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/model/ClassModel.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/model/TypeParameterModel.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/PatternsProcessor.java
* /opt/cola/permits/1610149123_1680160062.647855/0/vavr-match-0-9-2-sources-1-
jar/io/vavr/match/generator/Generator.java
```



# 1.346 resilience4j-core 0.13.1

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# 1.347 swagger-models 2.0.7

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Found in path(s):

```
* /opt/cola/permits/1618800057_1685520288.5325468/0/swagger-models-2-0-7-sources-2-
jar/io/swagger/v3/oas/models/parameters/CookieParameter.java
* /opt/cola/permits/1618800057_1685520288.5325468/0/swagger-models-2-0-7-sources-2-
jar/io/swagger/v3/oas/models/parameters/QueryParameter.java
* /opt/cola/permits/1618800057_1685520288.5325468/0/swagger-models-2-0-7-sources-2-
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*
/opt/cola/permits/1618800057_1685520288.5325468/0/swagger-models-2-0-7-sources-2-
jar/io/swagger/v3/oas/models/security/SecurityScheme.java
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jar/io/swagger/v3/oas/models/media/Content.java
* /opt/cola/permits/1618800057_1685520288.5325468/0/swagger-models-2-0-7-sources-2-
jar/io/swagger/v3/oas/models/media/StringSchema.java
* /opt/cola/permits/1618800057_1685520288.5325468/0/swagger-models-2-0-7-sources-2-
```

jar/io/swagger/v3/oas/models/callbacks/Callback.java  
\* /opt/cola/permits/1618800057\_1685520288.5325468/0/swagger-models-2-0-7-sources-2-  
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\*  
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jar/io/swagger/v3/oas/models/media/ComposedSchema.java  
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jar/io/swagger/v3/oas/models/media/PasswordSchema.java  
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jar/io/swagger/v3/oas/models/parameters/PathParameter.java

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\*  
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\* /opt/cola/permits/1618800057\_1685520288.5325468/0/swagger-models-2-0-7-sources-2-jar/io/swagger/v3/oas/models/media/BooleanSchema.java  
\* /opt/cola/permits/1618800057\_1685520288.5325468/0/swagger-models-2-0-7-sources-2-jar/io/swagger/v3/oas/models/OpenAPI.java  
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\*  
/opt/cola/permits/1618800057\_1685520288.5325468/0/swagger-models-2-0-7-sources-2-jar/io/swagger/v3/oas/models/media/EncodingProperty.java  
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\* /opt/cola/permits/1618800057\_1685520288.5325468/0/swagger-models-2-0-7-sources-2-jar/io/swagger/v3/oas/models/Operation.java

# 1.348 swagger-integration 2.0.7

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# here. Please keep the list sorted by first names.

Ajay Joshi <jaj@google.com>

Balazs Dn <balazs.dan@gmail.com>

Benoit Sigoure <tsuna@google.com>

Bharat Mediratta <bharat@menalto.com>  
Bogdan Piloca <boo@google.com>  
Chandler Carruth <chandlerc@google.com>  
Chris Prince <cprince@google.com>  
Chris Taylor <taylorc@google.com>  
Dan Egnor <egnor@google.com>  
Dave MacLachlan <dmaclach@gmail.com>  
David Anderson <danderson@google.com>  
Dean Sturtevant  
Eric Roman <eroman@chromium.org>  
Gene Volovich <gv@cite.com>  
Hady Zalek <hady.zalek@gmail.com>  
Hal Burch <gmock@hburch.com>  
Jeffrey Yasskin <jyasskin@google.com>  
Jim Keller <jimkeller@google.com>  
Joe Walnes <joe@truemesh.com>  
Jon Wray <jwray@google.com>  
Ji Sigursson <joi@google.com>  
Keir Mierle <mierle@gmail.com>  
Keith Ray <keith.ray@gmail.com>  
Kenton Varda  
<kenton@google.com>  
Kostya Serebryany <kcc@google.com>  
Krystian Kuzniarek <krystian.kuzniarek@gmail.com>  
Lev Makhlis  
Manuel Klimek <klimek@google.com>  
Mario Tanev <radix@google.com>  
Mark Paskin  
Markus Heule <markus.heule@gmail.com>  
Matthew Simmons <simmonmt@acm.org>  
Mika Raento <mikie@iki.fi>  
Mike Bland <mbland@google.com>  
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Neal Norwitz <nnorwitz@gmail.com>  
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Owen Carlsen <ocarlsen@google.com>  
Paneendra Ba <paneendra@google.com>  
Pasi Valminen <pasi.valminen@gmail.com>  
Patrick Hanna <phanna@google.com>  
Patrick Riley <pfr@google.com>  
Paul Menage <menage@google.com>  
Peter Kaminski <piotrk@google.com>  
Piotr Kaminski <piotrk@google.com>  
Preston Jackson <preston.a.jackson@gmail.com>  
Rainer Klaffenboeck <rainer.klaffenboeck@dynatrace.com>  
Russ Cox <rsc@google.com>  
Russ Rufer <russ@pentad.com>  
Sean McAfee <eefacm@gmail.com>

Sigurur sgeirsson <siggi@google.com>  
Sverre Sundsdal <sundsda@gmail.com>  
Takeshi Yoshino <tyoshino@google.com>  
Tracy  
Bialik <tracy@pentad.com>  
Vadim Berman <vadimb@google.com>  
Vlad Losev <vladl@google.com>  
Wolfgang Klier <wklier@google.com>  
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\* /opt/cola/permits/1638896082\_1681459442.486575/0/kafka-streams-avro-serde-6-2-1-jar/META-INF/maven/io.confluent/kafka-streams-avro-serde/pom.xml

## 1.352 kafka-schema-registry-client 6.2.1

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```
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="http://maven.apache.org/POM/4.0.0"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry-parent</artifactId>
```



```

    <version>6.2.1</version>
</parent>

<licenses>
  <license>
    <name>Apache License 2.0</name>
    <url>http://www.apache.org/licenses/LICENSE-2.0.html</url>
    <distribution>repo</distribution>
  </license>
</licenses>

<artifactId>kafka-schema-registry-client</artifactId>
<packaging>jar</packaging>
<name>kafka-schema-registry-client</name>

<dependencies>
  <dependency>
    <groupId>org.apache.kafka</groupId>
    <artifactId>kafka-clients</artifactId>
  </dependency>
  <dependency>
    <groupId>org.apache.avro</groupId>
    <artifactId>avro</artifactId>
  </dependency>
  <dependency>
    <groupId>org.apache.commons</groupId>
    <artifactId>commons-compress</artifactId>
  </dependency>
  <dependency>
    <groupId>com.fasterxml.jackson.core</groupId>
    <artifactId>jackson-databind</artifactId>
  </dependency>
  <dependency>
    <groupId>jakarta.ws.rs</groupId>
    <artifactId>jakarta.ws.rs-api</artifactId>
  </dependency>
  <dependency>
    <groupId>org.glassfish.jersey.core</groupId>
    <artifactId>jersey-common</artifactId>
    <version>${jersey.version}</version>
  </dependency>
  <dependency>
    <groupId>org.easymock</groupId>
    <artifactId>easymock</artifactId>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>org.powermock</groupId>

```

```

    <artifactId>powermock-module-junit4</artifactId>
    <scope>test</scope>
</dependency>
<dependency>
  <groupId>org.powermock</groupId>
  <artifactId>powermock-api-easymock</artifactId>
  <scope>test</scope>
</dependency>
<dependency>
  <groupId>junit</groupId>
  <artifactId>junit</artifactId>
  <scope>test</scope>
</dependency>
<dependency>
  <groupId>io.swagger</groupId>
  <artifactId>swagger-annotations</artifactId>
</dependency>
<dependency>
  <groupId>io.swagger</groupId>
  <artifactId>swagger-core</artifactId>
  <version>1.6.2</version>
  <exclusions>
    <exclusion>
      <groupId>javax.validation</groupId>
      <artifactId>validation-api</artifactId>
    </exclusion>
  </exclusions>
  <groupId>com.google.guava</groupId>
  <artifactId>guava</artifactId>
</exclusions>
</dependencies>
</project>

```

Found in path(s):

\* /opt/cola/permits/1638896121\_1681819594.9636126/0/kafka-schema-registry-client-6-2-1-jar/META-INF/maven/io.confluent/kafka-schema-registry-client/pom.xml

# 1.353 kafka-schema-serializer 6.2.1

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```
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="http://maven.apache.org/POM/4.0.0"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">

  <modelVersion>4.0.0</modelVersion>

  <parent>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry-parent</artifactId>
    <version>6.2.1</version>
  </parent>

  <licenses>
    <license>
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    </license>
  </licenses>

  <artifactId>kafka-schema-serializer</artifactId>
  <packaging>jar</packaging>
  <name>kafka-schema-serializer</name>

  <dependencies>
    <dependency>
      <groupId>org.apache.kafka</groupId>
      <artifactId>kafka_${kafka.scala.version}</artifactId>
      <scope>provided</scope>
    </dependency>
    <dependency>
      <groupId>io.confluent</groupId>
      <artifactId>kafka-schema-registry-client</artifactId>
      <version>${io.confluent.schema-registry.version}</version>
    </dependency>
    <dependency>
      <groupId>junit</groupId>
      <artifactId>junit</artifactId>
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```

Found in path(s):

\* /opt/cola/permits/1638896081\_1681459386.3648345/0/kafka-schema-serializer-6-2-1-jar/META-INF/maven/io.confluent/kafka-schema-serializer/pom.xml

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# 1.358 kafka-avro-serializer 6.2.1

## 1.358.1 Available under license :

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```
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="http://maven.apache.org/POM/4.0.0"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">

  <modelVersion>4.0.0</modelVersion>

  <parent>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry-parent</artifactId>
    <version>6.2.1</version>
  </parent>
```

```
<licenses>
  <license>
    <name>Apache License 2.0</name>
    <url>http://www.apache.org/licenses/LICENSE-2.0.html</url>
    <distribution>repo</distribution>
  </license>
</licenses>
```

```
<artifactId>kafka-avro-serializer</artifactId>
<packaging>jar</packaging>
<name>kafka-avro-serializer</name>
```

```
<dependencies>
  <dependency>
    <groupId>org.apache.kafka</groupId>
    <artifactId>kafka_${kafka.scala.version}</artifactId>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>org.apache.avro</groupId>
    <artifactId>avro</artifactId>
  </dependency>
  <dependency>
    <groupId>org.apache.commons</groupId>
    <artifactId>commons-compress</artifactId>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-serializer</artifactId>
    <version>${io.confluent.schema-registry.version}</version>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry-client</artifactId>
    <version>${io.confluent.schema-registry.version}</version>
  </dependency>
  <dependency>
    <groupId>com.google.guava</groupId>
    <artifactId>guava</artifactId>
    <scope>test</scope>
  </dependency>
  <dependency>
    <groupId>junit</groupId>
    <artifactId>junit</artifactId>
    <scope>test</scope>
  </dependency>
</dependencies>
```

```

    <groupId>org.slf4j</groupId>
    <artifactId>slf4j-log4j12</artifactId>
    <scope>test</scope>
</dependency>
<dependency>
    <groupId>io.confluent</groupId>
    <artifactId>confluent-log4j</artifactId>
    <scope>test</scope>
</dependency>
</dependencies>

<build>
  <plugins>
    <plugin>
      <groupId>org.apache.avro</groupId>
      <artifactId>avro-maven-plugin</artifactId>
      <executions>
        <execution>
          <phase>generate-sources</phase>
          <goals>
            <goal>schema</goal>
          </goals>
          <configuration>
            <testSourceDirectory>${project.basedir}/src/test/avro</testSourceDirectory>
          </configuration>
        </execution>
      </executions>
    </plugin>
  </plugins>
</build>
</project>

```

Found in path(s):

\* /opt/cola/permits/1638896301\_1681459399.8776171/0/kafka-avro-serializer-6-2-1-jar/META-INF/maven/io.confluent/kafka-avro-serializer/pom.xml

## 1.359 kafka-protobuf-provider 5.5.5

### 1.359.1 Available under license :

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```

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">

```

```

  <modelVersion>4.0.0</modelVersion>

```

```
<parent>
  <groupId>io.confluent</groupId>
  <artifactId>kafka-schema-registry-parent</artifactId>
  <version>5.5.5</version>
</parent>

<licenses>
  <license>
    <name>Confluent Community License</name>
    <url>http://www.confluent.io/confluent-community-license</url>
    <distribution>repo</distribution>
  </license>
  <license>
    <name>Apache License 2.0</name>
    <url>http://www.apache.org/licenses/LICENSE-2.0.html</url>
    <distribution>repo</distribution>
  </license>
</licenses>

<artifactId>kafka-protobuf-provider</artifactId>
<packaging>jar</packaging>
<name>kafka-protobuf-provider</name>

<dependencies>
  <dependency>
    <groupId>com.squareup.wire</groupId>
    <artifactId>wire-schema</artifactId>
  </dependency>
  <dependency>
    <groupId>org.jetbrains.kotlin</groupId>
    <artifactId>kotlin-stdlib</artifactId>
  </dependency>
  <dependency>
    <groupId>com.google.protobuf</groupId>
    <artifactId>protobuf-java</artifactId>
  </dependency>
  <dependency>
    <groupId>com.google.protobuf</groupId>
    <artifactId>protobuf-java-util</artifactId>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry-client</artifactId>
  </dependency>
  <dependency>
    <groupId>org.mockito</groupId>
    <artifactId>mockito-core</artifactId>
    <scope>test</scope>
  </dependency>
</dependencies>
```

```

</dependency>
<dependency>

  <groupId>junit</groupId>
  <artifactId>junit</artifactId>
  <scope>test</scope>
</dependency>
</dependencies>

<build>
  <plugins>
    <plugin>
      <groupId>com.github.os72</groupId>
      <artifactId>protoc-jar-maven-plugin</artifactId>
    </plugin>
  </plugins>
</build>
</project>

```

Found in path(s):

```

* /opt/cola/permits/1643953215_1681954623.4885044/0/kafka-protobuf-provider-5-5-5-jar/META-
INF/maven/io.confluent/kafka-protobuf-provider/pom.xml

```

# 1.360 kafka-protobuf-serializer 5.5.5

## 1.360.1 Available under license :

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```

<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/xsd/maven-4.0.0.xsd">

```

```

<modelVersion>4.0.0</modelVersion>

```

```

<parent>
  <groupId>io.confluent</groupId>
  <artifactId>kafka-schema-registry-parent</artifactId>
  <version>5.5.5</version>
</parent>

```

```

<licenses>
  <license>
    <name>Confluent Community License</name>
    <url>http://www.confluent.io/confluent-community-license</url>
    <distribution>repo</distribution>
  </license>
  <license>
    <name>Apache License 2.0</name>

```

```
<url>http://www.apache.org/licenses/LICENSE-2.0.html</url>
<distribution>repo</distribution>
</license>
</licenses>
```

```
<artifactId>kafka-protobuf-serializer</artifactId>
<packaging>jar</packaging>
<name>kafka-protobuf-serializer</name>
```

```
<dependencies>
  <dependency>
    <groupId>org.apache.kafka</groupId>
    <artifactId>kafka_${kafka.scala.version}</artifactId>
    <scope>provided</scope>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-protobuf-provider</artifactId>
  </dependency>
  <dependency>
    <groupId>com.google.protobuf</groupId>
    <artifactId>protobuf-java-util</artifactId>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-serializer</artifactId>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry-client</artifactId>
  </dependency>
  <dependency>
    <groupId>io.confluent</groupId>
    <artifactId>kafka-schema-registry</artifactId>
```

```
<scope>test</scope>
</dependency>
<dependency>
  <groupId>io.confluent</groupId>
  <artifactId>kafka-schema-registry</artifactId>
  <type>test-jar</type>
  <scope>test</scope>
</dependency>
<dependency>
  <groupId>org.apache.kafka</groupId>
  <artifactId>connect-api</artifactId>
  <scope>provided</scope>
</dependency>
```

```

<dependency>
  <groupId>org.apache.kafka</groupId>
  <artifactId>kafka-clients</artifactId>
  <classifier>test</classifier>
  <scope>test</scope>
</dependency>
<dependency>
  <groupId>org.apache.kafka</groupId>
  <artifactId>kafka_${kafka.scala.version}</artifactId>
  <classifier>test</classifier>
  <scope>test</scope>
</dependency>
<dependency>
  <groupId>org.mockito</groupId>
  <artifactId>mockito-core</artifactId>

  <scope>test</scope>
</dependency>
<dependency>
  <groupId>junit</groupId>
  <artifactId>junit</artifactId>
  <scope>test</scope>
</dependency>
</dependencies>

<build>
  <plugins>
    <plugin>
      <groupId>com.github.os72</groupId>
      <artifactId>protoc-jar-maven-plugin</artifactId>
    </plugin>
    <plugin>
      <groupId>org.apache.maven.plugins</groupId>
      <artifactId>maven-jar-plugin</artifactId>
      <version>2.6</version>
      <executions>
        <execution>
          <goals>
            <goal>test-jar</goal>
          </goals>
          <phase>test-compile</phase>
        </execution>
      </executions>
    </plugin>
  </plugins>
</build>
</project>

```

Found in path(s):

\* /opt/cola/permits/1643953259\_1681957005.4570937/0/kafka-protobuf-serializer-5-5-5-jar/META-INF/maven/io.confluent/kafka-protobuf-serializer/pom.xml

# 1.361 zstd 1.4.9

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Balzs Dn <balazs.dan@gmail.com>

Bharat Mediratta <bharat@menalto.com>

Chandler Carruth <chandlerc@google.com>  
Chris Prince <cprince@google.com>  
Chris Taylor <taylorc@google.com>  
Dan Egnor <egnor@google.com>  
Eric Roman <eroman@chromium.org>  
Hady Zalek <hady.zalek@gmail.com>  
Jeffrey Yasskin <jyasskin@google.com>  
Ji Sigursson <joi@google.com>  
Keir Mierle <mierle@gmail.com>  
Keith Ray <keith.ray@gmail.com>  
Kenton Varda <kenton@google.com>  
Manuel Klimek <klimek@google.com>  
Markus Heule <markus.heule@gmail.com>  
Mika Raento <mikie@iki.fi>  
Mikls Fazekas <mfazekas@szemafor.com>  
Pasi Valminen <pasi.valminen@gmail.com>  
Patrick Hanna <phanna@google.com>  
Patrick Riley <pfr@google.com>  
Peter Kaminski <piotrk@google.com>  
Preston  
Jackson <preston.a.jackson@gmail.com>  
Rainer Klaffenboeck <rainer.klaffenboeck@dynatrace.com>  
Russ Cox <rsc@google.com>  
Russ Rufer <russ@pentad.com>  
Sean McAfee <eefacm@gmail.com>  
Sigurur sgeirsson <siggi@google.com>  
Tracy Bialik <tracy@pentad.com>  
Vadim Berman <vadimb@google.com>  
Vlad Losev <vladl@google.com>  
Zhanyong Wan <wan@google.com>  
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## CUP Parser Generator for Java v 0.11b

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include/GL/gl.h :

Mesa 3-D  
graphics library

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include/GL/glex.h  
include/GL/glxext.h  
include/GL/wglxext.h :

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```

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Joseph Reagle <[site-policy@w3.org](mailto:site-policy@w3.org)>

Last revised by Reagle \$Date: 2005-06-03 18:49:13 -0400 (Fri, 03 Jun 2005) \$

# 1.365 servlet-api 3.0.1

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 */
```

Found in path(s):

```
* /opt/cola/permits/1656707133_1682600610.4687467/0/perfmark-api-0-17-0-sources-1-jar/io/perfmark/Impl.java
```



\* /opt/cola/permits/1656707133\_1682600610.4687467/0/perfmark-api-0-17-0-sources-1-jar/io/perfmark/PerfMark.java  
\* /opt/cola/permits/1656707133\_1682600610.4687467/0/perfmark-api-0-17-0-sources-1-jar/io/perfmark/package-info.java  
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## 1.371 Icms 2.14

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```

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## 1.373 protobuf-java 3.23.0

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Manifest-Version: 1.0

Created-By: mergejars

Bnd-LastModified: 1683565119294

Bundle-Description: Core Protocol Buffers library. Protocol Buffers are

a way of encoding structured data in an efficient yet extensible format

.  
Bundle-DocURL: <https://developers.google.com/protocol-buffers/>  
Bundle-License: <https://opensource.org/licenses/BSD-3-Clause>  
Bundle-ManifestVersion: 2  
Bundle-Name: Protocol Buffers [Core]  
Bundle-SymbolicName: com.google.protobuf  
Bundle-Version: 3.23.0  
Export-Package: com.google.protobuf;version="3.23.0",com.google.protobuf  
.compiler;version="3.23.0";uses:="com.google.protobuf"  
Import-Package: com.google.protobuf;version="[3.23,4)",sun.misc;resoluti  
on:=optional  
Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.8))"  
Tool: Bnd-6.4.0.202211291949  
Target-Label: //java/core:lite\_runtime\_only

Found in path(s):

\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/META-INF/MANIFEST.MF  
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Found in path(s):

\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/struct.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/duration.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/empty.proto  
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\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/descriptor.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/api.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/field\_mask.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/timestamp.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/source\_context.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/wrappers.proto  
\* /opt/cola/permits/1676428959\_1697226580.8500032/0/protobuf-java-3-23-0-jar/google/protobuf/any.proto

# 1.374 core-io 1.7.18

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\* /opt/cola/permits/1685970528\_1684868680.5124846/0/dropwizard-logging-2-1-2-sources-jar/io/dropwizard/logging/ResilientOutputStreamBase.java

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\* /opt/cola/permits/1685970394\_1684869085.095612/0/dropwizard-web-security-1-2-1-sources-1-jar/META-INF/maven/com.doordeck.websecurity/dropwizard-web-security/pom.xml

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```
* /opt/cola/permits/1685970394_1684869085.095612/0/dropwizard-web-security-1-2-1-sources-1-jar/com/palantir/websecurity/WebSecurityBundle.java
* /opt/cola/permits/1685970394_1684869085.095612/0/dropwizard-web-security-1-2-1-sources-1-jar/com/palantir/websecurity/WebSecurityConfigurable.java
* /opt/cola/permits/1685970394_1684869085.095612/0/dropwizard-web-security-1-2-1-sources-1-jar/com/palantir/websecurity/filters/WebSecurityFilter.java
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 */
/**
 * <p>
 * Changes the friendly name of the custom key store to the value that you specify. The custom key store name
 * must
 * be unique in the Amazon Web Services account.
 * </p>
 * <important>
 * <p>
 * Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
 * CloudTrail logs and other output.
 * </p>
 * </important>
 * <p>
 * To change this value, an CloudHSM key store must be disconnected. An external key store can be connected or
 * disconnected.
 * </p>
 */
/**
 * <p>
 * Changes the friendly name of the custom key store to the value that you specify. The custom key store name
 * must
```

\* be unique in the Amazon Web Services account.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* To change this value, an CloudHSM key store must be disconnected. An external key store can be connected or disconnected.

\* </p>

\*

\* @param newCustomKeyName

\* Changes the friendly name of the custom key store to the value that you specify. The custom key store name

name

\* must

be unique in the Amazon Web Services account.</p> <important>

\* <p>

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\* <p>

\* To change this value, an CloudHSM key store must be disconnected. An external key store can be connected

connected

\* or disconnected.

\*/

/\*\*

\* <p>

\* Changes the friendly name of the custom key store to the value that you specify. The custom key store name must

must

\* be unique in the Amazon Web Services account.

\* </p>

\* <important>

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\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

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\* </important>

\* <p>

\* To change this value, an CloudHSM key store must be disconnected. An external key store can be connected or

store can be connected or

\* disconnected.

\* </p>

\*

\* @return Changes the friendly name of the custom key store to the value that you specify. The custom key store name must be unique in the Amazon Web Services account.</p> <important>

\* name must be unique in the Amazon Web Services account.</p> <important>

```
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* To change this value, an CloudHSM key store must be disconnected. An external key store can be
connected
* or disconnected.
*/
```

Found in path(s):

```
* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/UpdateCustomKeyStoreRequest.java
No license file was found, but licenses were detected in source scan.
```

```
/*
* Copyright 2018-2023 Amazon.com, Inc. or its affiliates. All Rights Reserved.
*
* Licensed under the Apache License, Version 2.0 (the "License"). You may not use this file except in compliance
with
* the License. A copy of the License is located at
*
* http://aws.amazon.com/apache2.0
*
* or in the "license" file accompanying this file. This file is distributed on an "AS IS" BASIS, WITHOUT
WARRANTIES OR
* CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing
permissions
* and limitations under the License.
*/
/**
* <p>
* Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.
* </p>
* <p>
* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web Services
account,
* you must use the key ARN.
* </p>
* <p>
* For example:
* </p>
* <ul>
* <li>
* <p>
* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>

```



```

* </li>
* <li>
* <p>
* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* </ul>
* <p>
* To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.
* </p>
*/
/**
* <p>
* The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant.
* </p>
* <p>
* To specify the principal, use the <a
* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name
(ARN)</a>
* of an Amazon Web Services principal. Valid principals include Amazon Web Services accounts, IAM users,
IAM roles,
* federated users, and assumed role users. For help with the ARN syntax for a principal, see <a
* href="https://docs.aws.amazon.com/IAM/latest/UserGuide/reference_identifiers.html#identifiers-arns">IAM
ARNs</a>
* in the <i>Identity and Access Management User Guide</i>.
* </p>
* <p>
* The grant determines the retiring principal. Other principals might have permission to retire the grant or revoke
* the grant. For details, see <a>RevokeGrant</a> and <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring and
revoking
* grants</a> in the <i>Key Management Service Developer Guide</i>.
* </p>
*/
/**
* <p>
* Specifies a grant constraint.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
* <p>
* KMS supports the <code>EncryptionContextEquals</code> and <code>EncryptionContextSubset</code> grant
constraints,
* which allow the permissions

```

in the grant only when the encryption context in the request matches (

- \* `EncryptionContextEquals`) or includes (`EncryptionContextSubset`) the encryption context
- \* specified in the constraint.
- \*
- \*
- \* The encryption context grant constraints are supported only on [grant operations](https://docs.aws.amazon.com/kms/latest/developerguide/grants.html#terms-grant-operations) that include an `EncryptionContext` parameter, such as cryptographic operations on symmetric encryption KMS keys. Grants with grant constraints can include the `DescribeKey` and `RetireGrant` operations, but the constraint doesn't apply to these operations. If a grant with a grant constraint includes the `CreateGrant` operation, the constraint requires that any grants created with the `CreateGrant` permission have an equally strict or stricter encryption context constraint.
- \*
- \*
- \* You cannot use an encryption context grant constraint for cryptographic operations with asymmetric KMS keys or HMAC KMS keys. Operations with these keys don't support an encryption context.
- \*
- \*
- \* Each constraint value can include up to 8 encryption context pairs. The encryption context value in each constraint cannot exceed 384 characters. For information about grant constraints, see [Using grant constraints](https://docs.aws.amazon.com/kms/latest/developerguide/create-grant-overview.html#grant-constraints) in the *Key Management Service Developer Guide*. For more information about encryption context, see [Encryption context](https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context) in the *Key Management Service Developer Guide*.
- \*
- \*/

/\*\*

- \*
  - \* Identifies the KMS key for the grant.
- The grant gives principals permission to use this KMS key.
- \*
  - \*
  - \* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web Services account, you must use the key ARN.
  - \*
  - \*
  - \* For example:
  - \*
  - \*

```

* <li>
* <p>
* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* <li>
* <p>
* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>
* </p>
* </li>
* </ul>
* <p>
* To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.
* </p>
*
* @param keyId
*   Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.</p>
*   <p>
*   Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web
Services
*   account, you
must use the key ARN.
*   </p>
*   <p>
*   For example:
*   </p>
*   <ul>
*   <li>
*   <p>
*   Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>
*   </p>
*   </li>
*   <li>
*   <p>
*   Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-
1234567890ab</code>
*   </p>
*   </li>
*   </ul>
*   <p>
*   To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.
*/
/**
* <p>
* Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.
* </p>
* <p>
* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web Services

```

account,

\* you must use the key ARN.

\* </p>

\* <p>

\* For example:

\* </p>

\* <ul>

\* <li>

\* <p>

\*

Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>

\* </p>

\* </li>

\* <li>

\* <p>

\* Key ARN: <code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>

\* </p>

\* </li>

\* </ul>

\* <p>

\* To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.

\* </p>

\*

\* @return Identifies the KMS key for the grant. The grant gives principals permission to use this KMS key.</p>

\* <p>

\* Specify the key ID or key ARN of the KMS key. To specify a KMS key in a different Amazon Web

Services

\* account, you must use the key ARN.

\* </p>

\* <p>

\* For example:

\* </p>

\* <ul>

\* <li>

\* <p>

\* Key ID: <code>1234abcd-12ab-34cd-56ef-1234567890ab</code>

\* </p>

\* </li>

\* <li>

\* <p>

\* Key ARN:

<code>arn:aws:kms:us-east-2:111122223333:key/1234abcd-12ab-34cd-56ef-1234567890ab</code>

\* </p>

\* </li>

\* </ul>

\* <p>

\* To get the key ID and key ARN for a KMS key, use <a>ListKeys</a> or <a>DescribeKey</a>.

\*/

```

/**
 * <p>
 * The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant.
 * </p>
 * <p>
 * To specify the principal, use the <a
 * href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name
 (ARN)</a>
 * of an Amazon Web Services principal. Valid principals include Amazon Web Services accounts, IAM users,
 IAM roles,
 * federated users, and assumed role users. For help with the ARN syntax for a principal, see <a
 * href="https://docs.aws.amazon.com/IAM/latest/UserGuide/reference_identifiers.html#identifiers-arns">IAM
 ARNs</a>
 * in the <i> <i>Identity and Access Management User Guide</i> </i>.
 * </p>
 * <p>
 * The grant determines the retiring principal. Other principals might have permission to retire the grant or revoke
 * the grant. For details, see <a>RevokeGrant</a> and <a
 * href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring and
 revoking
 * grants</a> in the <i>Key Management Service Developer Guide</i>.
 * </p>
 *
 * @param retiringPrincipal
 * The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant. </p>
 * <p>
 * To specify the principal, use the <a
 * href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource
 Name
 * (ARN)</a> of an Amazon Web Services principal. Valid principals include Amazon Web Services
 accounts, IAM
 * users, IAM roles, federated users, and assumed role users. For help with the ARN syntax for a principal,
 *
 * see <a
 * href="https://docs.aws.amazon.com/IAM/latest/UserGuide/reference_identifiers.html#identifiers-
 arns">IAM
 * ARNs</a> in the <i> <i>Identity and Access Management User Guide</i> </i>.
 * </p>
 * <p>
 * The grant determines the retiring principal. Other principals might have permission to retire the grant or
 * revoke the grant. For details, see <a>RevokeGrant</a> and <a
 * href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring
 and
 * revoking grants</a> in the <i>Key Management Service Developer Guide</i>.
 */
/**
 * <p>
 * The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant.

```

```

* </p>
* <p>
* To specify the principal, use the <a
* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name
(ARN)</a>
* of an Amazon Web Services
principal. Valid principals include Amazon Web Services accounts, IAM users, IAM roles,
* federated users, and assumed role users. For help with the ARN syntax for a principal, see <a
* href="https://docs.aws.amazon.com/IAM/latest/UserGuide/reference_identifiers.html#identifiers-arns">IAM
ARNs</a>
* in the <i> Identity and Access Management User Guide</i> </i>.
* </p>
* <p>
* The grant determines the retiring principal. Other principals might have permission to retire the grant or revoke
* the grant. For details, see <a>RevokeGrant</a> and <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring and
revoking
* grants</a> in the <i>Key Management Service Developer Guide</i>.
* </p>
*
* @return The principal that has permission to use the <a>RetireGrant</a> operation to retire the grant. </p>
*
* <p>
* To specify the principal, use the <a
* href="https://docs.aws.amazon.com/general/latest/gr/aws-arns-and-namespaces.html">Amazon Resource Name
(ARN)</a> of an Amazon Web Services principal. Valid principals include Amazon Web Services
accounts, IAM
* users, IAM roles, federated users, and assumed role users. For help with the ARN syntax for a principal,
* see <a
* href="https://docs.aws.amazon.com/IAM/latest/UserGuide/reference_identifiers.html#identifiers-
arns">IAM
* ARNs</a> in the <i> Identity and Access Management User Guide</i> </i>.
* </p>
* <p>
* The grant determines the retiring principal. Other principals might have permission to retire the grant
* or revoke the grant. For details, see <a>RevokeGrant</a> and <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/grant-manage.html#grant-delete">Retiring
and
* revoking grants</a> in the <i>Key Management Service
Developer Guide</i>.
*/
/**
* <p>
* Specifies a grant constraint.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

```

\* CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* KMS supports the <code>EncryptionContextEquals</code> and <code>EncryptionContextSubset</code> grant constraints,

\* which allow the permissions in the grant only when the encryption context in the request matches (

\* <code>EncryptionContextEquals</code>) or includes (<code>EncryptionContextSubset</code>) the encryption context

\* specified in the constraint.

\* </p>

\* <p>

\* The encryption context grant constraints are supported only on <a href="https://docs.aws.amazon.com/kms/latest/developerguide/grants.html#terms-grant-operations">grant operations</a> that include an <code>EncryptionContext</code> parameter, such as cryptographic operations on

\* symmetric encryption KMS keys. Grants with grant constraints can include the <a>DescribeKey</a> and <a>RetireGrant</a> operations, but the constraint doesn't apply to these operations. If a grant with a grant constraint includes the <code>CreateGrant</code> operation, the constraint requires that any grants created with

\* the <code>CreateGrant</code> permission have an equally strict or stricter encryption context constraint.

\* </p>

\* <p>

\* You cannot use an encryption context grant constraint for cryptographic operations with asymmetric KMS keys or

\* HMAC KMS keys. Operations with these keys don't support an encryption context.

\* </p>

\* <p>

\* Each constraint value can include up to 8 encryption context pairs. The encryption context value in each constraint cannot exceed 384 characters. For information about grant constraints, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/create-grant-overview.html#grant-constraints">Using constraints</a>

\* in the <i>Key Management Service Developer Guide</i>. For more information about encryption context, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption context</a>

\* in the <i>Key Management Service Developer Guide</i> </i>.

\* </p>

\* <p>

\* @param constraints

\* Specifies a grant constraint.</p> <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* KMS supports the `EncryptionContextEquals` and `EncryptionContextSubset` grant constraints, which allow the permissions in the grant only when the encryption context in the request matches (`EncryptionContextEquals`) or includes (`EncryptionContextSubset`) the encryption context specified in the constraint.

</p>  
<p>  
\* The encryption context grant constraints are supported only on [grant operations](https://docs.aws.amazon.com/kms/latest/developerguide/grants.html#terms-grant-operations) that include an `EncryptionContext` parameter, such as cryptographic operations on symmetric encryption KMS keys. Grants with grant constraints can include the DescribeKey and RetireGrant operations, but the constraint doesn't apply to these operations. If a grant with a grant constraint includes the `CreateGrant` operation, the constraint requires that any grants created with the `CreateGrant` permission have an equally strict or stricter encryption context constraint.

</p>  
<p>  
\* You cannot use an encryption context grant constraint for cryptographic operations with asymmetric KMS keys or HMAC KMS keys. Operations with these keys don't support an encryption context.

</p>  
<p>  
\* Each constraint value can include up to 8 encryption context pairs. The encryption context value in each constraint cannot exceed 384 characters. For information about grant constraints, see [Using grant constraints](https://docs.aws.amazon.com/kms/latest/developerguide/create-grant-overview.html#grant-constraints) in the *Key Management Service Developer Guide*. For more information about encryption context, see [Encryption context](https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context) in the *Key Management Service Developer Guide*.

\*/  
/\*\*  
\* <p>  
\* Specifies a grant constraint.  
\* </p>  
\* <important>  
\* <p>  
\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.  
\* </p>  
\* </important>  
\* <p>  
\* KMS supports the `EncryptionContextEquals` and `EncryptionContextSubset` grant



constraints,

- \* which allow the permissions in the grant only when the encryption context in the request matches ( `EncryptionContextEquals`) or includes (`EncryptionContextSubset`) the encryption context

- \* specified in the constraint.

- \* `</p>`

- \* `<p>`

- \* The encryption context grant constraints are supported only on `<a`

- \* `href="https://docs.aws.amazon.com/kms/latest/developerguide/grants.html#terms-grant-operations">grant operations` that include an `EncryptionContext` parameter,

such as cryptographic operations on

- \* symmetric encryption KMS keys. Grants with grant constraints can include the `<a>DescribeKey` and

- \* `<a>RetireGrant` operations, but the constraint doesn't apply to these operations. If a grant with a grant

- \* constraint includes the `CreateGrant` operation, the constraint requires that any grants created with

- \* the `CreateGrant` permission have an equally strict or stricter encryption context constraint.

- \* `</p>`

- \* `<p>`

- \* You cannot use an encryption context grant constraint for cryptographic operations with asymmetric KMS keys

or

- \* HMAC KMS keys. Operations with these keys don't support an encryption context.

- \* `</p>`

- \* `<p>`

- \* Each constraint value can include up to 8 encryption context pairs. The encryption context value in each

- \* constraint cannot exceed 384 characters. For information about grant constraints, see `<a`

- \* `href="https://docs.aws.amazon.com/kms/latest/developerguide/create-grant-overview.html#grant-constraints">Using`

- \* grant constraints

in the *Key Management Service Developer Guide*. For more information about encryption

- \* context, see `<a`

- \* `href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption context`

- \* in the *Key Management Service Developer Guide*.

- \* `</p>`

- \* `<p>`

- \* `@return` Specifies a grant constraint.

- \* `<p>`

- \* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

- \* `</p>`

- \* `</important>`

- \* `<p>`

- \* KMS supports the `EncryptionContextEquals` and `EncryptionContextSubset`

grant

- \* constraints, which allow the permissions in the grant only when the encryption context in the request

- \* matches

- (`EncryptionContextEquals`) or includes (`EncryptionContextSubset`) the

- \* encryption context specified in the constraint.

\* </p>

\* <p>

\* The encryption context grant constraints are supported only on <a href="https://docs.aws.amazon.com/kms/latest/developerguide/grants.html#terms-grant-operations">grant operations</a> that include an <code>EncryptionContext</code> parameter, such as cryptographic operations

\* on symmetric encryption KMS keys. Grants with grant constraints can include the <a>DescribeKey</a> and

\* <a>RetireGrant</a> operations, but the constraint doesn't apply to these operations. If a grant with a grant constraint includes the <code>CreateGrant</code> operation, the constraint requires that any grants created with the <code>CreateGrant</code> permission have an equally strict or stricter encryption

\* context constraint.

\* </p>

\* <p>

\* You cannot use an encryption context grant constraint for cryptographic operations with asymmetric KMS keys or HMAC KMS keys. Operations with these keys don't support an encryption context.

\* </p>

\* <p>

\* Each constraint value can include up to 8 encryption context pairs. The encryption context value in each constraint cannot exceed 384 characters. For information about grant constraints, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/create-grant-overview.html#grant-constraints">Using grant constraints</a> in the <i>Key Management Service Developer Guide</i>. For more information

\* about encryption context, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption context</a> in the <i>Key Management Service Developer Guide</i> </i>.

\*/

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/CreateGrantRequest.java

No license file was found, but licenses were detected in source scan.

/\*

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\*

\* Licensed under the Apache License, Version 2.0 (the "License"). You may not use this file except in compliance with

\* the License. A copy of the License is located at

\*

\* http://aws.amazon.com/apache2.0

\*

\* or in the "license" file accompanying this file. This file is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR

\* CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing

permissions

\* and limitations under the License.

\*/

/\*\*

\* <p>

\* A description of the KMS key. Use a description that helps you decide whether the KMS key is appropriate for

a

\* task. The default value is an empty string (no description).

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in

plaintext in

\* CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* To set or change the description after the key is created, use <a>UpdateKeyDescription</a>.

\* </p>

\*/

/\*\*

\* <p>

\* A description of the KMS key. Use a description that helps you decide whether the KMS key is appropriate for

a

\* task. The default value is an empty string (no description).

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

\* CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* To set or change the description after the key is created, use <a>UpdateKeyDescription</a>.

\* </p>

\*

\* @param description

\* A description of the KMS key. Use a description that helps you decide whether the KMS key is appropriate

\* for a task. The default value is an empty string (no description).</p>

<important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in  
\* plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* To set or change the description after the key is created, use <a>UpdateKeyDescription</a>.

\*/

```
/**
 * <p>
 * A description of the KMS key. Use a description that helps you decide whether the KMS key is appropriate for
 a
 * task. The default value is an empty string (no description).
 * </p>
 * <important>
 * <p>
 * Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
 * CloudTrail logs and other output.
 * </p>
 * </important>
 * <p>
 * To set or change the description after the key is created, use <a>UpdateKeyDescription</a>.
 * </p>
 *
 * @return A description of the KMS key.
```

Use a description that helps you decide whether the KMS key is appropriate

```
 * for a task. The default value is an empty string (no description).</p> <important>
 * <p>
 * Do not include confidential or sensitive information in this field. This field may be displayed in
 * plaintext in CloudTrail logs and other output.
 * </p>
 * </important>
 * <p>
 * To set or change the description after the key is created, use <a>UpdateKeyDescription</a>.
 */
```

Found in path(s):

```
* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/CreateKeyRequest.java
No license file was found, but licenses were detected in source scan.
```

```
/*
 * Copyright 2018-2023 Amazon.com, Inc. or its affiliates. All Rights Reserved.
 *
 * Licensed under the Apache License, Version 2.0 (the "License"). You may not use this file except in compliance
 with
 * the License. A copy of the License is located at
 *
 * http://aws.amazon.com/apache2.0
 *
 * or in the "license" file accompanying this file. This file is distributed on an "AS IS" BASIS, WITHOUT
 WARRANTIES OR
 * CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing
 permissions
 * and limitations under the License.
 */
```

```

/**
 * <p>
 * Specifies the encryption context that will be used to encrypt the data. An encryption context is valid only for
 * <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#cryptographic-operations">
 * cryptographic operations</a> with a symmetric encryption KMS key. The standard asymmetric encryption
 algorithms
 * and HMAC algorithms that KMS uses do not support an encryption context.
 * </p>
 * <important>
 * <p>
 * Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
 * CloudTrail logs and other output.
 * </p>
 * </important>
 * <p>
 * An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
 * authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact
 * case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on
 * operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an
 encryption
 * context is optional, but it is strongly recommended.
 * </p>
 * <p>
 * For more information, see <a
 * href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
 context</a>
 * in the <i>Key Management Service Developer Guide</i>.
 * </p>
 */
/**
 * <p>
 * Specifies the encryption context that will be used to encrypt the data. An encryption context is valid only for
 * <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#cryptographic-operations">
 * cryptographic operations</a> with a symmetric encryption KMS key. The standard asymmetric encryption
 algorithms
 * and HMAC algorithms that KMS uses do not support an encryption context.
 * </p>
 * <important>
 * <p>
 * Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
 * CloudTrail logs and other output.
 * </p>
 * </important>
 * <p>
 * An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
 * authenticated data. When you use an encryption context to encrypt data, you must specify
 the same (an exact
 * case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on

```

```

* operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an
encryption
* context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
context</a>
* in the <i>Key Management Service Developer Guide</i>.
* </p>
*
* @return Specifies the encryption context that will be used to encrypt the data. An encryption context is valid
* only for <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#cryptographic-operations"
* >cryptographic operations</a> with a symmetric encryption KMS key. The standard asymmetric
encryption
* algorithms and HMAC algorithms that
KMS uses do not support an encryption context. </p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an
* exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
* only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS
keys,
* an encryption context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
context</a> in the <i>Key Management Service Developer Guide</i>.
*/
/**
* <p>
* Specifies the encryption context that will be used to encrypt the data. An encryption context is valid only for
* <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#cryptographic-operations">
* cryptographic operations</a> with a symmetric encryption KMS key. The standard asymmetric encryption
algorithms
* and HMAC algorithms that KMS uses do not support an encryption context.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

```

\* CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an encryption context is optional, but it is strongly recommended.

\* </p>

\* <p>

\* For more information, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption context</a> in the <i>Key Management Service Developer Guide</i>.

\* </p>

\*

\* @param encryptionContext

\* Specifies the encryption context that will be used to encrypt the data. An encryption context is valid only for <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#cryptographic-operations">cryptographic operations</a> with a symmetric encryption KMS key.

The standard asymmetric encryption algorithms and HMAC algorithms that KMS uses do not support an encryption context. </p> <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an encryption context is optional, but it is strongly recommended.

\* </p>

\* <p>

\* For more information, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption context</a> in the <i>Key Management Service Developer Guide</i>.

\* /

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/EncryptRequest.java

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Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/auth/policy/actions/KMSActions.java

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\*/

/\*\*

\* <p>

\* Specifies a friendly name for the custom key store. The name must be unique in your Amazon Web Services account

\* and Region. This parameter is required for all custom key stores.

\* </p>

\* <important>

\* <p>



```

* Do not include confidential or sensitive information in this field. This field may be displayed
in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
*/
/**
* <p>
* Specifies a friendly name for the custom key store. The name must be unique in your Amazon Web Services
account
* and Region. This parameter is required for all custom key stores.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
*
* @param customKeyName
* Specifies a friendly name for the custom key store. The name must be unique in your Amazon Web
Services
* account and Region. This parameter is required for all custom key stores.</p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.

* </p>
*/
/**
* <p>
* Specifies a friendly name for the custom key store. The name must be unique in your Amazon Web Services
account
* and Region. This parameter is required for all custom key stores.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
*
* @return Specifies a friendly name for the custom key store. The name must be unique in your Amazon Web
Services
* account and Region. This parameter is required for all custom key stores.</p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.

```

\* </p>  
\*/

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/CreateCustomKeyStoreRequest.java

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\*/

/\*\*

\* <p>

\* One or more tags. Each tag consists of a tag key and a tag value. The tag value can be an empty (null) string.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* You cannot have more than one tag on a KMS key with the same tag key. If you specify an existing tag key with a

\* different tag value, KMS replaces the current tag value with the specified one.

\* </p>

\*/

/\*\*

\* <p>

\* One or more tags. Each tag consists of a tag key and a tag value. The tag value can be an empty (null) string.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

```

* </p>
* </important>
* <p>
* You cannot have more than one tag on a KMS key with the same tag key. If you specify an existing tag key
with a
* different tag value, KMS replaces the current tag value with the specified one.
* </p>
*
* @return One or more tags. Each tag consists of a tag key and a tag value. The tag value can be an empty (null)
* string.
</p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* You cannot have more than one tag on a KMS key with the same tag key. If you specify an existing tag
key
* with a different tag value, KMS replaces the current tag value with the specified one.
*/
/**
* <p>
* One or more tags. Each tag consists of a tag key and a tag value. The tag value can be an empty (null) string.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
* <p>
* You cannot have more than one tag on a KMS key with the same tag key. If you specify an existing tag key
with
a
* different tag value, KMS replaces the current tag value with the specified one.
* </p>
*
* @param tags
* One or more tags. Each tag consists of a tag key and a tag value. The tag value can be an empty (null)
* string. </p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* You cannot have more than one tag on a KMS key with the same tag key. If you specify an existing tag key

```

\* with a different tag value, KMS replaces the current tag value with the specified one.

\*/

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/TagResourceRequest.java

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\* and limitations under the License.

\*/

/\*\*

\* <p>

\* A key-value pair. A tag consists of a tag key and a tag value. Tag keys and tag values are both required, but tag values can be empty (null) strings.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* For information about the rules that apply to tag keys and tag values, see <a

\* href="https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/allocation-tag-restrictions.html">User-Defined Tag

\* Restrictions</a> in the <i>Amazon Web Services Billing and Cost Management User Guide</i>.

\* </p>

\*

\* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/kms-2014-11-01/Tag" target="\_top">AWS API Documentation</a>

\*/

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/Tag.java

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WARRANTIES OR
* CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing
permissions
* and limitations under the License.
*/
/**
* <p>
* Identifies the alias that is changing its KMS key. This value must begin with <code>alias/</code> followed by
the
* alias name, such as <code>alias/ExampleAlias</code>. You cannot use <code>UpdateAlias</code> to change
the alias
* name.
* </p>
* <important>
* <p>
* Do not include confidential or
sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
*/
/**
* <p>
* Identifies the alias that is changing its KMS key. This value must begin with <code>alias/</code> followed by
the
* alias name, such as <code>alias/ExampleAlias</code>. You cannot use <code>UpdateAlias</code> to change
the alias
* name.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
*

```

```

* @param aliasName
*   Identifies the alias that is changing its KMS key. This value must begin with <code>alias/</code> followed
*   by the alias name, such as <code>alias/ExampleAlias</code>. You cannot use <code>UpdateAlias</code>
to
*   change the alias name.</p> <important>
*
<p>
*   Do not include confidential or sensitive information in this field. This field may be displayed in
*   plaintext in CloudTrail logs and other output.
*   </p>
*/
/**
* <p>
*   Identifies the alias that is changing its KMS key. This value must begin with <code>alias/</code> followed by
the
*   alias name, such as <code>alias/ExampleAlias</code>. You cannot use <code>UpdateAlias</code> to change
the alias
*   name.
* </p>
* <important>
* <p>
*   Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
*   CloudTrail logs and other output.
* </p>
* </important>
*
* @return Identifies the alias that is changing its KMS key. This value must begin with <code>alias/</code>
*   followed by the alias name, such as <code>alias/ExampleAlias</code>. You cannot use
*   <code>UpdateAlias</code> to change the alias name.</p>
<important>
*   <p>
*   Do not include confidential or sensitive information in this field. This field may be displayed in
*   plaintext in CloudTrail logs and other output.
*   </p>
*/

```

Found in path(s):

```

* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/UpdateAliasRequest.java

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```

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```

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*

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with

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\* and limitations under the License.

\*/

/\*\*

\* <p>

\* Specifies that encryption context to use when the reencrypting the data.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

\* CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* A

destination encryption context is valid only when the destination KMS key is a symmetric encryption KMS key.

\* The standard ciphertext format for asymmetric KMS keys does not include fields for metadata.

\* </p>

\* <p>

\* An *encryption context* is a collection of non-secret key-value pairs that represent additional

\* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact

\* case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on

\* operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an

encryption

\* context is optional, but it is strongly recommended.

\* </p>

\* <p>

\* For more information, see [a](https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context)

\* [href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\\_context">Encryption](https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context)

context

\* in the *Key Management Service Developer Guide*.

\* </p>

\*/

/\*\*

\* <p>

\* Specifies that encryption context to use when the reencrypting the data.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

\* CloudTrail logs and other output.

\* </p>

```

* </important>
* <p>
* A destination encryption context is valid only when the destination KMS key is a symmetric encryption KMS
key.
* The standard ciphertext format for asymmetric KMS keys does not include fields for metadata.
* </p>
* <p>
* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact
* case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on
* operations with symmetric encryption KMS keys. On operations with symmetric
encryption KMS keys, an encryption
* context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
context</a>
* in the <i>Key Management Service Developer Guide</i>.
* </p>
*
* @return Specifies that encryption context to use when the reencrypting the data.</p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* A destination encryption context is valid only when the destination KMS key is a symmetric encryption
KMS
* key. The standard ciphertext format for asymmetric KMS keys does not include fields for metadata.
* </p>
* <p>
* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an
* exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
* only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS
keys,
* an encryption context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
* context</a> in the <i>Key Management Service Developer Guide</i>.
*/
/**
* <p>

```



- \* Specifies that encryption context to use when the reencrypting the data.
- \* </p>
- \* <important>
- \* <p>
- \* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
- \* CloudTrail logs and other output.
- \* </p>
- \* </important>
- \* <p>
- \* A destination encryption context is valid only when the destination KMS key is a symmetric encryption KMS key.
- \* The standard ciphertext format for asymmetric KMS keys does not include fields for metadata.
- \* </p>
- \* <p>
- \* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
- \* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact
- \* case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on
- \* operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an encryption
- \* context is optional, but it is strongly recommended.
- \* </p>
- \* <p>
- \* For more information, see <a
- \* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption
- \* context</a>
- \* in the <i>Key Management Service Developer Guide</i>.
- \* </p>
- \*
- \* @param destinationEncryptionContext
- \* Specifies that encryption context to use when the reencrypting the data.</p> <important>
- \* <p>
- \* Do not include confidential or sensitive information in this field. This field may be displayed in
- \* plaintext in CloudTrail logs and other output.
- \* </p>
- \* </important>
- \* <p>
- \* A destination encryption context is valid only when the destination KMS key is a symmetric encryption
- KMS
- \* key. The standard ciphertext format for asymmetric KMS keys does not include fields for metadata.
- \* </p>
- \* <p>
- \* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
- \* authenticated
- data. When you use an encryption context to encrypt data, you must specify the same (an
- \* exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
- \* only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS

keys,

- \* an encryption context is optional, but it is strongly recommended.

- \* </p>

- \* <p>

- \* For more information, see <a

- \*

href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption

- \* context</a> in the <i>Key Management Service Developer Guide</i>.

- \*/

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- \* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ReEncryptRequest.java

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/\*\*

- \* <p>

- \* New description for the KMS key.

- \* </p>

- \* <important>

- \* <p>

- \* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

- \* CloudTrail logs and other output.

- \* </p>

- \* </important>

- \*/

/\*\*

- \* <p>

- \* New description for the KMS key.

- \* </p>

- \* <important>

- \* <p>

- \* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

```

* CloudTrail logs and other output.
* </p>
* </important>
*
* @param description
*   New description for the KMS key.</p> <important>
*   <p>
*   Do not include confidential or sensitive information in this field. This field may be displayed in
*   plaintext in CloudTrail logs and other output.
*   </p>
*/
/**
* <p>
* New description for the KMS key.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
*
* @return New description for the KMS key.</p> <important>
*   <p>
*   Do not include confidential or sensitive information
in this field. This field may be displayed in
*   plaintext in CloudTrail logs and other output.
*   </p>
*/

```

Found in path(s):

```

* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/UpdateKeyDescriptionRequest.java

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*/
/**
 * <p>
 * Specifies the encryption context that will be used when encrypting the private key in the data key pair.
 * </p>
 * <important>
 * <p>
 * Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
 * CloudTrail logs and other output.
 * </p>
 * </important>
 * <p>
 * An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
 * authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact
 * case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on
 * operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an
encryption
 * context is optional, but it is strongly recommended.
 * </p>
 * <p>
 * For more information, see <a
 * href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
context</a>
 * in the <i>Key Management Service Developer Guide</i>.
 * </p>
 */
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 * Specifies the encryption context that will be used when encrypting the private key in the data key pair.
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 * <p>
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 * </p>
 * </important>
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 * authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact
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 * operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an
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 * context is optional, but it is strongly recommended.
 * </p>
 * <p>
 * For more information, see <a

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* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
context</a>
* in the <i>Key Management Service Developer Guide</i>.
* </p>
*
* @return Specifies the encryption context that will
be used when encrypting the private key in the data key
* pair.</p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
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* exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
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* an encryption context is optional, but it is strongly recommended.
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* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
* context</a> in the <i>Key Management Service Developer Guide</i>.
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* CloudTrail logs and other output.
* </p>
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* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
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* operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS
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* context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption

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context</a>
  * in the <i>Key Management Service Developer Guide</i>.
  * </p>
  *
  * @param encryptionContext
  *   Specifies the encryption context that will be used when encrypting the private key in the data key
  *   pair.</p> <important>
  *   <p>
  *     Do not include confidential or sensitive information in this field. This field may be displayed in
  *     plaintext in CloudTrail logs and other output.
  *   </p>
  *   </important>
  *   <p>
  *     An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
  *     authenticated data. When you use an encryption context to encrypt data, you must specify the
  same (an
  *   exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
  *   only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS
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  *   an encryption context is optional, but it is strongly recommended.
  *   </p>
  *   <p>
  *     For more information, see <a
href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
  *     context</a> in the <i>Key Management Service Developer Guide</i>.
  */

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Found in path(s):

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* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/GenerateDataKeyPairRequest.java
* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/GenerateDataKeyPairWithoutPlaintextRequest.java
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/*
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```

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\*/

/\*\*

\* <p>

\* Specifies the alias name. This value must begin with <code>alias/</code> followed by a name, such as

\* <code>alias/ExampleAlias</code>.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

\* CloudTrail logs and

other output.

\* </p>

\* </important>

\* <p>

\* The <code>AliasName</code> value must be string of 1-256 characters. It can contain only alphanumeric

characters,

\* forward slashes (/), underscores (\_), and dashes (-). The alias name cannot begin with <code>alias/aws/</code>.

\* The <code>alias/aws/</code> prefix is reserved for <a

\* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#aws-managed-cmk">Amazon

Web Services

\* managed keys</a>.

\* </p>

\*/

/\*\*

\* <p>

\* Specifies the alias name. This value must begin with <code>alias/</code> followed by a name, such as

\* <code>alias/ExampleAlias</code>.

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

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\* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#aws-managed-cmk">Amazon

Web Services

\* managed keys</a>.

\* </p>

\*

\* @param aliasName

\* Specifies the alias name. This value must begin with <code>alias/</code> followed by a name, such as

\* <code>alias/ExampleAlias</code>. </p> <important>

```

* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* The <code>AliasName</code> value must be string of 1-256 characters. It can contain only alphanumeric
* characters, forward
slashes (/), underscores (_), and dashes (-). The alias name cannot begin with
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* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#aws-managed-
cmk">Amazon Web
* Services managed keys</a>.
*/
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* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#aws-managed-cmk">Amazon
Web Services
* managed keys</a>.
* </p>
*
* @return Specifies the alias name. This value must begin with <code>alias/</code> followed by a name, such as
* <code>alias/ExampleAlias</code>. </p> <important>
* <p>
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* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#aws-managed-

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cmk">Amazon

Web

- \* Services managed keys</a>.
- \*/

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/CreateAliasRequest.java

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\* and limitations under the License.

\*/

/\*\*

\* <p>

\* A description of the KMS key. The default value is an empty string (no description).

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

\* </p>

\* </important>

\* <p>

\* The description is not a shared property of multi-Region keys. You can specify the same description or a

\* different description for each key in a set of related multi-Region keys. KMS does not synchronize this

property.

\* </p>

\*/

/\*\*

\* <p>

\* A description of the KMS key. The default value is an empty string (no description).

\* </p>

\* <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in

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* CloudTrail logs and other output.
* </p>
* </important>
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* The description is not a shared property of multi-Region keys. You can specify the same description or a
* different description for each key in a set of related multi-Region keys. KMS does not synchronize this
property.
* </p>
*
* @param description
*   A description of the KMS key. The default value is an empty string (no description).</p> <important>
*   <p>
*   Do not include confidential or sensitive information in this field. This field may be displayed in
*   plaintext in CloudTrail logs and other output.
*   </p>
*   </important>
*   <p>
*   The description is not a shared property of multi-Region keys. You can specify the same description or a
*   different description for each key in a set of related multi-Region keys. KMS does not synchronize this
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*/
/**
* <p>
* A description of the KMS key. The default value is an empty string (no description).
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* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
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* </p>
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* @return A description of the KMS key. The default value is an empty string (no description).</p> <important>
*   <p>
*   Do not include confidential or sensitive information in this field. This field may be displayed in
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*   </p>
*   </important>
*   <p>
*   The description is not a shared property of multi-Region keys. You can specify the same description or a
*   different description for each key in a set of related multi-Region keys. KMS does not synchronize this
*   property.
*/

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Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ReplicateKeyRequest.java

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\* and limitations under the License.

\*/

Found in path(s):

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/AlreadyExistsException.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/KeyUnavailableExceptionUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ListGrantsResult.java

\*

/\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/XksProxyConfigurationTypeJsonUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/ListGrantsResultJsonUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/GenerateMacRequestProtocolMarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/XksProxyIncorrectAuthenticationCredentialExceptionUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ListAliasesResult.java

\*

/\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/XksProxyConfigurationTypeMarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/GenerateRandomRequestMarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ImportKeyMaterialRequest.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/CustomKeyStoreHasCMKsExceptionUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ReplicateKeyResult.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/GenerateDataKeyPairWithoutPlaintextRequestProtocolMarshaller.java

\*

/opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/GrantListEntryJsonUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/EnableKeyRotationRequest.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/CustomKeyStoresListEntryJsonUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/GenerateDataKeyResult.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/VerifyRequest.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/MultiRegionKey.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/ConnectCustomKeyStoreResult.java

\*

/opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/GenerateDataKeyPairWithoutPlaintextResult.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/KeyManagerType.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/InvalidKeyUsageException.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/UpdateKeyDescriptionResultJsonUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/GenerateDataKeyPairResult.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/CustomKeyStoreInvalidStateExceptionUnmarshaller.java

\*

/opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/UpdateAliasRequestMarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/TagResourceResult.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/DecryptResult.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/InvalidGrantTokenException.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/InvalidKeyUsageExceptionUnmarshaller.java

\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/CustomKeyStoreNameInUseException.java

\*  
/opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/CloudHsmClusterNotRelatedExceptionUnmarshaller.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/CustomKeyStoreType.java  
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\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/ListKeysResultJsonUnmarshaller.java  
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\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/EnableKeyRotationRequestMarshaller.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/GetPublicKeyRequest.java  
\*  
/opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/DeleteImportedKeyMaterialRequestMarshaller.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/DisableKeyRotationRequestProtocolMarshaller.java  
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\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/XksProxyVpcEndpointServiceInvalidConfigurationExceptionUnmarshaller.java  
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\*

/opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/GetKeyRotationStatusRequestMarshaller.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/ListResourceTagsRequestMarshaller.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/DescribeKeyResult.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/DependencyTimeoutExceptionUnmarshaller.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/AbstractAWSKMS.java  
\* /opt/cola/permits/1696246154\_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-jar/com/amazonaws/services/kms/model/transform/GenerateMacRequestMarshaller.java  
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\*/  
/\*\*  
\* <p>  
\* Specifies the encryption context that will be used when encrypting the data key.  
\* </p>  
\* <important>  
\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

</p>

</important>

<p>

\* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an encryption context is optional, but it is strongly recommended.

</p>

<p>

\* For more information, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption context</a> in the <i>Key Management Service Developer Guide</i>.

</p>

\*/

/\*\*

<p>

\* Specifies the encryption context that will be used when encrypting the data key.

</p>

<important>

<p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in CloudTrail logs and other output.

</p>

</important>

<p>

\* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an encryption context is optional, but it is strongly recommended.

</p>

<p>

\* For more information, see <a href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt\_context">Encryption context</a> in the <i>Key Management Service Developer Guide</i>.

</p>

\*

\* @return Specifies the encryption context that will be used when encrypting the data key.</p> <important>

\* <p>

\* Do not include confidential or sensitive information in this field. This field may be displayed in

```

* plaintext in CloudTrail logs and other output.
* </p>
* </important>
* <p>
* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an
* exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
* only on operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS
keys,
* an encryption context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
*
href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
* context</a> in the <i>Key Management Service Developer Guide</i>.
*/
/**
* <p>
* Specifies the encryption context that will be used when encrypting the data key.
* </p>
* <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in plaintext in
* CloudTrail logs and other output.
* </p>
* </important>
* <p>
* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an exact
* case-sensitive match) encryption context to decrypt the data. An encryption context is supported only on
* operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys, an
encryption
* context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
* href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
context</a>
* in the <i>Key Management Service Developer Guide</i>.
* </p>
*
* @param encryptionContext
* Specifies the encryption context that will be used when encrypting the data key.</p> <important>
* <p>
* Do not include confidential or sensitive information in this field. This field may be displayed in
* plaintext in CloudTrail logs and other output.

```

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* </p>
* </important>
* <p>
* An <i>encryption context</i> is a collection of non-secret key-value pairs that represent additional
* authenticated data. When you use an encryption context to encrypt data, you must specify the same (an
* exact case-sensitive match) encryption context to decrypt the data. An encryption context is supported
* only on
operations with symmetric encryption KMS keys. On operations with symmetric encryption KMS keys,
* an encryption context is optional, but it is strongly recommended.
* </p>
* <p>
* For more information, see <a
*
href="https://docs.aws.amazon.com/kms/latest/developerguide/concepts.html#encrypt_context">Encryption
* context</a> in the <i>Key Management Service Developer Guide</i>.
*/

```

Found in path(s):

```

* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/GenerateDataKeyWithoutPlaintextRequest.java
* /opt/cola/permits/1696246154_1685058429.2953243/0/aws-java-sdk-kms-1-12-469-sources-
jar/com/amazonaws/services/kms/model/GenerateDataKeyRequest.java

```

## 1.387 jmespath-java 1.12.469

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* /opt/cola/permits/1696246160_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/META-
INF/maven/com.amazonaws/jmespath-java/pom.xml

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\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/OpGreaterThanOrEqualTo.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/OpEquals.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/Comparator.java

\*

/opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/OpNotEquals.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathVisitor.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathMultiSelectList.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/InvalidTypeException.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathEvaluationVisitor.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathNotExpression.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathFunction.java

\*

/opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathAndExpression.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/NumericComparator.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathContainsFunction.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathFlatten.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathValueProjection.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/OpGreaterThan.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/CamelCaseUtils.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/OpLessThan.java

\*

/opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathSubExpression.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-jar/com/amazonaws/jmespath/JmesPathField.java

\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-

jar/com/amazonaws/jmespath/JmesPathFilter.java  
\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/OpLessThanOrEqualTo.java  
\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/JmesPathExpression.java  
\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/ObjectMapperSingleton.java  
\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/JmesPathIdentity.java  
\*  
/opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/JmesPathLiteral.java  
\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/JmesPathLengthFunction.java  
\* /opt/cola/permits/1696246160\_1685058365.2427974/0/jmespath-java-1-12-469-sources-  
jar/com/amazonaws/jmespath/JmesPathProjection.java

## 1.388 opentelemetry-sdk 1.24.0

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## 1.391 micronaut-websocket 3.8.8

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\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/WebSocketClientFactory.java  
\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/WebSocketClientFactoryResolver.java  
\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/WebSocketPongMessage.java

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\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/WebSocketVersion.java  
\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/event/WebSocketSessionOpenEvent.java  
\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/CloseReason.java

\*  
\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/event/WebSocketEvent.java  
\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/WebSocketMapping.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/WebSocketComponent.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/event/WebSocketSessionClosedEvent.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/bind/WebSocketStateBinderRegistry.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/interceptor/ClientWebSocketInterceptor.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/OnMessage.java

\*

/opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/OnError.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/exceptions/package-info.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/bind/package-info.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/ServerWebSocket.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/event/WebSocketMessageProcessedEvent.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/WebSocketClient.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/exceptions/WebSocketClientException.java

\*

/opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/WebSocketSession.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/ClientWebSocket.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/package-info.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/bind/WebSocketStateBinder.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/exceptions/WebSocketException.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/event/package-info.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/context/WebSocketBeanRegistry.java

\*

/opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/annotation/OnClose.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/context/package-info.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-jar/io/micronaut/websocket/interceptor/WebSocketSessionAware.java

\* /opt/cola/permits/1701043868\_1685472869.938123/0/micronaut-websocket-3-8-8-sources-

```
jar/io/micronaut/websocket/WebSocketBroadcaster.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/interceptor/package-info.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/bind/WebSocketState.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/annotation/OnOpen.java
*
/opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/context/DefaultWebSocketBeanRegistry.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/exceptions/WebSocketSessionException.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/context/WebSocketBean.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/package-info.java
* /opt/cola/permits/1701043868_1685472869.938123/0/micronaut-websocket-3-8-8-sources-
jar/io/micronaut/websocket/WebSocketClientRegistry.java
```

# 1.392 micronaut-http-server 3.8.8

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```
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/util/locale/HttpLocalizedMessageSource.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/response/HateoasErrorResponseProcessorReplacement.java
```

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```
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/response/ExecutionContext.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/response/Error.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/ExecutableRouteInfo.java
*
/opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/CoroutineHelper.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/response/HateoasErrorResponseProcessor.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/response/ErrorResponseProcessor.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/response/DefaultExecutionContext.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/RouteExecutor.java
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Found in path(s):

- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/ServerStartupException.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/HttpStatusHandler.java
- \*
- /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/HttpServerConfiguration.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/locale/HttpLocaleResolutionConfiguration.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/cors/CorsOriginConfiguration.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/types/files/FileCustomizableResponseType.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/cors/CorsFilter.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/types/files/SystemFile.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/HttpHostResolver.java
- \*
- /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/package-info.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/binding/RequestArgumentSatisfier.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/cors/CorsUtil.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/UnsatisfiedArgumentHandler.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/locale/CookieLocaleResolver.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/DuplicateRouteHandler.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/DefaultHttpClientAddressResolver.java
- \*
- /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/HttpServerException.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/multipart/package-info.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/locale/CompositeHttpLocaleResolver.java
- \* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/cors/package-info.java

\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/locale/RequestLocaleResolver.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/context/package-info.java  
\*  
/opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/ProxyHeaderParser.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/types/files/package-info.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/codec/package-info.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/types/files/StreamedFile.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/InternalServerErrorException.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/binding/package-info.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/JsonExceptionHandler.java  
\*  
/opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/binding/LocaleArgumentBinder.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/websocket/ServerWebSocketProcessor.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/context/ServerRequestContextInstrumentation.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/package-info.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/cors/CorsOriginConverter.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/multipart/MultipartBody.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/package-info.java  
\*  
/opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/locale/HttpFixedLocaleResolver.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/locale/HttpLocaleResolver.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/ExceptionHandler.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/types/CustomizableResponseTypeException.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/util/HttpClientAddressResolver.java  
\* /opt/cola/permits/1701043707\_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-jar/io/micronaut/http/server/exceptions/ConversionErrorHandler.java  
\*



```

/opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/types/CustomizableResponseType.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/util/locale/package-info.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/util/locale/HttpAbstractLocaleResolver.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/util/DefaultHttpHostResolver.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/URISyntaxHandler.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/codec/TextStreamCodec.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/UnsatisfiedRouteHandler.java
*
/opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/context/ServerRequestContextInvocationInstrumenter.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/types/package-info.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/exceptions/ContentLengthExceededHandler.java
* /opt/cola/permits/1701043707_1685472913.2929564/0/micronaut-http-server-3-8-8-sources-
jar/io/micronaut/http/server/binding/BasicAuthArgumentBinder.java

```

## 1.393 st4 4.3.2

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```
<name>The BSD License</name>
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Found in path(s):

```
* /opt/cola/permits/1701043782_1685472652.224027/0/st4-4-3-2-jar/META-INF/maven/org.antlr/ST4/pom.xml
```

## 1.394 micronaut-validation 3.8.8

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```
* /opt/cola/permits/1701043553_1685472686.5748956/0/micronaut-validation-3-8-8-jar/META-INF/native-
```

image/io.micronaut.validation/micronaut-validation/native-image.properties

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Found in path(s):

\* /opt/cola/permits/1701043553\_1685472686.5748956/0/micronaut-validation-3-8-8-jar/META-INF/maven/io.micronaut/micronaut-validation/pom.xml

## 1.395 micronaut-core-reactive 3.8.8

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\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/META-INF/native-image/io.micronaut/micronaut-core-reactive/native-image.properties

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\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io.micronaut/core/async/subscriber/package-info.java

\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io.micronaut/core/async/subscriber/SingleThreadedBufferingSubscriber.java

\*

/opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/package-info.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/publisher/CompletableFuturePublisher.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/processor/package-info.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/subscriber/Completable.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/publisher/SingleSubscriberPublisher.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/publisher/AsyncSingleResultPublisher.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/processor/SingleSubscriberProcessor.java  
\*  
/opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/subscriber/TypedSubscriber.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/publisher/package-info.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/processor/SingleThreadedBufferingProcessor.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/subscriber/CompletionAwareSubscriber.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/annotation/SingleResult.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/subscriber/Emitter.java  
\* /opt/cola/permits/1701043813\_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-jar/io/micronaut/core/async/publisher/Publishers.java  
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```
* /opt/cola/permits/1701043813_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-
jar/io/micronaut/core/async/publisher/PublishersOptimizations.java
* /opt/cola/permits/1701043813_1685472430.680824/0/micronaut-core-reactive-3-8-8-sources-
jar/io/micronaut/core/async/ReactiveStreamsTypeInfoProvider.java
```

## 1.396 micronaut-context 3.8.8

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*MapClaims.java
* Note: rewritten to standard Java 8 DateTime by zemiak (c) 2016
* Forked from: https://github.com/frode-carlsen/cron
*/
```

Found in path(s):

```
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/cron/CronExpression.java
```

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\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/event/AbstractEmbeddedApplicationEvent.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/event/ApplicationStartupEvent.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/converters/time/TimeConverterRegistrar.java

\*

/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/TaskExecutors.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/executor/IOExecutorServiceConfig.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/env/ConfigurationAdvice.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/annotation/package-info.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/TaskScheduler.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/env/package-info.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/scope/package-info.java

\*

/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/InvocationInstrumenterFactory.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/Micronaut.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/annotation/Scheduled.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/package-info.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/MultipleInvocationInstrumenter.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/server/event/ServerShutdownEvent.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/event/annotation/EventListener.java

\*

/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/scope/ScopedProxy.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/NoopInstrumentation.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/server/event/package-info.java

\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-

```

jar/io/micronaut/scheduling/ScheduledExecutorTaskScheduler.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/ExecutorSelector.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/exceptions/TaskExecutionException.java
*
/opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/context/scope/refresh/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/EmbeddedApplication.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/processor/ScheduledMethodProcessor.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/instrument/InstrumentedExecutorService.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/context/scope/ThreadLocalCustomScope.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/converters/reactive/package-info.java
*
/opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/context/scope/Refreshable.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/UserExecutorConfiguration.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/TaskExceptionHandler.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/DefaultTaskExceptionHandler.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/instrument/Instrumentation.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/io/watch/FileWatchConfiguration.java
*
/opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/io/watch/event/WatchEventType.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/server/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/context/CompositeMessageSource.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/event/ApplicationShutdownEvent.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/event/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/package-info.java

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* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/NamedThreadFactory.java
*
/opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/async/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/exceptions/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/instrument/ExecutorServiceInstrumenter.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/io/watch/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/io/watch/event/FileChangedEvent.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/context/scope/ThreadLocal.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/DefaultThreadFactory.java
*
/opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/event/annotation/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/exceptions/ApplicationStartupException.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/io/watch/DefaultWatchThread.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/DefaultExecutorSelector.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/ApplicationConfiguration.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/io/watch/FileWatchCondition.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/converters/time/package-info.java
*
/opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/executor/ScheduledExecutorServiceConfig.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/instrument/InvocationInstrumenterWrappedRunnable.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/exceptions/package-info.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/instrument/InvocationInstrumenterWrappedCallable.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/runtime/context/scope/refresh/RefreshScope.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/annotation/ExecuteOn.java
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-
jar/io/micronaut/scheduling/annotation/Async.java
*

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/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/io/watch/WatchServiceFactory.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/async/AsyncInterceptor.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/scope/refresh/RefreshInterceptor.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/io/watch/event/package-info.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/ReactiveInvocationInstrumenterFactory.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/env/ConfigurationIntroductionAdvice.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/server/event/ServerStartupEvent.java  
\*  
/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/context/scope/refresh/RefreshEvent.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/annotation/Schedules.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/processor/package-info.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/exceptions/SchedulerConfigurationException.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/executor/ExecutorType.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/cron/package-info.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/InstrumentedExecutor.java  
\*  
/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/InvocationInstrumenter.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/runtime/server/EmbeddedServer.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/executor/ExecutorFactory.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/RunnableInstrumenter.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/NextFireTime.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/executor/ThreadSelection.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/ReschedulingTask.java  
\*  
/opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-jar/io/micronaut/scheduling/instrument/InstrumentedScheduledExecutorService.java  
\* /opt/cola/permits/1701043789\_1685703605.0879838/0/micronaut-context-3-8-8-sources-



jar/io/micronaut/scheduling/executor/ExecutorConfiguration.java  
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* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-  
jar/io/micronaut/runtime/context/scope/refresh/RefreshEventListener.java  
* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-  
jar/io/micronaut/runtime/converters/reactive/ReactiveTypeConverterRegistrar.java
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* /opt/cola/permits/1701043789_1685703605.0879838/0/micronaut-context-3-8-8-sources-  
jar/io/micronaut/runtime/server/watch/event/FileWatchRestartListener.java
```

# 1.397 dropwizard-core 2.1.2

## 1.397.1 Available under license :

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# 1.398 aws-java-sdk-core 1.12.326

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jar/com/amazonaws/ImmutableRequest.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/RequestSigner.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/SignerAsRequestSigner.java
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jar/com/amazonaws/transform/EnhancedJsonErrorUnmarshaller.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/ReflectionMethodInvoker.java  
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jar/com/amazonaws/handlers/AsyncHandler.java  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/SdkRequestRetryHeaderProvider.java

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jar/com/amazonaws/util/BinaryUtils.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/util/DateUtils.java
*
/opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/util/Classes.java
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jar/com/amazonaws/internal/SdkSSLContext.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/annotation/package-info.java
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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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jar/com/amazonaws/protocol/json/internal/JsonProtocolMarshaller.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/http/IonErrorCodeParser.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/http/CompositeErrorCodeParser.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/LegacyRegionXmlMetadataBuilder.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/InMemoryRegionImpl.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/SimpleTypeCborUnmarshallers.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/RegionMetadataFactory.java  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/ImmutableMapParameter.java  
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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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jar/com/amazonaws/util/ClassLoaderHelper.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/jmx/spi/JmxInfoProvider.java
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/opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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jar/com/amazonaws/protocol/json/JsonParser.java  
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jar/com/amazonaws/transform/SimpleTypeJsonUnmarshallers.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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jar/com/amazonaws/util/URLEncodedUtils.java  
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jar/com/amazonaws/util/BasicNameValuePair.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/config/HttpClientConfig.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/monitoring/ProfileCsmConfigurationProvider.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/PredefinedRetryPolicies.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/waiters/SdkFunction.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/monitoring/ApiMonitoringEvent.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/endpointdiscovery/EndpointDiscoveryProvider.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/monitoring/ApiCallMonitoringEvent.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/monitoring/internal/AgentMonitoringListener.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/NamespaceRemovingInputStream.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/DefaultServiceEndpointBuilder.java

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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/util/TimestampFormat.java
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- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/SdkHttpUtils.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/timers/client/ClientExecutionAbortTask.java
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- /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/conn/SdkConnectionKeepAliveStrategy.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/UriResourcePathUtils.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/Base16Lower.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/DelegateInputStream.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/timers/request/HttpRequestAbortTask.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/log/InternalLog.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/NumberUtils.java
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- /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/SystemDefaultDnsResolver.java
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- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/SdkThreadLocals.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/timers/client/ClientExecutionTimer.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/JavaVersionParser.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/ReadLimitInfo.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/SdkMetricsSocket.java

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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/endpoint/RegionFromEndpointResolver.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/MetadataSupportedRegionFromEndpointProvider.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/endpoint/DefaultRegionFromEndpointResolver.java

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Found in path(s):

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/SyncProgressListener.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/DeliveryMode.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/securitytoken/ProfileCredentialsService.java  
\*  
/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/ProcessCredentialsProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/internal/AWS4SignerUtils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/securitytoken/STSProfileCredentialsServiceProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/ResponseProgressInputStream.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/BoundedLinkedHashMap.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/ProfileProcessCredentialsProvider.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/SdkInputStream.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/BasicProfileConfigLoader.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/SDKProgressPublisher.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/ProfileCredentialsProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/Releasable.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/UnreliableTestConfig.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/request/ProgressSupport.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/DelegateSSLSocket.java

\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/LengthCheckInputStream.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/AbstractProfilesConfigFileScanner.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/UnreliableFilterInputStream.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/Profile.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/ProgressTracker.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/SdkSocket.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/FIFOCache.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/internal/SignerKey.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/RequestProgressInputStream.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/securitytoken/STSPProfileCredentialsServiceLoader.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/request/Progress.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/ProgressEventFilter.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/SdkSSLSocket.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/Platform.java

\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/internal/SignerConstants.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/ProfilesConfigFile.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/ProfilesConfigFileWriter.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/package-info.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/internal/AWS4SignerRequestParams.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/event/ProgressInputStream.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/securitytoken/RoleInfo.java

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```
*/opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/util/HostnameValidator.java
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 */
```

```
/**
 * Interface for providing AWS region information. Implementations are free to use any strategy for
 * providing region information.
 */
```

Found in path(s):

```
*/opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/regions/AwsRegionProvider.java
```

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/HttpMethodName.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/SignatureVersion.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/Unmarshaller.java  
\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/AmazonClientException.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/SigningAlgorithm.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/VoidUnmarshaller.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/XmlUtils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/AWSCredentials.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/SimpleTypeUnmarshallers.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/LegacyErrorUnmarshaller.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonContentTypeResolverImpl.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/Protocol.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/SdkJsonGenerator.java

\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonErrorResponseMetadata.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/StaticSignerProvider.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/ProfileKeyConstants.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/AwsAsyncClientParams.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/MarshallerRegistry.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/ClientExecutionParams.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/JsonMarshaller.java

\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/profile/path/AwsProfileFileLocationProvider.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/V2CompatibleBackoffStrategy.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/AwsProfileNameLoader.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/StringInputStream.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonOperationMetadata.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/RetryCondition.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/SimpleTypePathMarshallers.java

\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/SdkClock.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/DefaultValueSupplier.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/profile/path/AwsProfileFileLocationProviderChain.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/profile/path/config/SharedConfigDefaultLocationProvider.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/builder/AwsClientBuilder.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/SdkHttpMetadata.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/ProfileStaticCredentialsProvider.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/ValueToStringConverters.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/ClientHandler.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/MaxNumberOfRetriesCondition.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/presign/PresignerParams.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/StructuredPojo.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonClientMetadata.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/MapUnmarshaller.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/ClientHandlerParams.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/MarshallLocation.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/response/AwsResponseHandlerAdapter.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/RetryPolicy.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/ProtocolMarshaller.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/OperationInfo.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/profile/path/AwsDirectoryBasePathProvider.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/builder/AwsSyncClientBuilder.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/EmptyBodyJsonMarshaller.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/InstanceMetadataRegionProvider.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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jar/com/amazonaws/profile/path/cred/CredentialsEnvVarOverrideLocationProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/auth/profile/internal/AllProfiles.java  
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jar/com/amazonaws/regions/AwsSystemPropertyRegionProvider.java  
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jar/com/amazonaws/protocol/DefaultMarshallingType.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/retry/v2/RetryOnStatusCodeCondition.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/auth/profile/internal/BasicProfile.java  
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jar/com/amazonaws/profile/path/config/ConfigEnvVarOverrideLocationProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/AmazonWebServiceResult.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/profile/path/cred/CredentialsLegacyConfigLocationProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/RequestConfig.java  
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jar/com/amazonaws/protocol/MarshallingType.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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jar/com/amazonaws/retry/v2/SimpleRetryPolicy.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/transform/ListUnmarshaller.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/protocol/ProtocolRequestMarshaller.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/http/timers/client/SdkInterruptedException.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonContentTypeResolver.java  
\*  
/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/PredefinedBackoffStrategies.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/AwsProfileRegionProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/PathMarshallers.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/transform/AbstractErrorUnmarshaller.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/SimpleTypeJsonMarshallers.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/HeaderMarshallers.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/SdkStructuredJsonFactoryImpl.java  
\*  
/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/JsonMarshallerContext.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/AWSRefreshableSessionCredentials.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/builder/ExecutorFactory.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/SdkBaseException.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/TimingInfoFullSupport.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/ClientHandlerImpl.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/RetryPolicyAdapter.java  
\*  
/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/RetryOnExceptionsCondition.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/MarshallingInfo.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/StaticCredentialsProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonErrorShapeMetadata.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/AwsEnvVarOverrideRegionProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/EndpointToRegion.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/AWSStaticCredentialsProvider.java  
\*

/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/SdkJsonMarshallerFactory.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/presign/PresignerFacade.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/ClientConfigurationFactory.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/profile/path/cred/CredentialsDefaultLocationProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/SdkClientException.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/AndRetryCondition.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/TimingInfo.java  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonProtocolMarshallerBuilder.java  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/internal/QueryParamMarshallers.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/profile/internal/ProfileAssumeRoleCredentialsProvider.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/AwsErrorResponseHandler.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/JsonContent.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/AmazonWebServiceRequestAdapter.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/client/builder/AwsAsyncClientBuilder.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/FixedDelayBackoffStrategy.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/retry/v2/OrRetryCondition.java  
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jar/com/amazonaws/http/conn/ssl/TLSProtocol.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/http/conn/ssl/SdkTLSSocketFactory.java

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jar/com/amazonaws/util/Base16Codec.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/Base64Codec.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/jmx/MBeans.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/jmx/SdkMBeanRegistrySupport.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/ResetException.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/internal/MetricsInputStream.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/internal/SdkFilterInputStream.java  
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jar/com/amazonaws/util/EncodingScheme.java  
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jar/com/amazonaws/AbortedException.java  
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jar/com/amazonaws/util/CodecUtils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/auth/AWS4Signer.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/regions/RegionMetadata.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/AbstractBase32Codec.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/IUtils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/internal/SdkBufferedInputStream.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/internal/SdkFilterOutputStream.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/regions/Region.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/internal/MetricAware.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/auth/ServiceAwareSigner.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/Base64.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/Base16.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/HttpClientWrappingInputStream.java  
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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/SdkRuntime.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/util/EC2MetadataUtils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/regions/RegionUtils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/regions/RegionMetadataParser.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/internal/ListWithAutoConstructFlag.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/SdkDigestInputStream.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/Codec.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/Throwables.java

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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/conn/ssl/ShouldClearSslSessionPredicate.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/FakeIOException.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/DateTimeJsonSerializer.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/handlers/IRequestHandler2.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/CanHandleNullCredentials.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/apache/client/impl/ConnectionManagerAwareHttpClient.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/IdempotentUtils.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/apache/client/impl/ApacheConnectionFactory.java

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/apache/client/impl/HttpClientFactory.java

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/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/log/InternalLogFactory.java

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* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/protocol/json/SdkStructuredJsonFactory.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/util/CapacityManager.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/http/timers/package-info.java
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```
*/
```

```
/**
```

```
* Interface for providing AWS credentials. Implementations are free to use any
```

```
* strategy for providing AWS credentials, such as simply providing static
```

```
* credentials that don't change, or more complicated implementations, such as
```

```
* integrating with existing key management systems.
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```
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/adapters/types/StringToByteBufferAdapter.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/adapters/types/TypeAdapter.java
- \*
- /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/auth/NoOpSignerProvider.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/auth/SignerProviderContext.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/adapters/types/StringToInputStreamAdapter.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/auth/DefaultSignerProvider.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/MetadataCache.java
- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/internal/auth/SignerProvider.java

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- \* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/util/JodaTime.java

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jar/com/amazonaws/http/apache/Utils/Utils.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-  
jar/com/amazonaws/http/apache/request/impl/HttpRequestFactory.java  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/SdkStructuredCborFactory.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/SdkStructuredPlainJsonFactory.java  
\*  
/opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/StructuredJsonGenerator.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/protocol/json/SdkJsonProtocolFactory.java  
\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/http/JsonResponseHandler.java  
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\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/regions/Regions.java

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jar/com/amazonaws/retry/RetryMode.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/internal/TokenBucket.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/internal/EC2ResourceFetcher.java
*
/opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/ContainerCredentialsProvider.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/internal/CredentialsEndpointProvider.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/internal/InstanceMetadataServiceResourceFetcher.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/retry/internal/CredentialsEndpointRetryParameters.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/internal/ConnectionUtils.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/BaseCredentialsFetcher.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
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*
/opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/retry/internal/CredentialsEndpointRetryPolicy.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/ContainerCredentialsRetryPolicy.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/EC2ContainerCredentialsProviderWrapper.java
* /opt/cola/permits/1701043743_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-
jar/com/amazonaws/auth/EndpointPrefixAwareSigner.java
```

\* /opt/cola/permits/1701043743\_1685472903.889025/0/aws-java-sdk-core-1-12-326-sources-jar/com/amazonaws/auth/ContainerCredentialsFetcher.java

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**CONTRIBUTORS:**

YYYY/MM/DD, github id, Full name, email  
2012/07/12, parrt, Terence Parr, parrt@antlr.org  
2012/09/18, sharwell, Sam Harwell, sam@tunnelvisionlabs.com  
2012/10/10, stephengaito, Stephen Gaito, stephen@perceptsys.co.uk  
2012/11/23, maguro, Alan Cabrera, adc@toolazydogs.com  
2013/01/29, metadave, Dave Parfitt, diparfitt@gmail.com  
2013/03/06, bkiers, Bart Kiers, bkiers@gmail.com  
2013/08/20, cayhorstmann, Cay Horstmann, cay@horstmann.com

2014/03/18, aphyr, Kyle Kingsbury, aphyr@aphyr.com  
2014/06/07, ericvergnaud, Eric Vergnaud, eric.vergnaud@wanadoo.fr  
2014/07/04,  
jimidle, Jim Idle, jimi@Idle.ws  
2014/01/01, danmclaughlin, Dan McLaughlin, dan.mclaughlin@gmail.com  
2014/09/04, jeduden, Jan-Eric Duden, jeduden@gmail.com  
2014/09/27, petrbel, Petr Blohlvek, antlr@petrbel.cz  
2014/10/18, sergiusignacius, Srgio Silva, serge.a.silva@gmail.com  
2014/10/26, bdkearns, Brian Kearns, bdkearns@gmail.com  
2014/10/27, michaelpj, Michael Peyton Jones, michaelpj@gmail.com  
2015/01/29, TomLottermann, Thomas Lottermann, tomlottermann@gmail.com  
2015/02/15, pavlo, Pavlo Lysov, pavlikus@gmail.com  
2015/03/07, RedTailedHawk, Lawrence Parker, larry@answerrocket.com  
2015/04/03, rljacobson, Robert Jacobson, rljacobson@gmail.com  
2015/04/06, ojakubcik, Ondrej Jakubcik, ojakubcik@gmail.com  
2015/04/29, jszheng, Jinshan Zheng, zheng\_js@hotmail.com  
2015/05/08, ViceIce, Michael Kriese, michael.kriese@gmx.de  
2015/05/09, lkraz, Luke Krasnoff, luke.krasnoff@gmail.com  
2015/05/12, Pursuit92, Josh Chase, jcjoshuachase@gmail.com  
2015/05/20, peturingi, Ptur Ingi Egilsson,  
petur@petur.eu  
2015/05/27, jcbriinfo, Jean-Christophe Beaur, jcbriinfo@users.noreply.github.com  
2015/06/29, jvanzyl, Jason van Zyl, jason@takari.io  
2015/08/18, krzkaczor, Krzysztof Kaczor, krzysztof@kaczor.io  
2015/09/18, worsht, Rajiv Subrahmanyam, rajiv.public@gmail.com  
2015/09/24, HSorensen, Henrik Sorensen, henrik.b.sorensen@gmail.com  
2015/10/06, brwml, Bryan Wilhelm, bryan.wilhelm@microsoft.com  
2015/10/08, fedotovalex, Alex Fedotov, me@alexfedotov.com  
2015/10/12, KvanTTT, Ivan Kochurkin, ivan.kochurkin@gmail.com  
2015/10/21, martin-probst, Martin Probst, martin-probst@web.de  
2015/10/21, hkff, Walid Benghabrit, walid.benghabrit@mines-nantes.fr  
2015/11/12, cooperra, Robbie Cooper, cooperra@users.noreply.github.com  
2015/11/25, abego, Udo Borkowski, ub@abego.org  
2015/12/17, sebadur, Sebastian Badur, sebadur@users.noreply.github.com  
2015/12/23, pboyer, Peter Boyer, peter.b.boyer@gmail.com  
2015/12/24, dtymon, David Tymon, david.tymon@gmail.com  
2016/02/18, reitzig, Raphael Reitzig, reitzig[at]cs.uni-kl.de  
2016/03/10,  
mike-lischke, Mike Lischke, mike@lischke-online.de  
2016/03/27, beardlybread, Bradley Steinbacher, bradley.j.steinbacher@gmail.com  
2016/03/29, msteiger, Martin Steiger, antlr@martin-steiger.de  
2016/03/28, gagern, Martin von Gagern, gagern@ma.tum.de  
2016/07/10, twz123, Tom Wiczorek, tom.wiczorek@zalando.de  
2016/07/20, chrisheller, Chris Heller, chris.heller.greyheller@gmail.com  
2016/07/20, nburles, Nathan Burles, nburles@gmail.com  
2016/07/20, kosl90, Li Liqiang, kosl9901@gmail.com  
2016/07/27, timoc, Tim O'Callaghan, timo@linux.com  
2016/07/26, nic30, Michal Orsk, michal.o.socials@gmail.com

2016/07/18, willfaught, Will Faught, will.faught@gmail.com  
2016/08/08, wjkohnen, Wolfgang Johannes Kohnen, wjkohnen-go-antr@ko-sys.com  
2016/08/11, BurtHarris, Ralph "Burt" Harris, Burt\_Harris\_antr4@azxs.33mail.com  
2016/08/19, andjo403, Andreas Jonson, andjo403@hotmail.com  
2016/09/27, harriman, Kurt Harriman, harriman@acm.org  
2016/10/13, cgudrian, Christian Gudrian, christian.gudrian@gmx.de  
2016/10/13,  
nielsbasjes, Niels Basjes, niels@basjes.nl  
2016/10/21, FloorGoddijn, Floor Goddijn, floor.goddijn[at]aimms.com  
2016/11/01, RYDB3RG, Kai Stammerjohann, RYDB3RG@users.noreply.github.com  
2016/11/05, runner-mei, meifakun, runner.mei@gmail.com  
2016/11/15, hanjoes, Hanzhou Shi, hanzhou87@gmail.com  
2016/11/16, sridharxp, Sridharan S, aurosridhar@gmail.com  
2016/11/06, NoodleOfDeath, Thom Morgan, github@bytemeapp.com  
2016/11/01, sebkur, Sebastian Krten, sebastian@topobyte.de  
2016/04/13, renatahodovan, Renata Hodovan, reni@inf.u-szeged.hu  
2016/11/05, ewanmellor, Ewan Mellor, github@ewanmellor.org  
2016/11/06, janyou, Janyou, janyou.antr@outlook.com  
2016/11/20, marcohu, Marco Hunsicker, antr@hunsicker.de  
2016/09/02, lygav, Vladimir (Vladi) Lyga, lyvladi@gmail.com  
2016/09/23, ghosthope, Dmitry Shakhtanov, sudstrike@gmail.com  
2016/11/25, MrSampson, Oliver Sampson, olsam@quickaudio.com  
2016/11/29, millergarym, Gary Miller, miller.garym@gmail.com  
2016/11/29, wxio, Gary  
Miller, gm@wx.io  
2016/11/29, Naios, Denis Blank, naios@users.noreply.github.com  
2016/12/01, samtatasurya, Samuel Tatasurya, xemradiant@gmail.com  
2016/12/03, redxdev, Samuel Bloomberg, sam@redxdev.com  
2016/12/11, Gaulouis, Gaulouis, gaulouis.com@gmail.com  
2016/12/22, akosthekiss, Akos Kiss, akiss@inf.u-szeged.hu  
2016/12/24, adrpo, Adrian Pop, adrian.pop@liu.se  
2017/01/11, robertbrignull, Robert Brignull, robertbrignull@gmail.com  
2017/01/13, marcelo-rocha, Marcelo Rocha, mcrocha@gmail.com  
2017/01/23, bhamiltoncx, Ben Hamilton, bhamiltoncx+antr@gmail.com  
2017/01/18, mshockwave, Bekket McClane, yihshyng223@gmail.com  
2017/02/10, lionelplessis, Lionel Plessis, lionelplessis@users.noreply.github.com  
2017/02/14, lecode-official, David Neumann, david.neumann@lecode.de  
2017/02/14, xied75, Dong Xie, xied75@gmail.com  
2017/02/20, Thomasb81, Thomas Burg, thomasb81@gmail.com  
2017/02/26, jvasileff, John Vasileff, john@vasileff.com  
2017/03/08, harry-tallbelt, Igor Vysokopoyasny, harry.tallbelt@gmail.com  
2017/03/09,  
teverett, Tom Everett, tom@khubla.com  
2017/03/03, chund, Christian Hund, christian.hund@gmail.com  
2017/03/15, robertvanderhulst, Robert van der Hulst, robert@xsharp.eu  
2017/03/28, cmd-johnson, Jonas Auer, jonas.auer.94@gmail.com  
2017/04/12, lys0716, Yishuang Lu, luyscmu@gmail.com  
2017/04/30, shravanrn, Shravan Narayan, shravanrn@gmail.com



2017/05/11, jimallman, Jim Allman, jim@ibang.com  
2017/05/26, waf, Will Fuqua, wafuqua@gmail.com  
2017/05/29, kosak, Corey Kosak, kosak@kosak.com  
2017/06/11, erikbra, Erik A. Brandstadmoen, erik@brandstadmoen.net  
2017/06/10, jm-mikkelsen, Jan Martin Mikkelsen, janm@transactionware.com  
2017/06/25, alimg, Alim Gkkaya, alim.gokkaya@gmail.com  
2017/06/28, jBugman, Sergey Parshukov, codedby@bugman.me  
2017/07/09, neatnerd, Mike Arshinskiy, neatnerd@users.noreply.github.com  
2017/07/11, dhalperi, Daniel Halperin, daniel@halper.in  
2017/07/17, vaibhavaingankar09, Vaibhav Vaingankar, vbhvvaingankar9@gmail.com  
2017/07/23, venkatperi, Venkat Peri, venkatperi@gmail.com  
2017/07/27,  
shirou, WAKAYAMA Shirou, shirou.faw@gmail.com  
2017/07/09, neatnerd, Mike Arshinskiy, neatnerd@users.noreply.github.com  
2017/07/27, matthauck, Matt Hauck, matthauck@gmail.com  
2017/07/27, shirou, WAKAYAMA Shirou, shirou.faw@gmail.com  
2017/08/20, tiagomazzutti, Tiago Mazzutti, tiagomzt@gmail.com  
2017/08/20, milanaleksic, Milan Aleksic, milanaleksic@gmail.com  
2017/08/29, Eddy Reyes, eddy@mindsight.io  
2017/09/09, brauliobz, Brulio Bezerra, brauliobezerra@gmail.com  
2017/09/11, sachinjain024, Sachin Jain, sachinjain024@gmail.com  
2017/09/25, kaedvann, Rostislav Listerenko, r.listerenko@gmail.com  
2017/10/06, bramp, Andrew Brampton, brampton@gmail.com  
2017/10/15, simkimsia, Sim Kim Sia, kimcity@gmail.com  
2017/10/27, Griffon26, Maurice van der Pot, griffon26@kfk4ever.com  
2017/05/29, rlfnb, Ralf Neeb, rlfnb@rlfnb.de  
2017/10/29, gendalph, , Maxim\dotProhorenko@gm@il.com  
2017/11/02, jasonmoo, Jason Mooberry, jason.mooberry@gmail.com  
2017/11/05, ajaypanyala, Ajay Panyala,  
ajay.panyala@gmail.com  
2017/11/24, zqlu.cn, Zhiqiang Lu, zqlu.cn@gmail.com  
2017/11/28, niccroad, Nicolas Croad, nic.croad@gmail.com  
2017/12/01, DavidMoraisFerreira, David Morais Ferreira, david.moraisferreira@gmail.com  
2017/12/01, SebastianLng, Sebastian Lang, sebastian.lang@outlook.com  
2017/12/03, oranoran, Oran Epelbaum, oran / epelbaum me  
2017/12/12, janlinde, Jan Lindemann, jan@janware.com  
2017/12/13, enessoylu, Enes Soyly, enessoylutr@gmail.com  
2017/12/20, kbsletten, Kyle Sletten, kbsletten@gmail.com  
2017/12/27, jkmar, Jakub Marciszyn, marciniszyn.jk@gmail.com  
2018/03/08, dannoc, Daniel Clifford, dannoc@google.com  
2018/03/10, uvguy, kangjoni76@gmail.com  
2018/01/06, kasbah, Kaspar Emanuel, kaspar@monostable.co.uk  
2018/01/15, xgcssh, Snke Schau, xgcssh@users.noreply.github.com  
2018/02/08, razfriman, Raz Friman, raz@razfriman.com  
2018/02/11, io7m, Mark Raynsford, code@io7m.com  
2018/04/24, solusssd, Joe Smith, joe@uwcreations.com  
2018/15/05, johnvanderholt, jan dillingh johnvanderholte@gmail.com  
2018/06/14,

scadgek, Sergey Chupov, scadgek@live.com  
2018/06/16, EternalPhane, Zongyuan Zuo, eternalphane@gmail.com  
2018/06/27, wu-sheng, Wu Sheng, wu.sheng@foxmail.com  
2018/02/25, chaseoxide, Marcus Ong, taccs97[at]gmail[dot]com  
2018/05/15, johnvanderholt, jan dillingh johnvanderholte@gmail.com  
2018/06/16, EternalPhane, Zongyuan Zuo, eternalphane@gmail.com  
2018/05/15, johnvanderholt, jan dillingh johnvanderholte@gmail.com  
2018/05/17, sinopsysHK, Eric Bardes, sinofwd@gmail.com  
2018/05/23, srvance, Stephen Vance, steve@vance.com  
2018/06/14, alecont, Alessandro Contenti, alecontenti@hotmail.com  
2018/06/16, EternalPhane, Zongyuan Zuo, eternalphane@gmail.com  
2018/07/03, jgoppert, James Goppert, james.goppert@gmail.com  
2018/07/27, Maksim Novikov, mnovikov.work@gmail.com  
2018/08/03, ENDOH takanao, djmchl@gmail.com  
2018/10/08, xsIceman, Andreas Skaar, andreas.skaar@gmail.com  
2018/10/18, edirgarcia, Edir Garca Lazo, edirgl@hotmail.com  
2018/07/31, Lucas Henrquie, lucashenrique580@gmail.com  
2018/08/03,  
ENDOH takanao, djmchl@gmail.com  
2018/10/29, chrisaycock, Christopher Aycock, chris[at]chrisaycock[dot]com  
2018/11/12, vinoski, Steve Vinoski, vinoski@ieee.org  
2018/11/14, nxtstep, Adriaan (Arjan) Duz, codewithadriaan[et]gmail[dot]com  
2018/11/15, amykyta3, Alex Mykyta, amykyta3@users.noreply.github.com  
2018/11/29, hannemann-tamas, Ralf Hannemann-Tamas, ralf.ht@gmail.com  
2018/12/20, WalterCouto, Walter Couto, WalterCouto@users.noreply.github.com  
2018/12/23, youkaichao, Kaichao You, youkaichao@gmail.com  
2019/01/01, khoroshilov, Alexey Khoroshilov, khoroshilov@ispras.ru  
2019/01/02, wkhemir, Wail Khemir, khemirwail@gmail.com  
2019/01/16, kuegi, Markus Zancolo, markus.zancolo@roomle.com  
2019/01/29, hc-codersatlas, Harry Chan, harry.chan@codersatlas.com  
2019/02/06, ralucado, Cristina Raluca Vijulie, ralucris.v[at]gmail[dot]com  
2019/02/23, gedimitr, Gerasimos Dimitriadis, gedimitr@gmail.com  
2019/03/13, base698, Justin Thomas, justin.thomas1@gmail.com  
2019/03/18, carlodri,  
Carlo Dri, carlo.dri@gmail.com  
2019/05/02, askingalot, Andy Collins, askingalot@gmail.com  
2019/05/13, mapio, Massimo Santini, massimo.santini@gmail.com  
2019/07/11, olowo726, Olof Wolgast, olof@baah.se  
2019/07/16, abhijithneilabraham, Abhijith Neil Abraham, abhijithneilabrahampk@gmail.com  
2019/07/26, Braavos96, Eric Hettiaratchi, erichettiaratchi@gmail.com  
2019/08/02, thron7, Thomas Herchenroeder, thron7[at]users[dot]sourceforge[dot]net  
2019/08/12, easonlin404, Eason Lin, easonlin404@gmail.com  
2019/08/23, akaJes, Oleksandr Mamchyts, akaJes@gmail.com  
2019/08/27, wurzelpeter, Markus Franke, markus[hyphen]franke[at]web[dot]de  
2019/09/10, ImanHosseini, Iman Hosseini, hosseini.iman@yahoo.com  
2019/09/03, Joo Henrique, johnnyonflame@hotmail.com  
2019/09/10, neko1235, Ihar Mokharau, igor.mohorev@gmail.com  
2019/09/10, yar3333, Yaroslav Sivakov, yar3333@gmail.com

2019/09/10, marcospassos, Marcos Passos, marcospassos.com@gmail.com  
2019/09/10, amorimjuliana, Juliana Amorim, juu.amorim@gmail.com  
2019/09/15,  
sullis, Sean Sullivan, github@seansullivan.com  
2019/09/17, kaz, Kazuki Sawada, kazuki@6715.jp  
2019/09/28, lmy269, Mingyang Liu, lmy040758@gmail.com  
2019/10/29, tehbone, Tabari Alexander, tehbone@gmail.com  
2019/10/31, a-square, Alexei Averchenko, lex.aver@gmail.com  
2019/11/05, listba, Ben List, ben.list89@gmail.com  
2019/11/11, foxeverl, Liu Xinfeng, liuxf1986[at]gmail[dot]com  
2019/11/17, felixn, Felix Nieuwenhuizen, felix@tdlrli.com  
2019/11/18, mlilback, Mark Lilback, mark@lilback.com  
2020/01/19, lingyv-li, Lingyu Li, lingyv.li@gmail.com  
2020/02/02, carocad, Camilo Roca, carocad@unal.edu.co  
2020/02/10, julibert, Julin Bermdez Ortega, julibert.dev@gmail.com  
2020/02/17, quantumsheep, Nathanael Demacon, nathanael.dmc@outlook.fr  
2020/02/21, StochasticTinkr, Daniel Pitts, github@coloraura.com  
2020/03/17, XsongyangX, Song Yang, songyang1218@gmail.com  
2020/04/07, deniskyashif, Denis Kyashif, denis.kyashif@gmail.com  
2020/04/08, lwehmeier, Leon Wehmeier, wehmeier@st.ovgu.de  
2020/04/10,  
agrabski, Adam Grabski, adam.gr@outlook.com  
2020/04/23, martinvw, Martin van Wingerden, martin@martinvw.nl  
2020/04/23, kaczmarj, Jakub Kaczmarzyk, jakub.kaczmarzyk@stonybrookmedicine.edu  
2020/04/30, TristonianJones, Tristan Swadell, tswadell@google.com  
2020/05/06, iammosespaulr, Moses Paul R, iammosespaulr@gmail.com  
2020/05/10, gomerser, Erik Gomersbach, gomerser@gomersba.ch  
2020/05/22, keywan-ghadami-oxid, Keywan Ghadami, keywan.ghadami@oxid-esales.com  
2020/05/25, graknol, Sindre van der Linden, graknol@gmail.com  
2020/05/31, d-markey, David Markey, dmarkey@free.fr  
2020/06/02, cohomology, Kilian Kilger, kkilger AT gmail.com  
2020/06/04, IohannRabeson, Iohann Rabeson, iotaka6@gmail.com  
2020/06/04, sigmasoldi3r, Pablo Blanco, pablobc.1995@gmail.com  
2020/06/15, mattpaletta, Matthew Paletta, mattpaletta@gmail.com  
2020/07/01, sha-N, Shan M Mathews, admin@bluestarqatar.com  
2020/08/22, stevenjohnstone, Steven Johnstone, steven.james.johnstone@gmail.com  
2020/09/06, ArthurSonzogni, Sonzogni  
Arthur, arthursonzogni@gmail.com  
2020/09/10, Khailian, Arunav Sanyal, arunav.sanyal91@gmail.com  
2020/09/12, Clcanny, Charles Ruan, a837940593@gmail.com  
2020/09/15, rmcgregor1990, Robert McGregor, rmcgregor1990@gmail.com  
2020/09/16, trenki2, Markus Trenkwald, trenki2[at]gmx[dot]net  
2020/10/08, Marti2203, Martin Mirchev, mirchevmartin2203@gmail.com  
2020/10/16, adarshbhat, Adarsh Bhat, adarshbhat@users.noreply.github.com  
2020/10/20, adamwojs, Adam Wjs, adam[at]wojs.pl  
2020/10/24, cliid, Jiwu Jang, jiwujang@naver.com  
2020/11/05, MichelHartmann, Michel Hartmann, MichelHartmann@users.noreply.github.com  
2020/11/26, mr-c, Michael R. Crusoe, 1330696+mr-c@users.noreply.github.com

2020/12/01, maxence-lefebvre, Maxence Lefebvre, maxence-lefebvre@users.noreply.github.com  
2020/12/03, electrum, David Phillips, david@acz.org  
2021/01/03, niw, Yoshimasa Niwa, niw@niw.at  
2021/01/25, 1215884529, Qiheng Liu, 13607681+1215884529@users.noreply.github.com  
2021/02/02, tsochnikov, Taras Sotnikov, taras.sotnikov@gmail.com  
2021/02/10,  
jirislaby, Jiri Slaby, jirislaby@gmail.com  
2021/02/21, namasikanam, Xingyu Xie, namasikanam@gmail.com  
2021/02/26, ahooper, Andrew Hooper, ahooper at kos dot net  
2021/02/27, khmarbaise, Karl Heinz Marbaise, github@soebes.com  
2021/02/28, Dante-Broggi, Dante Broggi, 34220985+Dante-Broggi@users.noreply.github.com  
2021/03/02, hackeris  
2021/03/03, xTachyon, Damian Andrei, xTachyon@users.noreply.github.com  
2021/03/22, 100mango, Fangqiu Fang, 100mango@gmail.com  
2021/04/07, b1f6c1c4, Jinzheng Tu, b1f6c1c4@gmail.com  
2021/04/17, jaggerjo, Josua Jger, mail@jaggerjo.com  
2021/04/24, bigerl, Alexander Bigerl, alexander [t] bigerl [pkt] eu  
2021/05/02, michalharakal, Michal Harakal, michal.harakal@users.noreply.github.com  
2021/05/03, redexp, Sergii Kliuchnyk, redexp@users.noreply.github.com  
2021/05/03, mitar, Mi Tar, mitar.git@tnode.com  
2021/05/04, joakker, Joaquin Len, joaquinandresleon108@gmail.com  
2021/05/06, renancaraujo, Renan C. Arajo, renancaraujo@users.noreply.github.com  
2021/05/06,  
canastro, Ricardo Canastro, ricardocanastro@users.noreply.github.com  
2021/06/19, abe149, Abe Skolnik, abe 149 at gmail . com  
2021/07/01, appel1, Johan Appelgren, johan.appelgren@gmail.com  
2021/07/01, marcauberer, Marc Auberer, marc.auberer@chilibits.com  
2021/07/14, renzhentaxibaerde, Renzhentaxi Baerde, renzhentaxibaerde@gmail.com  
2021/07/21, skittlepox, Benjamin Spiegel, bspiegel@cs.brown.edu  
2021/07/29, ksyx, Qixing Xue, qixingxue@outlook.com  
2021/07/29, rachidlamouri, Rachid Lamouri, rachidlamouri@gmail.com  
2021/08/02, minjoosur, Minjoo Sur, msur@salesforce.com  
2021/08/05, jjeffcaii, Jeff Tsai, caiweiwei.cww@alibaba-inc.com  
2021/08/08, ansiemens, Yi-Hong Lin, ansiemens@gmail.com  
2021/08/25, XenoAmess, Jin Xu, xenoamess@gmail.com  
2021/09/08, jmcken8, Joel McKenzie, joel.b.mckenzie@gmail.com  
2021/09/23, skalt, Steven Kalt, kalt.steven@gmail.com  
2021/09/26, idraper, Isaac Draper, idraper@byu.edu  
2021/10/10, tools4origins, Erwan Guyomarc'h, contact@erwan-guyomarch.fr  
2021/10/19,  
jcking, Justin King, jcking@google.com  
2021/10/31, skef, Skef Iterum, github@skef.org  
2021/10/31, hlstwizard, h.l.s.t@163.com  
2021/11/30, bollwyvl, Nick Bollweg, bollwyvl@users.noreply.github.com  
2021/12/03, eneko, Eneko Alonso, eneko.alonso@gmail.com  
2021/12/16, Ketler13, Oleksandr Martyshchenko, oleksandr.martyshchenko@gmail.com  
2021/12/25, Tinker1024, Tinker1024, tinker@huawei.com  
2021/12/31, Biswa96, Biswapriyo Nath, nathbappai@gmail.com

2022/03/07, chenquan, chenquan, chenquan.dev@gmail.com

2022/03/15, hzeller, Henner Zeller, h.zeller@acm.org

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```

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- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/annotation/RequestBean.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/DefaultHttpFactories.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/filter/ClientFilterChain.java
- \*
- /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/simple/cookies/SimpleCookies.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/hateoas/package-info.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/multipart/CompletedFileUpload.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/simple/cookies/SimpleCookie.java
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- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/binders/package-info.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/filter/ServerFilterPhase.java
- \*
- /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/annotation/Filter.java
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- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/annotation/Error.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/binders/RequestBeanAnnotationBinder.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/annotation/Get.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/FullHttpRequest.java
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- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/DefaultRequestBinderRegistry.java
- \*
- /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/RequestBinderRegistry.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/binders/RequestAttributeAnnotationBinder.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/uri/DefaultUriBuilder.java
- \* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/filter/OncePerRequestHttpServerFilter.java



```

* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
jar/io/micronaut/http/uri/UriMatchVariable.java
* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
jar/io/micronaut/http/HttpServletResponseProvider.java
* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
jar/io/micronaut/http/util/OutgoingHttpRequestProcessor.java
*
/opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
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* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
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* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
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* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
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* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
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jar/io/micronaut/http/cookie/SameSite.java
* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
jar/io/micronaut/http/HttpStatus.java
* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-
jar/io/micronaut/http/HttpRequestWrapper.java
* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-

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jar/io/micronaut/http/codec/CodecConfiguration.java  
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\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/simple/package-info.java  
\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/ssl/ClientAuthentication.java  
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/opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/exceptions/ContentLengthExceededException.java  
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\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/util/HttpHeadersUtil.java  
\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/binders/PartAnnotationBinder.java  
\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/hateoas/GenericResource.java

\*  
/opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/ssl/SslConfiguration.java  
\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/ssl/ClientSslConfiguration.java  
\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/MediaTypeConvertersRegistrar.java  
\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-

jar/io/micronaut/http/ssl/ServerSslConfiguration.java

No license file was found, but licenses were detected in source scan.

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\*/

Found in path(s):

\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/util/HttpTypeInformationProvider.java

\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/filter/FilterPatternStyle.java

\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/ssl/AbstractClientSslConfiguration.java

\*

/opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/cookie/SameSiteConverter.java

\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/bind/binders/HttpCoroutineContextFactory.kt

\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/PushCapableHttpRequest.java

No license file was found, but licenses were detected in source scan.

# This file maps Internet media types to unique file extension(s).

# Although created for httpd, this file is used by many software systems

# and has been placed in the public domain for unlimited redistribution.

#

# The table below contains both registered and (common) unregistered types.

# A type that has no unique extension can be ignored -- they are listed

# here to guide configurations toward known types and to make it easier to

# identify "new" types. File extensions are also commonly used to indicate

# content languages and encodings, so choose them carefully.

#

# Internet media types should be registered as described in RFC 4288.

# The registry is at <<https://www.iana.org/assignments/media-types/>>.

#



```

# https://svn.apache.org/viewvc/httpd/httpd/trunk/docs/conf/mime.types?revision=1810121&view=co
#
# MIME type (lowercased) Extensions
# =====
# application/1d-interleaved-parityfec
#
# application/3gpdash-qoe-report+xml
# application/3gpp-ims+xml
# application/a2l
# application/activemessage
# application/alto-costmap+json
# application/alto-costmapfilter+json
# application/alto-directory+json
# application/alto-endpointcost+json
# application/alto-endpointcostparams+json
# application/alto-endpointprop+json
# application/alto-endpointpropparams+json
# application/alto-error+json
# application/alto-networkmap+json
# application/alto-networkmapfilter+json
# application/aml
application/andrew-inset ez
# application/applefile
application/applixware aw
# application/atf
# application/atfx
application/atom+xml atom
application/atomcat+xml atomcat
# application/atomdeleted+xml
# application/atomicmail
application/atomsvc+xml atomsvc
# application/atxml
# application/auth-policy+xml
# application/bacnet-xdd+zip
# application/batch-smtp
# application/beep+xml
# application/calendar+json
# application/calendar+xml
# application/call-completion
#
# application/cals-1840
# application/cbor
# application/ccmp+xml
application/ccxml+xml ccxml
# application/cdfx+xml
application/cdmi-capability cdmia
application/cdmi-container cdmic
application/cdmi-domain cdmid

```

application/cdmi-object cdmio  
application/cdmi-queue cdmiq  
# application/cdni  
# application/cea  
# application/cea-2018+xml  
# application/cellml+xml  
# application/cfw  
# application/cms  
# application/cnrp+xml  
# application/coap-group+json  
# application/commonground  
# application/conference-info+xml  
# application/cpl+xml  
# application/csrattrs  
# application/csta+xml  
# application/cstadata+xml  
# application/csvm+json  
application/cu-seeme cu  
# application/cybercash  
# application/dash+xml  
# application/dashdelta  
application/davmount+xml davmount  
# application/dca-rft  
# application/dcd  
# application/dec-dx  
# application/dialog-info+xml  
# application/dicom  
# application/dii  
# application/dit  
# application/dns  
application/docbook+xml dbk  
# application/dskpp+xml  
application/dssc+der dssc  
application/dssc+xml xdssc  
#  
application/dvcs  
application/ecmascript ecma  
# application/edi-consent  
# application/edi-x12  
# application/edifact  
# application/efi  
# application/emergencycalldata.comment+xml  
# application/emergencycalldata.deviceinfo+xml  
# application/emergencycalldata.providerinfo+xml  
# application/emergencycalldata.serviceinfo+xml  
# application/emergencycalldata.subscriberinfo+xml  
application/emma+xml emma  
# application/emotionml+xml

# application/encaprtf  
# application/epp+xml  
application/epub+zip epub  
# application/eshop  
# application/example  
application/exi exi  
# application/fastinfoset  
# application/fastsoap  
# application/fdt+xml  
# application/fits  
application/font-tdpfr pfr  
# application/framework-attributes+xml  
# application/geo+json  
application/gml+xml gml  
application/gpx+xml gpx  
application/gxf gxf  
# application/gzip  
# application/h224  
# application/held+xml  
# application/http  
application/hyperstudio stk  
#  
application/ibe-key-request+xml  
# application/ibe-pkg-reply+xml  
# application/ibe-pp-data  
# application/iges  
# application/im-iscomposing+xml  
# application/index  
# application/index.cmd  
# application/index.obj  
# application/index.response  
# application/index.vnd  
application/inkml+xml ink inkml  
# application/iotp  
application/ipfix ipfix  
# application/ipp  
# application/isup  
# application/its+xml  
application/java-archive jar  
application/java-serialized-object ser  
application/java-vm class  
application/javascript js  
application/javascript mjs  
# application/jose  
# application/jose+json  
# application/jrd+json  
application/json json  
# application/json-patch+json

# application/json-seq  
application/jsonml+json jsonml  
# application/jwk+json  
# application/jwk-set+json  
# application/jwt  
# application/kpml-request+xml  
# application/kpml-response+xml  
# application/ld+json  
# application/lgr+xml  
# application/link-format  
# application/load-control+xml  
application/lost+xml lostxml  
#  
application/lostsync+xml  
# application/lxf  
application/mac-binhex40 hqx  
application/mac-compactpro cpt  
# application/macwriteii  
application/mads+xml mads  
application/marc mrc  
application/marcxml+xml mrcx  
application/mathematica ma nb mb  
application/mathml+xml mathml  
# application/mathml-content+xml  
# application/mathml-presentation+xml  
# application/mbms-associated-procedure-description+xml  
# application/mbms-deregister+xml  
# application/mbms-envelope+xml  
# application/mbms-msk+xml  
# application/mbms-msk-response+xml  
# application/mbms-protection-description+xml  
# application/mbms-reception-report+xml  
# application/mbms-register+xml  
# application/mbms-register-response+xml  
# application/mbms-schedule+xml  
# application/mbms-user-service-description+xml  
application/mbox mbox  
# application/media-policy-dataset+xml  
# application/media\_control+xml  
application/mediaservercontrol+xml mscml  
# application/merge-patch+json  
application/metalink+xml metalink  
application/metalink4+xml meta4  
application/mets+xml mets  
#  
application/mf4  
# application/mikey  
application/mods+xml mods

# application/moss-keys  
# application/moss-signature  
# application/moskey-data  
# application/moskey-request  
application/mp21 m21 mp21  
application/mp4 mp4s  
# application/mpeg4-generic  
# application/mpeg4-iod  
# application/mpeg4-iod-xmt  
# application/mrb-consumer+xml  
# application/mrb-publish+xml  
# application/msc-ivr+xml  
# application/msc-mixer+xml  
application/msword doc dot  
application/mxf mxf  
# application/nasdata  
# application/news-checkgroups  
# application/news-groupinfo  
# application/news-transmission  
# application/nlsml+xml  
# application/nss  
# application/ocsp-request  
# application/ocsp-response  
application/octet-stream bin dms lrf mar so dist distz pkg bpk dump elc deploy  
application/oda oda  
# application/odx  
application/oebps-package+xml opf  
application/ogg ogx  
application/omdoc+xml omdoc  
application/onenote onetoc  
onetoc2 onetmp onepkg  
application/oxps oxps  
# application/p2p-overlay+xml  
# application/parityfec  
application/patch-ops-error+xml xer  
application/pdf pdf  
# application/pdx  
application/pgp-encrypted pgp  
# application/pgp-keys  
application/pgp-signature asc sig  
application/pics-rules prf  
# application/pidf+xml  
# application/pidf-diff+xml  
application/pkcs10 p10  
# application/pkcs12  
application/pkcs7-mime p7m p7c  
application/pkcs7-signature p7s  
application/pkcs8 p8

application/pkix-attr-cert ac  
application/pkix-cert cer  
application/pkix-crl crl  
application/pkix-pkipath pkipath  
application/pkixcmp pki  
application/pls+xml pls  
# application/poc-settings+xml  
application/postscript ai eps ps  
# application/ppsp-tracker+json  
# application/problem+json  
# application/problem+xml  
# application/provenance+xml  
# application/prs.alvestrand.titrax-sheet  
application/prs.cww cww  
# application/prs.hpub+zip  
# application/prs.nprend  
# application/prs.plucker  
#  
application/prs.rdf+xml crypt  
# application/prs.xsf+xml  
application/pskc+xml pskcxml  
# application/qsig  
# application/raptorfec  
# application/rdap+json  
application/rdf+xml rdf  
application/reginfo+xml rif  
application/relax-ng-compact-syntax rnc  
# application/remote-printing  
# application/reputon+json  
application/resource-lists+xml rl  
application/resource-lists-diff+xml rld  
# application/rfc+xml  
# application/riscos  
# application/rlmi+xml  
application/rls-services+xml rs  
application/rpki-ghostbusters gbr  
application/rpki-manifest mft  
application/rpki-roa roa  
# application/rpki-updown  
application/rsd+xml rsd  
application/rss+xml rss  
application/rtf rtf  
# application/rtploopback  
# application/rtx  
# application/samlassertion+xml  
# application/samlmetadata+xml  
application/sbml+xml sbml  
# application/scaip+xml

# application/scim+json  
application/scvp-cv-request scq  
application/scvp-cv-response scs  
application/scvp-vp-request spq  
application/scvp-vp-response spp  
application/sdp sdp  
#  
application/sep+xml  
# application/sep-exi  
# application/session-info  
# application/set-payment  
application/set-payment-initiation setpay  
# application/set-registration  
application/set-registration-initiation setreg  
# application/sgml  
# application/sgml-open-catalog  
application/shf+xml shf  
# application/sieve  
# application/simple-filter+xml  
# application/simple-message-summary  
# application/simplesymbolcontainer  
# application/slate  
# application/smil  
application/smil+xml smi smil  
# application/smpite336m  
# application/soap+fastinfoset  
# application/soap+xml  
application/sparql-query rq  
application/sparql-results+xml srx  
# application/spirits-event+xml  
# application/sql  
application/srgs gram  
application/srgs+xml grxml  
application/sru+xml sru  
application/ssdl+xml ssdl  
application/ssml+xml ssml  
# application/tamp-apex-update  
# application/tamp-apex-update-confirm  
# application/tamp-community-update  
# application/tamp-community-update-confirm  
#  
application/tamp-error  
# application/tamp-sequence-adjust  
# application/tamp-sequence-adjust-confirm  
# application/tamp-status-query  
# application/tamp-status-response  
# application/tamp-update  
# application/tamp-update-confirm

application/tei+xml tei teicorpus  
application/thraud+xml tfi  
# application/timestamp-query  
# application/timestamp-reply  
application/timestamped-data tsd  
# application/ttml+xml  
# application/tve-trigger  
# application/ulpfec  
# application/urc-grpsheet+xml  
# application/urc-ressheet+xml  
# application/urc-targetdesc+xml  
# application/urc-uisocketdesc+xml  
# application/vcard+json  
# application/vcard+xml  
# application/vemmi  
# application/vividence.scriptfile  
# application/vnd.3gpp-prose+xml  
# application/vnd.3gpp-prose-pc3ch+xml  
# application/vnd.3gpp.access-transfer-events+xml  
# application/vnd.3gpp.bsf+xml  
# application/vnd.3gpp.mid-call+xml  
application/vnd.3gpp.pic-bw-large plb  
application/vnd.3gpp.pic-bw-small psb  
application/vnd.3gpp.pic-bw-var pvb  
#  
application/vnd.3gpp.sms  
# application/vnd.3gpp.sms+xml  
# application/vnd.3gpp.srvcc-ext+xml  
# application/vnd.3gpp.srvcc-info+xml  
# application/vnd.3gpp.state-and-event-info+xml  
# application/vnd.3gpp.ussd+xml  
# application/vnd.3gpp2.bcsmcinfo+xml  
# application/vnd.3gpp2.sms  
application/vnd.3gpp2.tcap tcap  
# application/vnd.3lightssoftware.imagescal  
application/vnd.3m.post-it-notes pwn  
application/vnd.accpac.simply.aso aso  
application/vnd.accpac.simply.imp imp  
application/vnd.acucobol acu  
application/vnd.acucorp atc acutc  
application/vnd.adobe.air-application-installer-package+zip air  
# application/vnd.adobe.flash.movie  
application/vnd.adobe.formscentral.fcdt fcdt  
application/vnd.adobe.fxp fxp fxpl  
# application/vnd.adobe.partial-upload  
application/vnd.adobe.xdp+xml xdp  
application/vnd.adobe.xfdf xfdf  
# application/vnd.aether.imp



```
# application/vnd.ah-barcode
application/vnd.ahead.space ahead
application/vnd.airzip.filesecure.azf azf
application/vnd.airzip.filesecure.azs azs
application/vnd.amazon.ebook azw
#
application/vnd.amazon.mobi8-ebook
application/vnd.americandynamics.acc acc
application/vnd.amiga.ami ami
# application/vnd.amundsen.maze+xml
application/vnd.android.package-archive apk
# application/vnd.anki
application/vnd.anser-web-certificate-issue-initiation cii
application/vnd.anser-web-funds-transfer-initiation fti
application/vnd.antix.game-component atx
# application/vnd.apache.thrift.binary
# application/vnd.apache.thrift.compact
# application/vnd.apache.thrift.json
# application/vnd.api+json
application/vnd.apple.installer+xml mpkg
application/vnd.apple.mpegurl m3u8
# application/vnd.arastra.swi
application/vnd.aristanetworks.swi swi
# application/vnd.artsquare
application/vnd.astraea-software.iota iota
application/vnd.audiograph aep
# application/vnd.autopackage
# application/vnd.avistar+xml
# application/vnd.balsamiq.bmml+xml
# application/vnd.balsamiq.bmpr
# application/vnd.bekitzur-stech+json
# application/vnd.biopax.rdf+xml
application/vnd.blueice.multipass mpm
#
application/vnd.bluetooth.ep.oob
# application/vnd.bluetooth.le.oob
application/vnd.bmi bmi
application/vnd.businessobjects rep
# application/vnd.cab-jscript
# application/vnd.canon-cpdl
# application/vnd.canon-lips
# application/vnd.cendio.thinlinc.clientconf
# application/vnd.century-systems.tcp_stream
application/vnd.chemdraw+xml cdxml
# application/vnd.chess-pgn
application/vnd.chipnuts.karaoke-mmd mmd
application/vnd.cinderella cdy
# application/vnd.cirpack.isdn-ext
```

```
# application/vnd.citationstyles.style+xml
application/vnd.claymore cla
application/vnd.cloanto.rp9 rp9
application/vnd.clonk.c4group c4g c4d c4f c4p c4u
application/vnd.cluetrust.cartomobile-config c11amc
application/vnd.cluetrust.cartomobile-config-pkg c11amz
# application/vnd.coffeescript
# application/vnd.collection+json
# application/vnd.collection.doc+json
# application/vnd.collection.next+json
# application/vnd.comicbook+zip
#
application/vnd.commerce-battelle
application/vnd.commonspace csp
application/vnd.contact.cmsg cdbcmsg
# application/vnd.coreos.ignition+json
application/vnd.cosmocaller cmc
application/vnd.crick.clicker clkx
application/vnd.crick.clicker.keyboard clkk
application/vnd.crick.clicker.palette clkp
application/vnd.crick.clicker.template clkt
application/vnd.crick.clicker.wordbank clkw
application/vnd.criticaltools.wbs+xml wbs
application/vnd.ctc-posml pml
# application/vnd.ctct.ws+xml
# application/vnd.cups-pdf
# application/vnd.cups-postscript
application/vnd.cups-ppd ppd
# application/vnd.cups-raster
# application/vnd.cups-raw
# application/vnd.curl
application/vnd.curl.car car
application/vnd.curl.pcurl pcurl
# application/vnd.cyan.dean.root+xml
# application/vnd.cybank
application/vnd.dart dart
application/vnd.data-vision.rdz rdz
# application/vnd.debian.binary-package
application/vnd.dece.data uvf uvvf uvd uvvd
application/vnd.dece.ttml+xml uvt uvvt
application/vnd.dece.unspecified uvx
uvvx
application/vnd.dece.zip uvz uvvz
application/vnd.denovo.fcselayout-link fe_launch
# application/vnd.desmume.movie
# application/vnd.dir-bi.plate-dl-nosuffix
# application/vnd.dm.delegation+xml
application/vnd.dna dna
```

```
# application/vnd.document+json
application/vnd.dolby.mlp mlp
# application/vnd.dolby.mobile.1
# application/vnd.dolby.mobile.2
# application/vnd.doremir.scorecloud-binary-document
application/vnd.dpgraph dpg
application/vnd.dreamfactory dfac
# application/vnd.drive+json
application/vnd.ds-keypoint kpxx
# application/vnd.dtg.local
# application/vnd.dtg.local.flash
# application/vnd.dtg.local.html
application/vnd.dvb.ait ait
# application/vnd.dvb.dvbj
# application/vnd.dvb.esgcontainer
# application/vnd.dvb.ipdcdfnotifaccess
# application/vnd.dvb.ipdcesgaccess
# application/vnd.dvb.ipdcesgaccess2
# application/vnd.dvb.ipdcesgpdd
# application/vnd.dvb.ipdcroaming
# application/vnd.dvb.iptv.alfec-base
# application/vnd.dvb.iptv.alfec-enhancement
#
application/vnd.dvb.notif-aggregate-root+xml
# application/vnd.dvb.notif-container+xml
# application/vnd.dvb.notif-generic+xml
# application/vnd.dvb.notif-ia-msglist+xml
# application/vnd.dvb.notif-ia-registration-request+xml
# application/vnd.dvb.notif-ia-registration-response+xml
# application/vnd.dvb.notif-init+xml
# application/vnd.dvb.pfr
application/vnd.dvb.service svc
# application/vnd.dxr
application/vnd.dynageo geo
# application/vnd.dzr
# application/vnd.easykaraoke.cdgdownload
# application/vnd.ecdis-update
application/vnd.ecowin.chart mag
# application/vnd.ecowin.filerequest
# application/vnd.ecowin.fileupdate
# application/vnd.ecowin.series
# application/vnd.ecowin.seriesrequest
# application/vnd.ecowin.seriesupdate
# application/vnd.emclient.accessrequest+xml
application/vnd.enliven nml
# application/vnd.enphase.envoy
# application/vnd.eprints.data+xml
application/vnd.epson.esf esf
```

application/vnd.epson.msfx msfx  
application/vnd.epson.quickanime qam  
application/vnd.epson.salt slt  
application/vnd.epson.ssf ssf  
#  
application/vnd.ericsson.quickcall  
application/vnd.eszigno3+xml es3 et3  
# application/vnd.etsi.aoc+xml  
# application/vnd.etsi.asic-e+zip  
# application/vnd.etsi.asic-s+zip  
# application/vnd.etsi.cug+xml  
# application/vnd.etsi.iptvcommand+xml  
# application/vnd.etsi.iptvdiscovery+xml  
# application/vnd.etsi.iptvprofile+xml  
# application/vnd.etsi.iptvsad-bc+xml  
# application/vnd.etsi.iptvsad-cod+xml  
# application/vnd.etsi.iptvsad-npvr+xml  
# application/vnd.etsi.iptvservice+xml  
# application/vnd.etsi.iptvsync+xml  
# application/vnd.etsi.iptvueprofile+xml  
# application/vnd.etsi.mcid+xml  
# application/vnd.etsi.mheg5  
# application/vnd.etsi.overload-control-policy-dataset+xml  
# application/vnd.etsi.pstn+xml  
# application/vnd.etsi.sci+xml  
# application/vnd.etsi.simservs+xml  
# application/vnd.etsi.timestamp-token  
# application/vnd.etsi.tsl+xml  
# application/vnd.etsi.tsl.der  
# application/vnd.eudora.data  
application/vnd.ezpix-album ez2  
application/vnd.ezpix-package ez3  
#  
application/vnd.f-secure.mobile  
# application/vnd.fastcopy-disk-image  
application/vnd.fdf fdf  
application/vnd.fdsn.mseed mseed  
application/vnd.fdsn.seed seed dataless  
# application/vnd.ffmpeg  
# application/vnd.filmit.zfc  
# application/vnd.fints  
# application/vnd.firemonkey.cloudcell  
application/vnd.flographit gph  
application/vnd.fluxtime.clip ftc  
# application/vnd.font-fontforge-sfd  
application/vnd.frame-maker fm frame maker book  
application/vnd.frogans.fnc fnc  
application/vnd.frogans.ltf ltf

application/vnd.fsc.weblaunch fsc  
application/vnd.fujitsu.oasys oas  
application/vnd.fujitsu.oasys2 oa2  
application/vnd.fujitsu.oasys3 oa3  
application/vnd.fujitsu.oasysgp fg5  
application/vnd.fujitsu.oasysprs bh2  
# application/vnd.fujixerox.art-ex  
# application/vnd.fujixerox.art4  
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application/vnd.geospace g3w  
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# application/vnd.globalplatform.card-content-mgt-response  
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# application/vnd.gov.sk.xmldatacontainer+xml  
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# application/vnd.gridmp  
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application/vnd.groove-help ghf  
application/vnd.groove-identity-message gim  
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application/vnd.groove-tool-message gtm  
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# application/vnd.hyperdrive+json
# application/vnd.hzn-3d-crossword
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# application/vnd.ibm.electronic-media
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application/vnd.ibm.secure-container sc
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# application/vnd.ims.lti.v2.toolproxy+json
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# application/vnd.ims.lti.v2.toolsettings+json
# application/vnd.ims.lti.v2.toolsettings.simple+json
# application/vnd.informedcontrol.rms+xml
# application/vnd.informix-visionary
# application/vnd.infotech.project
# application/vnd.infotech.project+xml
# application/vnd.innopath.wamp.notification
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# application/vnd.intertrust.digibox
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application/vnd.lotus-organizer org
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# application/vnd.motorola.iprm  
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# application/vnd.ms-3mfdocument  
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# application/vnd.ms-asf  
application/vnd.ms-cab-compressed cab



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application/vnd.ms-excel.addin.macroenabled.12 xlam
application/vnd.ms-excel.sheet.binary.macroenabled.12 xlsb
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application/vnd.ms-fontobject eot
application/vnd.ms-htmlhelp chm
application/vnd.ms-ims ims
application/vnd.ms-lrm lrm
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# application/vnd.ms-opentype
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application/vnd.ms-pki.stl stl
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# application/vnd.multiad.creator.cif
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# application/vnd.ncd.control
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application/vnd.noblenet-sealer nns
application/vnd.noblenet-web nnw
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  application/vnd.nokia.iptv.config+xml
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# application/vnd.nokia.landmarkcollection+xml
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# application/vnd.oma.cab-user-prefs+xml  
# application/vnd.oma.dcd

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# application/vnd.rapid  
# application/vnd.rar  
application/vnd.realvnc.bed bed  
application/vnd.recordare.musicxml mxl  
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application/vnd.rim.cod cod  
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# application/vnd.scribus  
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# application/vnd.sealedmedia.softseal.html  
# application/vnd.sealedmedia.softseal.pdf

application/vnd.seemail see  
application/vnd.sema sema  
application/vnd.semd semd  
application/vnd.semf semf  
application/vnd.shana.informed.formdata ifm  
application/vnd.shana.informed.formtemplate itp  
application/vnd.shana.informed.interchange iif  
application/vnd.shana.informed.package ipk  
application/vnd.simtech-mindmapper twd  
twds  
# application/vnd.siren+json  
application/vnd.smaf mmf  
# application/vnd.smart.notebook  
application/vnd.smart.teacher teacher  
# application/vnd.software602.filler.form+xml  
# application/vnd.software602.filler.form-xml-zip  
application/vnd.solent.sdkm+xml sdkm sdkd  
application/vnd.spotfire.dxp dxp  
application/vnd.spotfire.sfs sfs  
# application/vnd.sss-cod  
# application/vnd.sss-dtf  
# application/vnd.sss-ntf  
application/vnd.stardivision.calc sdc  
application/vnd.stardivision.draw sda  
application/vnd.stardivision.impress sdd  
application/vnd.stardivision.math smf  
application/vnd.stardivision.writer sdw vor  
application/vnd.stardivision.writer-global sgl  
application/vnd.stepmania.package smzip  
application/vnd.stepmania.stepchart sm  
# application/vnd.street-stream  
# application/vnd.sun.wadl+xml  
application/vnd.sun.xml.calc sxc  
application/vnd.sun.xml.calc.template stc  
application/vnd.sun.xml.draw sxd  
application/vnd.sun.xml.draw.template std  
application/vnd.sun.xml.impress sxi  
application/vnd.sun.xml.impress.template sti  
application/vnd.sun.xml.math sxm  
application/vnd.sun.xml.writer sxw  
application/vnd.sun.xml.writer.global sxg  
application/vnd.sun.xml.writer.template stw  
application/vnd.sus-calendar sus  
susp  
application/vnd.svd svd  
# application/vnd.swiftview-ics  
application/vnd.symbian.install sis six  
application/vnd.syncml+xml xsm



application/vnd.syncml.dm+wbxml bdm  
application/vnd.syncml.dm+xml xdm  
# application/vnd.syncml.dm.notification  
# application/vnd.syncml.dmddf+wbxml  
# application/vnd.syncml.dmddf+xml  
# application/vnd.syncml.dmtnds+wbxml  
# application/vnd.syncml.dmtnds+xml  
# application/vnd.syncml.ds.notification  
application/vnd.tao.intent-module-archive tao  
application/vnd.tcpdump.pcap pcap cap dmp  
# application/vnd.tmd.mediaflex.api+xml  
# application/vnd.tml  
application/vnd.tmobile-livetv tmo  
application/vnd.trid.tpt tpt  
application/vnd.triscape.mxs mxs  
application/vnd.trueapp tra  
#  
application/vnd.truedoc  
# application/vnd.ubisoft.webplayer  
application/vnd.ufdl ufd ufdl  
application/vnd.uiq.theme utz  
application/vnd.umajin umj  
application/vnd.unity unityweb  
application/vnd.uoml+xml uoml  
# application/vnd.uplanet.alert  
# application/vnd.uplanet.alert-wbxml  
# application/vnd.uplanet.bearer-choice  
# application/vnd.uplanet.bearer-choice-wbxml  
# application/vnd.uplanet.cacheop  
# application/vnd.uplanet.cacheop-wbxml  
# application/vnd.uplanet.channel  
# application/vnd.uplanet.channel-wbxml  
# application/vnd.uplanet.list  
# application/vnd.uplanet.list-wbxml  
# application/vnd.uplanet.listcmd  
# application/vnd.uplanet.listcmd-wbxml  
# application/vnd.uplanet.signal  
# application/vnd.uri-map  
# application/vnd.valve.source.material  
application/vnd.vcx vcx  
# application/vnd.vd-study  
# application/vnd.vectorworks  
# application/vnd.vel+json  
# application/vnd.verimatrix.vcas  
# application/vnd.vidsoft.vidconference  
application/vnd.visio vsd  
vst vss vsw  
application/vnd.visionary vis

```
# application/vnd.vividence.scriptfile
application/vnd.vsf vsf
# application/vnd.wap.sic
# application/vnd.wap.slc
application/vnd.wap.wbxm1 wbxm1
application/vnd.wap.wmlc wmlc
application/vnd.wap.wmlscriptc wmlsc
application/vnd.webturbo wtb
# application/vnd.wfa.p2p
# application/vnd.wfa.wsc
# application/vnd.windows.devicepairing
# application/vnd.wmc
# application/vnd.wmf.bootstrap
# application/vnd.wolfram.mathematica
# application/vnd.wolfram.mathematica.package
application/vnd.wolfram.player nbp
application/vnd.wordperfect wpd
application/vnd.wqd wqd
# application/vnd.wrq-hp3000-labelled
application/vnd.wt.stf stf
# application/vnd.wv.csp+wbxml
# application/vnd.wv.csp+xml
# application/vnd.wv.ssp+xml
# application/vnd.xacml+json
application/vnd.xara xar
application/vnd.xfdl xfdl
# application/vnd.xfdl.webform
# application/vnd.xmi+xml
# application/vnd.xmpie.cpkg
#
application/vnd.xmpie.dpkg
# application/vnd.xmpie.plan
# application/vnd.xmpie.ppkg
# application/vnd.xmpie.xlim
application/vnd.yamaha.hv-dic hvd
application/vnd.yamaha.hv-script hvs
application/vnd.yamaha.hv-voice hvp
application/vnd.yamaha.openscoreformat osf
application/vnd.yamaha.openscoreformat.osfpvg+xml osfpvg
# application/vnd.yamaha.remote-setup
application/vnd.yamaha.smaf-audio saf
application/vnd.yamaha.smaf-phrase spf
# application/vnd.yamaha.through-ngn
# application/vnd.yamaha.tunnel-udpencap
# application/vnd.yaoweme
application/vnd.yellowriver-custom-menu cmp
application/vnd.zul zir zirz
application/vnd.zzazz.deck+xml zaz
```

application/voicexml+xml vxml  
# application/vq-rtcpvr  
# application/watcherinfo+xml  
# application/whoispp-query  
# application/whoispp-response  
application/widget wgt  
application/winhelp hlp  
# application/wita  
# application/wordperfect5.1  
application/wsd+xml wsd  
application/wspolicy+xml wspolicy  
application/x-7z-compressed 7z  
application/x-abiword abw  
application/x-ace-compressed ace  
#  
application/x-amf  
application/x-apple-diskimage dmg  
application/x-authorware-bin aab x32 u32 vox  
application/x-authorware-map aam  
application/x-authorware-seg aas  
application/x-bcpio bcpio  
application/x-bittorrent torrent  
application/x-blorb blb blorb  
application/x-bzip bz  
application/x-bzip2 bz2 boz  
application/x-cbr cbr cba cbt cbz cb7  
application/x-cdlink vcd  
application/x-cfs-compressed cfs  
application/x-chat chat  
application/x-chess-pgn pgn  
# application/x-compress  
application/x-conference nsc  
application/x-cpio cpio  
application/x-csh csh  
application/x-debian-package deb udeb  
application/x-dgc-compressed dgc  
application/x-director dir dcr dxr cst cct cxt w3d fgd swa  
application/x-doom wad  
application/x-dtbncx+xml ncx  
application/x-dtbook+xml dtb  
application/x-dtbresource+xml res  
application/x-dvi dvi  
application/x-envoy evy  
application/x-eva eva  
application/x-font-bdf bdf  
#  
application/x-font-dos  
# application/x-font-framemaker

application/x-font-ghostscript gsf  
# application/x-font-libgrx  
application/x-font-linux-psf psf  
application/x-font-pcf pcf  
application/x-font-snf snf  
# application/x-font-speedo  
# application/x-font-sunos-news  
application/x-font-type1 pfa pfb pfm afm  
# application/x-font-vfont  
application/x-freearc arc  
application/x-futuresplash spl  
application/x-gca-compressed gca  
application/x-glulx ulx  
application/x-gnumeric gnumeric  
application/x-gramps-xml gramps  
application/x-gtar gtar  
# application/x-gzip  
application/x-hdf hdf  
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application/x-iso9660-image iso  
application/x-java-jnlp-file jnlp  
application/x-latex latex  
application/x-lzh-compressed lzh lha  
application/x-mie mie  
application/x-mobipocket-ebook prc mobi  
application/x-ms-application application  
application/x-ms-shortcut lnk  
application/x-ms-wmd wmd  
application/x-ms-wmz wmz  
application/x-ms-xbap xbap  
application/x-msaccess mdb  
application/x-msbinder obd  
application/x-mscardfile crd  
application/x-msclip clp  
application/x-msdownload exe  
dll com bat msi  
application/x-msmediaview mvb m13 m14  
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application/x-mspublisher pub  
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application/x-msterial trm  
application/x-mswrite wri  
application/x-netcdf nc cdf  
application/x-nzb nzb  
application/x-pkcs12 p12 pfx  
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application/x-pkcs7-certreqresp p7r

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application/x-shar shar  
application/x-shockwave-flash swf  
application/x-silverlight-app xap  
application/x-sql sql  
application/x-stuffit sit  
application/x-stuffitx sitx  
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application/x-tar tar  
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application/x-tex-tfm tfm  
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texi  
application/x-tgif obj  
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application/x-xliff+xml xlf  
application/x-xpinstall xpi  
application/x-xz xz  
application/x-zmachine z1 z2 z3 z4 z5 z6 z7 z8  
# application/x400-bp  
# application/xacml+xml  
application/xaml+xml xaml  
# application/xcap-att+xml  
# application/xcap-caps+xml  
application/xcap-diff+xml xdf  
# application/xcap-el+xml  
# application/xcap-error+xml  
# application/xcap-ns+xml  
# application/xcon-conference-info+xml  
# application/xcon-conference-info-diff+xml  
application/xenc+xml xenc  
application/xhtml+xml xhtml xht  
# application/xhtml-voice+xml  
application/xml xml xsl  
application/xml-dtd dtd  
#

application/xml-external-parsed-entity  
# application/xml-patch+xml  
# application/xmpp+xml  
application/xop+xml xop  
application/xproc+xml xpl  
application/xslt+xml xslt  
application/xspf+xml xspf  
application/xv+xml mxml xhvm1 xvm1 xvm  
application/yang yang  
application/yin+xml yin  
application/zip zip  
# application/zlib  
# audio/1d-interleaved-parityfec  
# audio/32kadpcm  
# audio/3gpp  
# audio/3gpp2  
# audio/ac3  
audio/adpcm adp  
# audio/amr  
# audio/amr-wb  
# audio/amr-wb+  
# audio/aptx  
# audio/asc  
# audio/atrac-advanced-lossless  
# audio/atrac-x  
# audio/atrac3  
audio/basic au snd  
# audio/bv16  
# audio/bv32  
# audio/clearmode  
# audio/cn  
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# audio/dsr-es202050  
# audio/dsr-es202211  
# audio/dsr-es202212  
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# audio/dvi4  
# audio/eac3  
# audio/encaprtsp  
# audio/evrc  
# audio/evrc-qcp  
# audio/evrc0  
# audio/evrc1  
# audio/evrcb  
# audio/evrcb0  
# audio/evrcb1

# audio/evrcnw  
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# audio/evrcnw1  
# audio/evrcwb  
# audio/evrcwb0  
#  
  audio/evrcwb1  
# audio/evs  
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# audio/g722  
# audio/g7221  
# audio/g723  
# audio/g726-16  
# audio/g726-24  
# audio/g726-32  
# audio/g726-40  
# audio/g728  
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# audio/gsm-efr  
# audio/gsm-hr-08  
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# audio/ip-mr\_v2.5  
# audio/isac  
# audio/l16  
# audio/l20  
# audio/l24  
# audio/l8  
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# audio/mobile-xmf  
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# audio/mp4a-latm  
# audio/mpa  
# audio/mpa-robust  
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# audio/mpeg4-generic  
# audio/musepack  
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# audio/opus  
# audio/parityfec  
# audio/pcma

# audio/pcma-wb  
# audio/pcmu  
# audio/pcmu-wb  
# audio/prs.sid  
# audio/qcelp  
# audio/raptorfec  
# audio/red  
# audio/rtp-enc-aescm128  
# audio/rtp-midi  
# audio/rtploopback  
# audio/rtx  
audio/s3m s3m  
audio/silk sil  
# audio/smv  
# audio/smv-qcp  
# audio/smv0  
# audio/sp-midi  
# audio/speex  
# audio/t140c  
# audio/t38  
#  
audio/telephone-event  
# audio/tone  
# audio/uemclip  
# audio/ulpfec  
# audio/vdvi  
# audio/vmr-wb  
# audio/vnd.3gpp.iufp  
# audio/vnd.4sb  
# audio/vnd.audiokoz  
# audio/vnd.celp  
# audio/vnd.cisco.nse  
# audio/vnd.cmles.radio-events  
# audio/vnd.cns.anp1  
# audio/vnd.cns.inf1  
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audio/vnd.digital-winds eol  
# audio/vnd.dlna.adts  
# audio/vnd.dolby.heaac.1  
# audio/vnd.dolby.heaac.2  
# audio/vnd.dolby.mlp  
# audio/vnd.dolby.mps  
# audio/vnd.dolby.pl2  
# audio/vnd.dolby.pl2x  
# audio/vnd.dolby.pl2z  
# audio/vnd.dolby.pulse.1  
audio/vnd.dra dra  
audio/vnd.dts dts



audio/vnd.dts.hd dtshd  
# audio/vnd.dvb.file  
# audio/vnd.everad.plj  
# audio/vnd.hns.audio  
audio/vnd.lucent.voice lvp  
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# audio/vnd.nokia.mobile-xmf  
# audio/vnd.nortel.vbk  
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# audio/vnd.octel.sbc  
# audio/vnd.qcelp  
# audio/vnd.rhetorex.32kadpcm  
audio/vnd.rip rip  
#  
audio/vnd.sealedmedia.softseal.mpeg  
# audio/vnd.vmx.cvsd  
# audio/vorbis  
# audio/vorbis-config  
audio/webm weba  
audio/x-aac aac  
audio/x-aiff aif aiff aifc  
audio/x-caf caf  
audio/x-flac flac  
audio/x-matroska mka  
audio/x-mpegurl m3u  
audio/x-ms-wax wax  
audio/x-ms-wma wma  
audio/x-pn-realaudio ram ra  
audio/x-pn-realaudio-plugin rmp  
# audio/x-tta  
audio/x-wav wav  
audio/xm xm  
chemical/x-cdx cdx  
chemical/x-cif cif  
chemical/x-cmdf cmdf  
chemical/x-cml cml  
chemical/x-csml csml  
# chemical/x-pdb  
chemical/x-xyz xyz  
font/collection ttc  
font/otf otf  
# font/sfnt  
font/ttf ttf  
font/woff woff  
font/woff2 woff2  
image/bmp bmp

image/cgm cgm  
# image/dicom-rlc  
# image/emf  
# image/example  
# image/fits  
image/g3fax g3  
image/gif gif  
image/ief ief  
# image/jls  
# image/jp2  
image/jpeg jpeg jpg jpe  
# image/jpm  
# image/jpx  
image/ktx ktx  
# image/naplps  
image/png png  
image/prs.btif btif  
# image/prs.pti  
#  
image/pwg-raster  
image/sgi sgi  
image/svg+xml svg svgz  
# image/t38  
image/tiff tiff tif  
# image/tiff-fx  
image/vnd.adobe.photoshop psd  
# image/vnd.airzip.accelerator.azv  
# image/vnd.cns.inf2  
image/vnd.dece.graphic uvi uvvi uvg uvvg  
image/vnd.djvu djvu djv  
image/vnd.dvb.subtitle sub  
image/vnd.dwg dwg  
image/vnd.dxf dxf  
image/vnd.fastbidsheet fbs  
image/vnd.fpx fpx  
image/vnd.fst fst  
image/vnd.fujixerox.edmics-mmr mmr  
image/vnd.fujixerox.edmics-rlc rlc  
# image/vnd.globalgraphics.pgb  
# image/vnd.microsoft.icon  
# image/vnd.mix  
# image/vnd.mozilla.apng  
image/vnd.ms-modi mdi  
image/vnd.ms-photo wdp  
image/vnd.net-fpx npx  
# image/vnd.radiance  
# image/vnd.sealed.png  
# image/vnd.sealedmedia.softseal.gif

```
# image/vnd.sealedmedia.softseal.jpg
# image/vnd.svf
# image/vnd.tencent.tap
# image/vnd.valve.source.texture
image/vnd.wap.wbmp  wbmp
image/vnd.xiff  xif
# image/vnd.zbrush.pcx
image/webp  webp
# image/wmf
image/x-3ds  3ds
image/x-cmu-raster  ras
image/x-cmx  cmx
image/x-freehand  fh
fhc fh4 fh5 fh7
image/x-icon  ico
image/x-mrsid-image  sid
image/x-pcx  pcx
image/x-pict  pic pct
image/x-portable-anymap  pnm
image/x-portable-bitmap  pbm
image/x-portable-graymap  pgm
image/x-portable-pixmap  ppm
image/x-rgb  rgb
image/x-tga  tga
image/x-xbitmap  xbm
image/x-xpixmap  xpm
image/x-xwindowdump  xwd
# message/cpim
# message/delivery-status
# message/disposition-notification
# message/example
# message/external-body
# message/feedback-report
# message/global
# message/global-delivery-status
# message/global-disposition-notification
# message/global-headers
# message/http
# message/imdn+xml
# message/news
# message/partial
message/rfc822  eml mime
# message/s-http
# message/sip
# message/sipfrag
# message/tracking-status
# message/vnd.si.simp
# message/vnd.wfa.wsc
```

```
# model/example
# model/gltf+json
model/iges igs iges
model/mesh msh mesh silo
model/vnd.collada+xml dae
model/vnd.dwf dwf
#
  model/vnd.flatland.3dml
model/vnd.gdl gdl
# model/vnd.gs-gdl
# model/vnd.gs.gdl
model/vnd.gtw gtw
# model/vnd.moml+xml
model/vnd.mts mts
# model/vnd.opengex
# model/vnd.parasolid.transmit.binary
# model/vnd.parasolid.transmit.text
# model/vnd.rosette.annotated-data-model
# model/vnd.valve.source.compiled-map
model/vnd.vtu vtu
model/vrml wrl vrml
model/x3d+binary x3db x3dbz
# model/x3d+fastinfoset
model/x3d+vrml x3dv x3dvz
model/x3d+xml x3d x3dz
# model/x3d-vrml
# multipart/alternative
# multipart/appledouble
# multipart/byteranges
# multipart/digest
# multipart/encrypted
# multipart/example
# multipart/form-data
# multipart/header-set
# multipart/mixed
# multipart/parallel
# multipart/related
# multipart/report
# multipart/signed
# multipart/voice-message
# multipart/x-mixed-replace
# text/1d-interleaved-parityfec
text/cache-manifest appcache
text/calendar ics ifb
text/css css
text/csv csv
# text/csv-schema
#
```

text/directory  
# text/dns  
# text/ecmascript  
# text/encaprtpt  
# text/enriched  
# text/example  
# text/fwdred  
# text/grammar-ref-list  
text/html html htm  
# text/javascript  
# text/jcr-cnd  
# text/markdown  
# text/mizar  
text/n3 n3  
# text/parameters  
# text/parityfec  
text/plain txt text conf def list log in  
# text/provenance-notation  
# text/prs.fallenstein.rst  
text/prs.lines.tag dsc  
# text/prs.prop.logic  
# text/raptorfec  
# text/red  
# text/rfc822-headers  
text/richtext rtx  
# text/rtf  
# text/rtp-enc-aescm128  
# text/rtploopback  
# text/rtx  
text/sgml sgml sgm  
# text/t140  
text/tab-separated-values tsv  
text/troff t tr roff man me ms  
text/turtle ttl  
# text/ulpfec  
text/uri-list uri uris urls  
text/vcard vcard  
# text/vnd.a  
# text/vnd.abc  
text/vnd.curl curl  
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text/vnd.curl.mcurl mcurl  
text/vnd.curl.scurl scurl  
# text/vnd.debian.copyright  
# text/vnd.dmclientscript  
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# text/vnd.esmertec.theme-descriptor  
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text/vnd.graphviz gv  
text/vnd.in3d.3dml 3dml  
text/vnd.in3d.spot spot  
#  
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# text/vnd.iptc.nitf  
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# text/vnd.trolltech.linguist  
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text/x-fortran f for f77 f90  
text/x-java-source java  
text/x-nfo nfo  
text/x-opml opml  
text/x-pascal p pas  
text/x-setext etx  
text/x-sfv sfv  
text/x-uuencode uu  
text/x-vcalendar vcs  
text/x-vcard vcf  
# text/xml  
# text/xml-external-parsed-entity  
# video/1d-interleaved-parityfec  
video/3gpp 3gp  
# video/3gpp-tt  
video/3gpp2 3g2  
# video/bmpeg  
# video/bt656  
# video/celb  
# video/dv  
# video/encaprtsp  
# video/example  
video/h261 h261  
video/h263 h263  
#  
video/h263-1998  
# video/h263-2000

video/h264 h264  
# video/h264-rcdo  
# video/h264-svc  
# video/h265  
# video/iso.segment  
video/jpeg jpgv  
# video/jpeg2000  
video/jpm jpm jpgm  
video/mj2 mj2 mjp2  
# video/mp1s  
# video/mp2p  
# video/mp2t  
video/mp4 mp4 mp4v mpg4  
# video/mp4v-es  
video/mpeg mpeg mpg mpe m1v m2v  
# video/mpeg4-generic  
# video/mpv  
# video/nv  
video/ogg ogv  
# video/parityfec  
# video/pointer  
video/quicktime qt mov  
# video/raptorfec  
# video/raw  
# video/rtp-enc-aescm128  
# video/rtploopback  
# video/rtx  
# video/smppte292m  
# video/ulpfec  
# video/vc1  
# video/vnd.cctv  
video/vnd.dece.hd uvh uvvh  
video/vnd.dece.mobile uvm uvvm  
# video/vnd.dece.mp4  
video/vnd.dece.pd uvp uvvp  
video/vnd.dece.sd uvs uvvs  
video/vnd.dece.video uvv uvvv  
# video/vnd.directv.mpeg  
# video/vnd.directv.mpeg-tts  
# video/vnd.dlna.mpeg-tts  
video/vnd.dvb.file dvb  
video/vnd.fvt fvt  
# video/vnd.hns.video  
# video/vnd.iptvforum.1dparityfec-1010  
#  
video/vnd.iptvforum.1dparityfec-2005  
# video/vnd.iptvforum.2dparityfec-1010  
# video/vnd.iptvforum.2dparityfec-2005

```
# video/vnd.iptvforum.ttsavc
# video/vnd.iptvforum.ttsmpeg2
# video/vnd.motorola.video
# video/vnd.motorola.videop
video/vnd.mpegurl mxu m4u
video/vnd.ms-playready.media.pyv pyv
# video/vnd.nokia.interleaved-multimedia
# video/vnd.nokia.videovoip
# video/vnd.objectvideo
# video/vnd.radgamettools.bink
# video/vnd.radgamettools.smacker
# video/vnd.sealed.mpeg1
# video/vnd.sealed.mpeg4
# video/vnd.sealed.swf
# video/vnd.sealedmedia.softseal.mov
video/vnd.uvu.mp4 uvu uvvu
video/vnd.vivo viv
# video/vp8
video/webm webm
video/x-f4v f4v
video/x-fli fli
video/x-flv flv
video/x-m4v m4v
video/x-matroska mkv mk3d mks
video/x-mng mng
video/x-ms-asf asf asx
video/x-ms-vob vob
video/x-ms-wm wm
video/x-ms-wmv wmv
video/x-ms-wmx wmx
video/x-ms-wvx wvx
video/x-msvideo avi
video/x-sgi-movie movie
video/x-smv smv
x-conference/x-cooltalk ice
```

Found

in path(s):

```
* /opt/cola/permits/1701043699_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/META-INF/http/mime.types
```

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Found in path(s):



\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/META-INF/native-image/io.micronaut.http/micronaut-http/native-image.properties

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Found in path(s):

\* /opt/cola/permits/1701043699\_1685472631.4170268/0/micronaut-http-3-8-8-sources-jar/io/micronaut/http/uri/QueryStringDecoder.java

## 1.405 micronaut-json-core 3.8.8

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\* /opt/cola/permits/1701043805\_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-

```
jar/io/micronaut/json/codec/JsonStreamMediaTypeCodec.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/codec/JsonMediaTypeCodec.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/bind/JsonBeanPropertyBinder.java
*
/opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/convert/JsonNodeConvertibleValues.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/codec/MapperMediaTypeCodec.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/JsonObjectSerializer.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/bind/package-info.java
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```

```
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```
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/bind/JsonBeanPropertyBinderExceptionHandler.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/JsonFeatures.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonArray.java
*
/opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonBoolean.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/JsonMapper.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonScalar.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/convert/JsonConverterRegistrar.java
```

```
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonContainer.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonString.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonNode.java
*
/opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/JsonStreamConfig.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonNumber.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/JsonConfiguration.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonNull.java
* /opt/cola/permits/1701043805_1685472414.5554533/0/micronaut-json-core-3-8-8-sources-
jar/io/micronaut/json/tree/JsonObject.java
```

## 1.406 dropwizard-configuration 2.1.2

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## 1.407 micronaut-http-client-core 3.8.8

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Found in path(s):

```
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
```

jar/io/micronaut/http/client/bind/ClientRequestUriContext.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/StreamingHttpClient.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/HttpClientConfiguration.java  
\*  
/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/StreamingHttpClientRegistry.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/DefaultLoadBalancerResolver.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/interceptor/configuration/package-info.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/DefaultHttpClientConfiguration.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/loadbalance/ServiceInstanceListLoadBalancerFactory.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/loadbalance/package-info.java  
\*  
/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/multipart/Part.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/multipart/StringPart.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/filter/DefaultHttpClientFilterResolver.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/LoadBalancerResolver.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/ProxyHttpClient.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/filters/ClientServerContextFilter.java  
\*  
/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/multipart/MultipartDataFactory.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/exceptions/HttpClientErrorDecoder.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/annotation/package-info.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/interceptor/configuration/NamedClientVersioningConfiguration.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/LoadBalancer.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/ServiceHttpClientConfiguration.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-  
jar/io/micronaut/http/client/exceptions/EmptyResponseException.java  
\*

/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/filter/ClientFilterResolutionContext.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/filters/package-info.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/multipart/package-info.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/loadbalance/DiscoveryClientRoundRobinLoadBalancer.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/HttpClientRegistry.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/sse/SseClient.java  
\*  
/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/multipart/MultipartBody.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/bind/TypedClientArgumentRequestBinder.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/HttpClient.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/bind/ClientArgumentRequestBinder.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/annotation/Client.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/exceptions/HttpClientResponseException.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/interceptor/configuration/ClientVersioningConfiguration.java  
\*  
/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/filters/ClientServerRequestTracingPublisher.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/ReactiveClientResultTransformer.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/bind/AnnotatedClientRequestBinder.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/exceptions/NoHostException.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/interceptor/HttpClientIntroductionAdvice.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/interceptor/configuration/DefaultClientVersioningConfiguration.java  
\*  
/opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/loadbalance/LoadBalancerConverters.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/loadbalance/DiscoveryClientLoadBalancerFactory.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-jar/io/micronaut/http/client/exceptions/HttpClientException.java  
\* /opt/cola/permits/1701043668\_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-

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jar/io/micronaut/http/client/loadbalance/AbstractRoundRobinLoadBalancer.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/bind/DefaultHttpClientBinderRegistry.java
*
/opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/exceptions/package-info.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/interceptor/package-info.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/sse/SseClientRegistry.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/ProxyHttpClientRegistry.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/package-info.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/multipart/FilePart.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
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jar/io/micronaut/http/client/exceptions/ReadTimeoutException.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
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jar/io/micronaut/http/client/multipart/InputStreamPart.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/bind/AnnotatedClientArgumentRequestBinder.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/ServiceHttpClientFactory.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/loadbalance/FixedLoadBalancer.java
*
/opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/BlockingHttpClient.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/bind/HttpClientBinderRegistry.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/multipart/BytePart.java
* /opt/cola/permits/1701043668_1685472858.5070913/0/micronaut-http-client-core-3-8-8-sources-
jar/io/micronaut/http/client/ServiceHttpClientCondition.java
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Found in path(s):

```
* /opt/cola/permits/1701043876_1685472661.0120518/0/micronaut-router-3-8-8-sources-
jar/io/micronaut/web/router/resource/StaticResourceResolverFactory.java
```

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Found in path(s):

\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/version/RouteVersionFilter.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/Route.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/exceptions/UnsatisfiedPartRouteException.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/version/DefaultVersionProvider.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/qualifier/ConsumesMediaTypeQualifier.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/version/resolution/VersionResolver.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/naming/package-info.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/RouteMatchUtils.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/version/resolution/HeaderVersionResolverConfiguration.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/MethodBasedRouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/ErrorResponse.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/GroovyRouteBuilder.groovy  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/MethodBasedRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/RouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/DefaultUriRouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/UriRouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/exceptions/DuplicateRouteException.java  
\*

/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/exceptions/RoutingException.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/resource/package-info.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/BasicObjectRouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/DefaultFilterRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/DefaultRouter.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/FilterRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/naming/HyphenatedUriNamingStrategy.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/naming/ConfigurableUriNamingStrategy.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/qualifier/ProducesMediaTypeQualifier.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/BeanDefinitionFilterRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/Router.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/exceptions/UnsatisfiedRouteException.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/AnnotatedFilterRouteBuilder.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/exceptions/UnsatisfiedQueryValueRouteException.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/UnresolvedArgument.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/AbstractRouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/exceptions/UnsatisfiedBodyRouteException.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/qualifier/package-info.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/version/resolution/HeaderVersionResolver.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/ResourceRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/AnnotatedMethodRouteBuilder.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-jar/io/micronaut/web/router/version/VersionRouteMatchFilter.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-

jar/io/micronaut/web/router/RouteInfo.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/filter/RouteMatchFilter.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/resolution/ParameterVersionResolverConfiguration.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/resource/StaticResourceResolver.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/VersionAwareRouterListener.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/exceptions/UnsatisfiedHeaderRouteException.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/resource/StaticResourceConfiguration.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/NullArgument.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/DefaultRouteBuilder.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/resolution/package-info.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/StatusRouteMatch.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/package-info.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/RoutesVersioningConfiguration.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/UriRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/StatusRoute.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/exceptions/UnsatisfiedPathVariableRouteException.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/filter/FilteredRouter.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/exceptions/UnsatisfiedRequestAttributeRouteException.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/ConfigurationDefaultVersionProvider.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/exceptions/UnsatisfiedCookieValueRouteException.java  
\*  
/opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/resolution/ParameterVersionResolver.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/RouteBuilder.java  
\* /opt/cola/permits/1701043876\_1685472661.0120518/0/micronaut-router-3-8-8-sources-  
jar/io/micronaut/web/router/version/package-info.java

```
* /opt/cola/permits/1701043876_1685472661.0120518/0/micronaut-router-3-8-8-sources-
jar/io/micronaut/web/router/version/resolution/RequestVersionResolver.java
* /opt/cola/permits/1701043876_1685472661.0120518/0/micronaut-router-3-8-8-sources-
jar/io/micronaut/web/router/exceptions/package-info.java
* /opt/cola/permits/1701043876_1685472661.0120518/0/micronaut-router-3-8-8-sources-
jar/io/micronaut/web/router/ErrorResponseMatch.java
```

## 1.413 micronaut-inject 3.8.8

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```
* /opt/cola/permits/1701043884_1685472419.2782958/0/micronaut-inject-3-8-8-jar/META-INF/native-
image/io.micronaut/micronaut-inject/native-image.properties
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```

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```
* /opt/cola/permits/1701043884_1685472419.2782958/0/micronaut-inject-3-8-8-jar/META-
INF/maven/io.micronaut/micronaut-inject/pom.xml
```

## 1.414 micronaut-aop 3.8.8

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\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptorBindingDefinitions.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/chain/AbstractInterceptorChain.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/ConstructorInterceptor.java

\*

/opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/kotlin/KotlinInterceptedMethod.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/internal/InterceptorRegistryBean.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/internal/InterceptorBeanMapper.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/AroundConstruct.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptorKind.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/chain/DefaultInterceptorRegistry.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptorRegistry.java

\*

/opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptorBean.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/chain/ConstructorInterceptorChain.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/ConstructorInvocationContext.java

\* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptorBinding.java

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- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/exceptions/UnimplementedAdviceException.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/Intercepted.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/chain/package-info.java
- \*
- /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/MethodInterceptor.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/util/KotlinInterceptedMethodHelper.kt
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/internal/intercepted/KotlinInterceptedMethod.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/Introduced.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/Around.java
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- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/util/CompletableFutureContinuation.kt
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptedMethod.java
- \*
- /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/Interceptor.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/Introduction.java
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- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/exceptions/package-info.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/util/DelegatingContextContinuation.kt
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/internal/intercepted/SynchronousInterceptedMethod.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/HotSwappableInterceptedProxy.java
- \*
- /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/InterceptedProxy.java
- \* /opt/cola/permits/1701043636\_1685472619.6557014/0/micronaut-aop-3-8-8-sources-jar/io/micronaut/aop/chain/MethodInterceptorChain.java

```

* /opt/cola/permits/1701043636_1685472619.6557014/0/micronaut-aop-3-8-8-sources-
jar/io/micronaut/aop/internal/intercepted/InterceptedMethodUtil.java
* /opt/cola/permits/1701043636_1685472619.6557014/0/micronaut-aop-3-8-8-sources-
jar/io/micronaut/aop/writer/package-info.java
* /opt/cola/permits/1701043636_1685472619.6557014/0/micronaut-aop-3-8-8-sources-
jar/io/micronaut/aop/chain/AdapterIntroduction.java
* /opt/cola/permits/1701043636_1685472619.6557014/0/micronaut-aop-3-8-8-sources-
jar/io/micronaut/aop/chain/InterceptorChain.java
* /opt/cola/permits/1701043636_1685472619.6557014/0/micronaut-aop-3-8-8-sources-
jar/io/micronaut/aop/internal/intercepted/PublisherInterceptedMethod.java
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jar/io/micronaut/aop/package-info.java
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jar/io/micronaut/aop/MethodInvocationContext.java
* /opt/cola/permits/1701043636_1685472619.6557014/0/micronaut-aop-3-8-8-sources-
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jar/io/micronaut/jackson/core/env/CloudFoundryVcapApplicationPropertySourceLoader.java
* /opt/cola/permits/1701043759_1685472447.735827/0/micronaut-jackson-core-3-8-8-sources-
jar/io/micronaut/jackson/core/env/package-info.java
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jar/io/micronaut/jackson/core/parser/JacksonCoreProcessor.java
* /opt/cola/permits/1701043759_1685472447.735827/0/micronaut-jackson-core-3-8-8-sources-
jar/io/micronaut/jackson/core/env/EnvJsonPropertySourceLoader.java
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# 1.422 micronaut-runtime 3.8.8

## 1.422.1 Available under license :

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```

Found in path(s):

```
* /opt/cola/permits/1701043620_1685472884.4043689/0/micronaut-runtime-3-8-8-jar/META-INF/native-image/io.micronaut/micronaut-runtime/native-image.properties
```

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Found in path(s):

\* /opt/cola/permits/1701043620\_1685472884.4043689/0/micronaut-runtime-3-8-8-jar/META-INF/maven/io.micronaut/micronaut-runtime/pom.xml

# 1.423 aws-java-sdk 1.11.942

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\*/

/\*\*

\* <p>

\* Creates a new secret. A secret in Secrets Manager consists of both the protected secret data and the important information needed to manage the secret.

\* </p>

\* <p>

\* Secrets Manager stores the encrypted secret data in one of a collection of "versions" associated with the secret.

\* Each version contains

a copy of the encrypted secret data. Each version is associated with one or more

\* "staging labels" that identify where the version is in the rotation cycle. The

\* `SecretVersionsToStages` field of the secret contains the mapping of staging labels to the active

\* versions of the secret. Versions without a staging label are considered deprecated and not included in the list.

\* </p>

\* <p>

\* You provide the secret data to be encrypted by putting text in either the `SecretString` parameter

or

\* binary data in the `SecretBinary` parameter, but not both. If you include

`SecretString` or

\* `SecretBinary` then Secrets Manager also creates an initial secret version and automatically

attaches

\* the staging label `AWSCURRENT` to the new version.

\* </p>



\* <note>

- \* <ul>
- \* <li>

\* <p>

\* If you call an operation to encrypt or decrypt the <code>SecretString</code> or <code>SecretBinary</code> for a secret in the same account as the calling user and that secret doesn't specify a AWS KMS encryption key, Secrets Manager uses the account's default AWS managed customer master key (CMK) with the alias <code>aws/secretsmanager</code>. If this key doesn't already exist in your account then Secrets Manager creates it for you automatically. All users and roles in the same AWS account automatically have access to use the default CMK. Note that if an Secrets Manager API call results in AWS creating the account's AWS-managed CMK, it can result in a one-time significant delay in returning the result.

- \* </p>
- \* </li>
- \* <li>

\* <p>

\* If the secret resides in a different AWS account from the credentials calling an API that requires encryption or decryption of the secret value then you must create and use a custom AWS KMS CMK because you can't access the default CMK for the account using credentials from a different AWS account. Store the ARN of the CMK in the secret when you create the secret or when you update it by including it in the <code>KMSKeyId</code>. If you call an API that must encrypt or decrypt <code>SecretString</code> or <code>SecretBinary</code> using credentials from a different account then the AWS KMS key policy must grant cross-account access to that other account's user or role for both the kms:GenerateDataKey and kms:Decrypt operations.

- \* </p>
- \* </li>

\* </ul>

\* </note>

\* <p>

\* <p>

\* <p>

\* <b>Minimum permissions</b>

\* </p>

\* <p>

\* To run this command, you must have the following permissions:

- \* </p>
- \* <ul>
- \* <li>

\* <p>

\* secretsmanager:CreateSecret

\* </p>

- \* </li>
- \* <li>
- \* <p>
- \* kms:GenerateDataKey - needed only if you use a customer-managed AWS KMS key to encrypt the secret. You do not need this permission to use the account default AWS managed CMK for Secrets Manager.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* kms:Decrypt - needed only if you use a customer-managed AWS KMS key to encrypt the secret. You do not need this permission to use the account default AWS managed CMK for Secrets Manager.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* secretsmanager:TagResource - needed only if you include the <code>Tags</code> parameter.
- \* </p>
- \* </li>
- \* </ul>
- \* <p>
- \* <b>Related operations</b>
- \* </p>
- \* <ul>
- \* <li>
- \* <p>
- \* To delete a secret, use <a>DeleteSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To modify an existing secret, use <a>UpdateSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To create a new version of a secret, use <a>PutSecretValue</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To retrieve the encrypted secure string and secure binary values, use <a>GetSecretValue</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>

\* To retrieve all other details for a secret, use `<a>DescribeSecret</a>`. This does not include the encrypted secure string and secure binary values.

</p>

</li>

<li>

<p>

\* To retrieve the list of secret versions associated with the current secret, use `<a>DescribeSecret</a>` and examine the `<code>SecretVersionsToStages</code>` response value.

</p>

</li>

</ul>

\*

\* @param createSecretRequest

\* @return A Java Future containing the result of the CreateSecret operation returned by the service.

\* @sample AWSSecretsManagerAsync.CreateSecret

\* @see [AWS API Documentation</a>](http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/CreateSecret)

\*/

/\*\*

\* <p>

\* Retrieves the contents of the encrypted fields `<code>SecretString</code>` or `<code>SecretBinary</code>` from the

the

\* specified

version of a secret, whichever contains content.

\* </p>

\* <p>

\* <b>Minimum permissions</b>

\* </p>

\* <p>

\* To run this command, you must have the following permissions:

\* </p>

\* <ul>

\* <li>

\* <p>

\* secretsmanager:GetSecretValue

\* </p>

\* </li>

\* <li>

\* <p>

\* kms:Decrypt - required only if you use a customer-managed AWS KMS key to encrypt the secret. You do not need this

\* permission to use the account's default AWS managed CMK for Secrets Manager.

\* </p>

\* </li>

\* </ul>

\* <p>

\* <b>Related operations</b>

```

* </p>
* <ul>
* <li>
* <p>
* To create a new version of the secret with different encrypted information, use <a>PutSecretValue</a>.
* </p>
* </li>
* <li>
* <p>
* To retrieve the non-encrypted details for the secret, use <a>DescribeSecret</a>.
* </p>
* </li>
* </ul>
*
* @param getSecretValueRequest
* @return A Java Future containing the result of the GetSecretValue operation returned by the service.
* @sample AWSSecretsManagerAsync.GetSecretValue
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/GetSecretValue"
target="_top">AWS
*   API Documentation</a>
*/
/**
* <p>
* Stores a new encrypted secret value in the specified secret. To do this, the operation creates a new version and
* attaches it to the secret. The version can contain a new <code>SecretString</code> value or a new
* <code>SecretBinary</code> value. You can also specify the staging labels that are initially attached to the new
* version.
* </p>
* <note>
* <p>
* The Secrets Manager console uses only the <code>SecretString</code> field. To add binary data to a secret
with
* the <code>SecretBinary</code> field you must use the AWS CLI or one of the AWS SDKs.
* </p>
* </note>
* <ul>
* <li>

* <p>
* If this operation creates the first version for the secret then Secrets Manager automatically attaches the
* staging label <code>AWSCURRENT</code> to the new version.
* </p>
* </li>
* <li>
* <p>
* If another version of this secret already exists, then this operation does not automatically move any staging
* labels other than those that you explicitly specify in the <code>VersionStages</code> parameter.
* </p>

```

- \* </li>
- \* <li>
- \* <p>
- \* If this operation moves the staging label <code>AWSCURRENT</code> from another version to this version (because
  - \* you included it in the <code>StagingLabels</code> parameter) then Secrets Manager also automatically moves the
    - \* staging label <code>AWSPREVIOUS</code> to the version that <code>AWSCURRENT</code> was removed from.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* This operation is idempotent. If a version with a <code>VersionId</code> with the same value as the
  - \* <code>ClientRequestToken</code> parameter already exists and you specify the same secret data, the operation
    - \* succeeds but does nothing. However, if the secret data is different, then the operation fails because you cannot
      - \* modify an existing version; you can only create new ones.
- \* </p>
- \* </li>
- \* </ul>
- \* <note>
- \* <ul>
- \* <li>
- \* <p>
- \* If you call an operation to encrypt or decrypt the <code>SecretString</code> or <code>SecretBinary</code> for a
  - \* secret in the same account as the calling user and that secret doesn't specify a AWS KMS encryption key,
    - Secrets
      - \* Manager uses the account's default AWS managed customer master key (CMK) with the alias
        - \* <code>aws/secretsmanager</code>. If this key doesn't already exist in your account then Secrets Manager creates
          - \* it for you automatically. All users and roles in the same AWS account automatically have access to use the
            - \* default CMK. Note that if an Secrets
              - Manager API call results in AWS creating the account's AWS-managed CMK, it
                - \* can result in a one-time significant delay in returning the result.
  - \* </p>
  - \* </li>
  - \* <li>
  - \* <p>
  - \* If the secret resides in a different AWS account from the credentials calling an API that requires encryption or
    - \* decryption of the secret value then you must create and use a custom AWS KMS CMK because you can't access the
      - \* default CMK for the account using credentials from a different AWS account. Store the ARN of the CMK in the
        - \* secret when you create the secret or when you update it by including it in the <code>KMSKeyId</code>. If you call
          - \* an API that must encrypt or decrypt <code>SecretString</code> or <code>SecretBinary</code> using credentials from

\* a different account then the AWS KMS key policy must grant cross-account access to that other account's user

or

\* role for both the kms:GenerateDataKey and kms:Decrypt operations.

\* </p>

\* </li>

\* </ul>

\* </note>

\* <p>

\* <b>Minimum permissions</b>

\* </p>

\* <p>

\* To run this command, you must have the following permissions:

\* </p>

\* <ul>

\* <li>

\* <p>

\* secretsmanager:PutSecretValue

\* </p>

\* </li>

\* <li>

\* <p>

\* kms:GenerateDataKey - needed only if you use a customer-managed AWS KMS key to encrypt the secret. You

do not

\* need this permission to use the account's default AWS managed CMK for Secrets Manager.

\* </p>

\* </li>

\* </ul>

\* <p>

\* <b>Related operations</b>

\* </p>

\* <ul>

\* <li>

\* <p>

\* To retrieve the encrypted value you store in the version of a secret, use <a>GetSecretValue</a>.

\* </p>

\* </li>

\* <li>

\* <p>

\* To create a secret, use <a>CreateSecret</a>.

\* </p>

\* </li>

\* <li>

\* <p>

\* To get the details for a secret, use <a>DescribeSecret</a>.

\* </p>

\* </li>

\* <li>

```

* <p>
* To list the versions attached to a secret, use <a>ListSecretVersionIds</a>.
* </p>
* </li>
* </ul>
*
* @param putSecretValueRequest
* @return A Java Future containing the result of the PutSecretValue operation returned by the service.
* @sample AWSSecretsManagerAsync.PutSecretValue
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/PutSecretValue"
target="_top">AWS
*   API Documentation</a>
*/
/**
* <p>
* Modifies many of the details of the specified secret. If you include a <code>ClientRequestToken</code> and
* <i>either</i> <code>SecretString</code> or <code>SecretBinary</code> then it also creates a new version
attached
* to the secret.
* </p>
* <p>
* To modify the rotation configuration of a secret, use <a>RotateSecret</a> instead.
* </p>
* <note>
* <p>
* The Secrets Manager console uses only the <code>SecretString</code> parameter
and therefore limits you to
* encrypting and storing only a text string. To encrypt and store binary data as part of the version of a secret,
* you must use either the AWS CLI or one of the AWS SDKs.
* </p>
* </note>
* <ul>
* <li>
* <p>
* If a version with a <code>VersionId</code> with the same value as the <code>ClientRequestToken</code>
parameter
* already exists, the operation results in an error. You cannot modify an existing version, you can only create a
* new version.
* </p>
* </li>
* <li>
* <p>
* If you include <code>SecretString</code> or <code>SecretBinary</code> to create a new secret version,
Secrets
* Manager automatically attaches the staging label <code>AWSCURRENT</code> to the new version.
* </p>
* </li>
* </ul>

```

\* <note>

- \* <ul>
- \* <li>
- \* <p>

\* If you call an operation to encrypt or decrypt the `SecretString` or `SecretBinary` for a secret in the same account as the calling user and that secret doesn't specify a AWS KMS encryption key, Secrets Manager uses the account's default AWS managed customer master key (CMK) with the alias `aws/secretsmanager`. If this key doesn't already exist in your account then Secrets Manager creates it for you automatically. All users and roles in the same AWS account automatically have access to use the default CMK. Note that if an Secrets Manager API call results in AWS creating the account's AWS-managed CMK, it can result in a one-time significant delay in returning the result.

- \* </p>
- \* </li>
- \* <li>
- \* <p>

\* If the secret resides in a different AWS account from the credentials calling an API that requires encryption or decryption of the secret value then you must create and use a custom AWS KMS CMK because you can't access the default CMK for the account using credentials from a different AWS account. Store the ARN of the CMK in the secret when you create the secret or when you update it by including it in the `KMSKeyId`. If you call an API that must encrypt or decrypt `SecretString` or `SecretBinary` using credentials from a different account then the AWS KMS key policy must grant cross-account access to that other account's user or role for both the `kms:GenerateDataKey` and `kms:Decrypt` operations.

- \* </p>
- \* </li>
- \* </ul>
- \* </note>
- \* <p>
- \* <b>Minimum permissions</b>
- \* </p>
- \* <p>
- \* To run this command, you must have the following permissions:
- \* </p>
- \* <ul>
- \* <li>
- \* <p>
- \* `secretsmanager:UpdateSecret`
- \* </p>
- \* </li>
- \* </ul>



```

* <p>
* kms:GenerateDataKey - needed only if you use a custom AWS KMS key to encrypt the secret. You do not need
this
* permission to use the account's AWS managed CMK for Secrets Manager.
* </p>
* </li>
* <li>
* <p>
* kms:Decrypt - needed only if you use a custom AWS KMS key to encrypt the secret. You do not need this
permission
* to use the account's AWS managed CMK for Secrets Manager.
* </p>
* </li>
* </ul>
* <p>
* <b>Related operations</b>
* </p>
* <ul>
* <li>
* <p>
* To create a new secret, use <a>CreateSecret</a>.
* </p>
* </li>
* <li>
* <p>
* To add only a new version to an existing secret, use <a>PutSecretValue</a>.
* </p>
* </li>
* <li>
* <p>
* To get the details for a secret, use <a>DescribeSecret</a>.
* </p>
* </li>
* <li>
* <p>
* To list the versions contained in a secret, use <a>ListSecretVersionIds</a>.
* </p>
* </li>
* </ul>
*
* @param updateSecretRequest
* @return A Java Future containing the result of the UpdateSecret operation returned by the service.
* @sample AWSSecretsManagerAsync.UpdateSecret
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/UpdateSecret"
target="_top">AWS
*   API Documentation</a>
*/

```

Found in path(s):

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/AWSSecretsManagerAsync.java

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\*/

Found in path(s):

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/PutSecretValueResultJsonUnmarshaller.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/CancelRotateSecretResult.java

\*

/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/CreateSecretResultJsonUnmarshaller.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/ListSecretsResult.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/RestoreSecretResult.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/UntagResourceResult.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/PutResourcePolicyRequest.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/InvalidRequestExceptionUnmarshaller.java

\*

/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/RestoreSecretRequest.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/GetRandomPasswordResultJsonUnmarshaller.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/ValidateResourcePolicyRequest.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/InternalServiceErrorExceptionUnmarshaller.java

\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/UntagResourceRequestMarshaller.java  
\*  
/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/ResourceNotFoundExceptionUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/EncryptionFailureExceptionUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/UpdateSecretVersionStageResultJsonUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/UpdateSecretVersionStageRequestProtocolMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/GetRandomPasswordResult.java  
\*  
/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/SecretVersionsListEntryJsonUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/ValidateResourcePolicyResult.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/DeleteSecretRequestProtocolMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/DeleteResourcePolicyResult.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/CreateSecretRequestProtocolMarshaller.java  
\*  
/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/TagResourceResult.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/MalformedPolicyDocumentExceptionUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/UntagResourceRequestProtocolMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/RestoreSecretResultJsonUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/TagResourceRequestMarshaller.java  
\*  
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\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/FilterMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/InvalidNextTokenExceptionUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/UpdateSecretRequestProtocolMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/PublicPolicyException.java  
\*  
/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/package-info.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/GetResourcePolicyResultJsonUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/UpdateSecretVersionStageRequestMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/TagResourceResultJsonUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/GetResourcePolicyRequestProtocolMarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/UpdateSecretRequest.java  
\*



/opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/RotateSecretRequest.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/DescribeSecretResultJsonUnmarshaller.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/GetRandomPasswordRequest.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/ResourceNotFoundException.java  
\* /opt/cola/permits/1701365397\_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-jar/com/amazonaws/services/secretsmanager/model/transform/PutResourcePolicyResultJsonUnmarshaller.java  
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\*/

/\*\*

\* <p>

\* Creates a new secret. A secret in Secrets Manager consists of both the protected secret data and the important information needed to manage the secret.

\* </p>

\* <p>

\* Secrets Manager stores the encrypted secret data in one of a collection of "versions" associated with the secret.

\* Each version contains

a copy of the encrypted secret data. Each version is associated with one or more

\* "staging labels" that identify where the version is in the rotation cycle. The

\* `SecretVersionsToStages` field of the secret contains the mapping of staging labels to the active versions of the secret. Versions without a staging label are considered deprecated and not included in the list.

\* </p>

\* <p>

\* You provide the secret data to be encrypted by putting text in either the `SecretString` parameter or

\* binary data in the `SecretBinary` parameter, but not both. If you include `SecretString` or

\* `SecretBinary` then Secrets Manager also creates an initial secret version and automatically attaches

\* the staging label `AWSCURRENT` to the new version.

\* </p>

\* <note>

\* <ul>

\* <li>

\* <p>

\* If you call an operation to encrypt or decrypt the <code>SecretString</code> or <code>SecretBinary</code> for a secret in the same account as the calling user and that secret doesn't specify a AWS KMS encryption key, Secrets Manager uses the account's default AWS managed customer master key (CMK) with the alias <code>aws/secretsmanager</code>. If this key doesn't already exist in your account then Secrets Manager creates it for you automatically. All users and roles in the same AWS account automatically have access to use the default CMK. Note that if an Secrets Manager API call results in AWS creating the account's AWS-managed CMK, it can result in a one-time significant delay in returning the result.

\* </p>

\* </li>

\* <li>

\* <p>

\* If the secret resides in a different AWS account from the credentials calling an API that requires encryption or decryption of the secret value then you must create and use a custom AWS KMS CMK because you can't access the default CMK for the account using credentials from a different AWS account. Store the ARN of the CMK in the secret when you create the secret or when you update it by including it in the <code>KMSKeyId</code>. If you call an API that must encrypt or decrypt <code>SecretString</code> or <code>SecretBinary</code> using credentials from a different account then the AWS KMS key policy must grant cross-account access to that other account's user or role for both the kms:GenerateDataKey and kms:Decrypt operations.

\* </p>

\* </li>

\* </ul>

\* </note>

\* <p>

\* </p>

\* <p>

\* <b>Minimum permissions</b>

\* </p>

\* <p>

\* To run this command, you must have the following permissions:

\* </p>

\* <ul>

\* <li>

\* <p>

\* secretsmanager:CreateSecret

- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* kms:GenerateDataKey - needed only if you use a customer-managed AWS KMS key to encrypt the secret. You do not need this permission to use the account default AWS managed CMK for Secrets Manager.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* kms:Decrypt - needed only if you use a customer-managed AWS KMS key to encrypt the secret. You do not need this permission to use the account default AWS managed CMK for Secrets Manager.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* secretsmanager:TagResource - needed only if you include the <code>Tags</code> parameter.
- \* </p>
- \* </li>
- \* </ul>
- \* <p>
- \* <b>Related operations</b>
- \* </p>
- \* <ul>
- \* <li>
- \* <p>
- \* To delete a secret, use <a>DeleteSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To modify an existing secret, use <a>UpdateSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To create a new version of a secret, use <a>PutSecretValue</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To retrieve the encrypted secure string and secure binary values, use <a>GetSecretValue</a>.
- \* </p>
- \* </li>
- \* <li>

\* <p>

\* To retrieve all other details for a secret, use <a>DescribeSecret</a>. This does not include the encrypted secure string and secure binary values.

\* </p>

\* </li>

\* <li>

\* <p>

\* To retrieve the list of secret versions associated with the current secret, use <a>DescribeSecret</a> and examine the <code>SecretVersionsToStages</code> response value.

\* </p>

\* </li>

\* </ul>

\*

\* @param createSecretRequest

\* @return Result of the CreateSecret operation returned by the service.

\* @throws InvalidParameterException

\* You provided an invalid value for a parameter.

\* @throws InvalidRequestException

\* You provided a parameter value that is not valid for the current state of the resource.</p>

\* <p>

\* Possible causes:

\* </p>

\* <ul>

\* <li>

\* <p>

\* You tried to perform the operation on a secret that's currently marked deleted.

\* </p>

\* </li>

\* <li>

\* <p>

\* You tried to enable rotation on a secret that doesn't already have a Lambda function ARN configured and you didn't include such an ARN as a parameter in this call.

\* </p>

\* </li>

\* @throws LimitExceededException

\* The request failed because it would exceed one of the Secrets Manager internal limits.

\* @throws EncryptionFailureException

\* Secrets Manager can't encrypt the protected secret text using the provided KMS key. Check that the customer master key (CMK) is available, enabled, and not in an invalid state. For more information, see <a href="http://docs.aws.amazon.com/kms/latest/developerguide/key-state.html">How Key State Affects Use of a Customer Master Key</a>.

\* @throws ResourceExistsException

\* A resource with the ID you requested already exists.

\* @throws ResourceNotFoundException

\* We can't find the resource that you asked for.

```

* @throws MalformedPolicyDocumentException
*     The policy document that you provided isn't valid.
* @throws InternalServiceErrorException
*     An error occurred on the server side.
* @throws PreconditionNotMetException
*     The request failed because you did not complete all the prerequisite steps.
* @sample AWSSecretsManager.CreateSecret
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/CreateSecret"
target="_top">AWS
*     API Documentation</a>
*/
/**
* <p>
* Retrieves the contents of the encrypted fields <code>SecretString</code> or <code>SecretBinary</code> from
the
* specified version of a secret, whichever contains content.
* </p>
* <p>
* <b>Minimum permissions</b>
* </p>
* <p>
* To run this command, you must have the following permissions:
* </p>
* <ul>
* <li>
* <p>
* secretsmanager:GetSecretValue
* </p>
* </li>
* <li>
* <p>
* kms:Decrypt - required only if you use a customer-managed AWS KMS key to encrypt the secret. You do not
need this
* permission to use the account's default AWS managed CMK for Secrets Manager.
* </p>
* </li>
* </ul>
* <p>
* <b>Related operations</b>
* </p>
* <ul>
* <li>
* <p>
* To create a new version of the secret with different encrypted information, use <a>PutSecretValue</a>.
* </p>
* </li>
* <li>
* <p>

```

```

* To retrieve the non-encrypted details for the secret, use DescribeSecret.
* </p>
* </li>
* </ul>
*
* @param getSecretValueRequest
* @return Result of the GetSecretValue operation returned by the service.
* @throws ResourceNotFoundException
*     We can't find the resource that you asked for.
* @throws InvalidParameterException
*     You provided an invalid value for a parameter.
* @throws InvalidRequestException
*     You provided a parameter value that is not valid for the current state of the resource.</p>
* <p>
*     Possible causes:
* </p>
* <ul>
* <li>
* <p>
*     You tried to perform the operation on a secret that's currently marked deleted.
* </p>
* </li>
* <li>
* <p>
*     You tried to enable rotation on a secret that doesn't already have a Lambda function ARN configured and
*     you didn't include such an ARN as a parameter in this call.
* </p>
* </li>
* @throws DecryptionFailureException
*     Secrets Manager can't decrypt the protected secret text using the provided KMS key.
* @throws InternalServiceErrorException
*     An error occurred on the server side.
* @sample AWSSecretsManager.GetSecretValue
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/GetSecretValue"
target="_top">AWS
*     API Documentation</a>
*/
/**
* <p>
* Stores a new encrypted secret value in the specified secret. To do this, the operation creates a new version and
* attaches it to the secret. The version can contain a new SecretString value or a new
* SecretBinary value. You can also specify the staging labels that are initially attached to the new
* version.
* </p>
* <note>
* <p>
* The Secrets Manager console uses only the SecretString field. To add binary data to a secret
with

```

\* the `SecretBinary` field you must use the AWS CLI or one of the AWS SDKs.

\* `</p>`

\* `</note>`

\* `<ul>`

\* `<li>`

\* `<p>`

\*  
\*

If this operation creates the first version for the secret then Secrets Manager automatically attaches the

\* staging label `AWSCURRENT` to the new version.

\* `</p>`

\* `</li>`

\* `<li>`

\* `<p>`

\* If another version of this secret already exists, then this operation does not automatically move any staging

\* labels other than those that you explicitly specify in the `VersionStages` parameter.

\* `</p>`

\* `</li>`

\* `<li>`

\* `<p>`

\* If this operation moves the staging label `AWSCURRENT` from another version to this version (because

\* you included it in the `StagingLabels` parameter) then Secrets Manager also automatically moves the

\* staging label `AWSPREVIOUS` to the version that `AWSCURRENT` was removed from.

\* `</p>`

\* `</li>`

\* `<li>`

\* `<p>`

\* This operation is idempotent. If a version with a `VersionId` with the same value as the

\* `ClientRequestToken`

parameter already exists and you specify the same secret data, the operation

\* succeeds but does nothing. However, if the secret data is different, then the operation fails because you cannot

\* modify an existing version; you can only create new ones.

\* `</p>`

\* `</li>`

\* `</ul>`

\* `<note>`

\* `<ul>`

\* `<li>`

\* `<p>`

\* If you call an operation to encrypt or decrypt the `SecretString` or `SecretBinary` for a

\* secret in the same account as the calling user and that secret doesn't specify a AWS KMS encryption key, Secrets

\* Manager uses the account's default AWS managed customer master key (CMK) with the alias

\* `aws/secretsmanager`. If this key doesn't already exist in your account then Secrets Manager creates

- \* it for you automatically. All users and roles in the same AWS account automatically have access to use the
- \* default CMK. Note that if an Secrets Manager API

call results in AWS creating the account's AWS-managed CMK, it

- \* can result in a one-time significant delay in returning the result.

\* </p>

- \* </li>
- \* <li>
- \* <p>

\* If the secret resides in a different AWS account from the credentials calling an API that requires encryption or

\* decryption of the secret value then you must create and use a custom AWS KMS CMK because you can't access

the

- \* default CMK for the account using credentials from a different AWS account. Store the ARN of the CMK in the
- \* secret when you create the secret or when you update it by including it in the <code>KMSKeyId</code>. If you

call

- \* an API that must encrypt or decrypt <code>SecretString</code> or <code>SecretBinary</code> using

credentials from

- \* a different account then the AWS KMS key policy must grant cross-account access to that other account's user

or

- \* role for both the kms:GenerateDataKey and kms:Decrypt operations.

\* </p>

- \* </li>

\* </ul>

\* </note>

\* <p>

\* <b>Minimum permissions</b>

\* </p>

\* <p>

\* To run this command, you must have the following permissions:

\* </p>

- \* <ul>
- \* <li>
- \* <p>
- \* secretsmanager:PutSecretValue
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* kms:GenerateDataKey - needed only if you use a customer-managed AWS KMS key to encrypt the secret. You

do not

- \* need this permission to use the account's default AWS managed CMK for Secrets Manager.

\* </p>

- \* </li>
- \* </ul>
- \* <p>
- \* <b>Related operations</b>
- \* </p>
- \* <ul>



- \* <li>
- \* <p>
- \* To retrieve the encrypted value you store in the version of a secret, use <a>GetSecretValue</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To create a secret, use <a>CreateSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To get the details for a secret, use <a>DescribeSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To list the versions attached to a secret, use <a>ListSecretVersionIds</a>.
- \* </p>
- \* </li>
- \* </ul>
- \*
- \* @param putSecretValueRequest
- \* @return Result of the PutSecretValue operation returned by the service.
- \* @throws InvalidParameterException
- \* You provided an invalid value for a parameter.
- \* @throws InvalidRequestException
- \* You provided a parameter value that is not valid for the current state of the resource.</p>
- \* <p>
- \* Possible causes:
- \* </p>
- \* <ul>
- \* <li>
- \* <p>
- \* You tried to perform the operation on a secret that's currently marked deleted.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* You tried to enable rotation on a secret that doesn't already have a Lambda function ARN configured and you didn't include such an ARN as a parameter in this call.
- \* </p>
- \* </li>
- \* @throws LimitExceededException
- \* The request failed because it would exceed one of the Secrets Manager internal limits.
- \* @throws EncryptionFailureException
- \* Secrets Manager can't encrypt the protected secret text using the provided KMS key. Check that the

```

* customer master key (CMK) is available, enabled, and not in an invalid state. For more information, see
* <a href="http://docs.aws.amazon.com/kms/latest/developerguide/key-state.html">How Key State Affects
Use
* of a Customer Master Key</a>.
* @throws ResourceExistsException
* A resource with the ID you requested already exists.
* @throws ResourceNotFoundException
* We can't find the resource that you asked for.
* @throws InternalServiceErrorException
* An error occurred on the server side.
* @sample AWSSEcretsManager.PutSecretValue
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/PutSecretValue"
target="_top">AWS
* API Documentation</a>
*/
/**
* <p>
* Modifies many of the details of the specified secret. If you include a <code>ClientRequestToken</code> and
* <i>either</i> <code>SecretString</code> or <code>SecretBinary</code> then it also creates a new version
attached
* to the secret.
* </p>
* <p>
* To modify the rotation configuration of a secret, use <a>RotateSecret</a> instead.
* </p>
* <note>
* <p>
* The Secrets Manager console uses only the <code>SecretString</code> parameter and therefore limits you to
* encrypting and storing only a text string. To encrypt and store binary data as part of the version of a secret,
* you must use either the AWS CLI or one of the AWS SDKs.
* </p>
* </note>
* <ul>
* <li>
* <p>
* If a version with a <code>VersionId</code> with the same value as the <code>ClientRequestToken</code>
parameter
* already exists, the operation results in an error. You cannot modify an existing version, you can only create a
* new version.
* </p>
* </li>
* <li>
* <p>
* If you include <code>SecretString</code> or <code>SecretBinary</code> to create a new secret version,
Secrets
* Manager automatically attaches the staging label <code>AWSCURRENT</code> to the new version.
* </p>
* </li>

```

- \* </ul>
- \* <note>
- \* <ul>
- \* <li>
- \* <p>
- \* If you call an operation to encrypt or decrypt the <code>SecretString</code> or <code>SecretBinary</code> for a
  - \* secret in the same account as the calling user and that secret doesn't specify a AWS KMS encryption key, Secrets Manager uses the account's default AWS managed customer master key (CMK) with the alias <code>aws/secretsmanager</code>. If this key doesn't already exist in your account then Secrets Manager creates it for you automatically.
- All users and roles in the same AWS account automatically have access to use the
  - \* default CMK. Note that if an Secrets Manager API call results in AWS creating the account's AWS-managed CMK, it can result in a one-time significant delay in returning the result.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* If the secret resides in a different AWS account from the credentials calling an API that requires encryption or decryption of the secret value then you must create and use a custom AWS KMS CMK because you can't access the default CMK for the account using credentials from a different AWS account. Store the ARN of the CMK in the secret when you create the secret or when you update it by including it in the <code>KMSKeyId</code>. If you call an API that must encrypt or decrypt <code>SecretString</code> or <code>SecretBinary</code> using credentials from a different account then the AWS KMS key policy must grant cross-account access to that other account's user or role for both the kms:GenerateDataKey and kms:Decrypt operations.
- \* </p>
- \* </li>
- \* </ul>
- \* </note>
- \* <p>
- \* <b>Minimum permissions</b>
- \* </p>
- \* <p>
- \* To run this command, you must have the following permissions:
- \* </p>
- \* <ul>
- \* <li>
- \* <p>
- \* secretsmanager:UpdateSecret
- \* </p>
- \* </li>

- \* <li>
- \* <p>
- \* kms:GenerateDataKey - needed only if you use a custom AWS KMS key to encrypt the secret. You do not need this
- \* permission to use the account's AWS managed CMK for Secrets Manager.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* kms:Decrypt - needed only if you use a custom AWS KMS key to encrypt the secret. You do not need this permission
- \* to use the account's AWS managed CMK for Secrets Manager.
- \* </p>
- \* </li>
- \* </ul>
- \* <p>
- \* <b>Related operations</b>
- \* </p>
- \* <ul>
- \* <li>
- \* <p>
- \* To
- create a new secret, use <a>CreateSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To add only a new version to an existing secret, use <a>PutSecretValue</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To get the details for a secret, use <a>DescribeSecret</a>.
- \* </p>
- \* </li>
- \* <li>
- \* <p>
- \* To list the versions contained in a secret, use <a>ListSecretVersionIds</a>.
- \* </p>
- \* </li>
- \* </ul>
- \*
- \* @param updateSecretRequest
- \* @return Result of the UpdateSecret operation returned by the service.
- \* @throws InvalidParameterException
- \* You provided an invalid value for a parameter.
- \* @throws InvalidRequestException
- \* You provided a parameter value that is not valid for the current state of the resource.</p>

```

* <p>
* Possible causes:
* </p>
* <ul>
* <li>
* <p>
* You tried to perform the
operation on a secret that's currently marked deleted.
* </p>
* </li>
* <li>
* <p>
* You tried to enable rotation on a secret that doesn't already have a Lambda function ARN configured and
* you didn't include such an ARN as a parameter in this call.
* </p>
* </li>
* @throws LimitExceededException
* The request failed because it would exceed one of the Secrets Manager internal limits.
* @throws EncryptionFailureException
* Secrets Manager can't encrypt the protected secret text using the provided KMS key. Check that the
* customer master key (CMK) is available, enabled, and not in an invalid state. For more information, see
* <a href="http://docs.aws.amazon.com/kms/latest/developerguide/key-state.html">How Key State Affects
Use
* of a Customer Master Key</a>.
* @throws ResourceExistsException
*
A resource with the ID you requested already exists.
* @throws ResourceNotFoundException
* We can't find the resource that you asked for.
* @throws MalformedPolicyDocumentException
* The policy document that you provided isn't valid.
* @throws InternalServiceErrorException
* An error occurred on the server side.
* @throws PreconditionNotMetException
* The request failed because you did not complete all the prerequisite steps.
* @sample AWSSecretsManager.UpdateSecret
* @see <a href="http://docs.aws.amazon.com/goto/WebAPI/secretsmanager-2017-10-17/UpdateSecret"
target="_top">AWS
* API Documentation</a>
*/

```

Found in path(s):

```

* /opt/cola/permits/1701365397_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-
jar/com/amazonaws/services/secretsmanager/AWSSecretsManagerClient.java
* /opt/cola/permits/1701365397_1685520294.5569222/0/aws-java-sdk-secretsmanager-1-11-942-sources-1-
jar/com/amazonaws/services/secretsmanager/AWSSecretsManager.java

```

# 1.424 j2objc-annotations 2.8

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 * WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
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 * limitations under the License.
 */
```

Found in path(s):

```
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/OnDealloc.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/J2ObjCIncompatible.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/LoopTranslation.java
*
 /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/RetainedLocalRef.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/ReflectionSupport.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/Property.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/WeakOuter.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/RetainedWith.java
* /opt/cola/permits/1704412778_1685746927.655543/0/j2objc-annotations-2-8-sources-
jar/com/google/j2objc/annotations/ObjectiveCName.java
```

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```
/*
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\*/

Found in path(s):

\* /opt/cola/permits/1704412778\_1685746927.655543/0/j2objc-annotations-2-8-sources-jar/com/google/j2objc/annotations/Weak.java  
\* /opt/cola/permits/1704412778\_1685746927.655543/0/j2objc-annotations-2-8-sources-jar/com/google/j2objc/annotations/AutoreleasePool.java

# 1.425 guava 32.0.1-jre

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# 1.426 snappy 0.4

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## 1.427 libnss-nis 2.17

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```

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@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample
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The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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@end enumerate

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#### @enumerate a

#### @item

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#### @item

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@item

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@subheading END OF TERMS AND CONDITIONS

@page

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```
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@var{one line to give the library's name and an idea of what it does.}
Copyright (C) @var{year} @var{name of author}
```

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```
@end
smallexample
```

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```
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`Frob' (a library for tweaking knobs) written by James Random Hacker.
```

```
@var{signature of Ty Coon}, 1 April 1990
Ty Coon, President of Vice
@end smallexample
```

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```
Gnomovision version 69, Copyright (C) year name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

The hypothetical commands

```
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.
```

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```
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```

```
<signature of Ty Coon>, 1 April 1989
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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3				
2.1.2	2002	PSF	yes	
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes

2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009	PSF	yes
2.6.5	2.6.4	2010	PSF	yes
2.7	2.6	2010	PSF	yes

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-->

Found in path(s):

\* /opt/cola/permits/1743275143\_1689175756.0938716/0/error-prone-annotations-2-20-0-jar/META-INF/maven/com.google.errorprone/error\_prone\_annotations/pom.xml

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Manifest-Version: 1.0

Created-By: Maven JAR Plugin 3.2.2

Build-Jdk-Spec: 17

Automatic-Module-Name: com.google.errorprone.annotations

Bundle-Description: Error Prone is a static analysis tool for Java that catches common programming mistakes at compile-time.

Bundle-DocURL: [https://errorprone.info/error\\_prone\\_annotations](https://errorprone.info/error_prone_annotations)

Bundle-License: "Apache 2.0";link="http://www.apache.org/licenses/LICENSE-2.0.txt"

Bundle-ManifestVersion: 2

Bundle-Name: error-prone annotations

Bundle-SCM: url="https://github.com/google/error-prone/error\_prone\_annot

ations",connection="scm:git:https://github.com/google/error-prone.git/e  
rror\_prone\_annotations",developer-connection="scm:git:git@github.com:go  
ogle/error-prone.git/error\_prone\_annotations",tag=HEAD  
Bundle-SymbolicName: com.google.errorprone.annotations  
Bundle-Vendor: Google LLC  
Bundle-Version: 2.20.0  
Export-Package: com.google.errorprone.annotations;uses:="javax.lang.mode  
l.element";version="2.20.0",com.google.errorprone.annotations.concurren  
t;version="2.20.0"  
Import-Package: javax.lang.model.element  
Require-Capability: osgi.ee;filter:="(&(osgi.ee=JavaSE)(version=1.8))"

Found in path(s):

\* /opt/cola/permits/1743275143\_1689175756.0938716/0/error-prone-annotations-2-20-0-jar/META-  
INF/MANIFEST.MF

## 1.433 bind 9.11.4-26.P2.el7\_9.14

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- \* `configure.ac`, `Makefile.am`: The original versions were derived from the



ones in the XML Catalog Manager project, version 2.2.

Author: Julio Merino <jmmv@users.sourceforge.net>

\* atf-c/ui.c: The format\_paragraph and format\_text functions were derived from the ones in the Monotone project, revision 3a0982da308228d796df35f98d787c5cff2bb5b6.

Author: Julio Merino <jmmv@NetBSD.org>

\* atf-c++/detail/io.hpp, atf-c++/detail/io.cpp, atf-c++/detail/io\_test.cpp: These files were derived from the file\_handle, systembuf, pipe and pistream classes and tests found in the Boost.Process library.

Author: Julio Merino <jmmv84@gmail.com>

\* admin/check-style.sh, admin/check-style-common.awk, admin/check-style-cpp.awk, admin/check-style-shell.awk: These files, except the first one, were first implemented in the Buildtool project. They were later adapted to be part of Boost.Process and, during that process, the shell script was created.

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=====  
vim: filetype=text:textwidth=75:expandtab:shiftwidth=2:softtabstop=2  
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-->

<!-- Generate ISC copyright comments from Docbook copyright metadata. -->

```
<xsl:stylesheet version="1.0"
```

```
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
```

```
  xmlns:xi="http://www.w3.org/2001/XInclude"
```

```
  xmlns:db="http://docbook.org/ns/docbook">
```

```
  <xsl:template name="isc.copyright.format">
```

```
    <xsl:param name="text"/>
```

```
    <xsl:value-of select="$isc.copyright.leader"/>
```

```
    <xsl:value-of select="normalize-space(substring-before($text, '&#10;'))"/>
```

```
    <xsl:text>&#10;</xsl:text>
```

```
    <xsl:variable name="rest" select="substring-after($text, '&#10;')"/>
```

```
    <xsl:if test="translate($rest, '&#9;&#32;', '')">
```

```

    <xsl:call-template name="isc.copyright.format">
      <xsl:with-param name="text" select="$rest"/>
    </xsl:call-template>
  </xsl:if>
</xsl:template>

<xsl:variable name="isc.copyright.text">
  <xsl:text>
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  </xsl:text>
</xsl:variable>

<xsl:variable name="isc.copyright">
  <xsl:call-template name="isc.copyright.format">
    <xsl:with-param name="text">
      <xsl:for-each select="book/info/copyright | refentry/docinfo/copyright">
        <xsl:text>Copyright (C) </xsl:text>
        <xsl:call-template name="copyright.years">
          <xsl:with-param name="years" select="year"/>
        </xsl:call-template>
        <xsl:text> </xsl:text>
        <xsl:value-of select="holder"/>
        <xsl:value-of select="$isc.copyright.breakline"/>
        <xsl:text>&#10;</xsl:text>
      </xsl:for-each>
      <xsl:value-of
        select="$isc.copyright.text"/>
    </xsl:with-param>
  </xsl:call-template>
</xsl:variable>
</xsl:stylesheet>

```

<!--

- Local variables:

- mode: sgml

- End:

-->

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# 1.437 kotlin 1.9.10

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\* /opt/cola/permits/1815024093\_1696602312.9668024/0/kotlin-1-9-10-2-tgz/package/kotlin.js

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* /opt/cola/permits/1820506552_1697149599.2539036/0/zt-zip-1-14-sources-5-
jar/org/zeroturnaround/zip/commons/FileExistsException.java
*
 /opt/cola/permits/1820506552_1697149599.2539036/0/zt-zip-1-14-sources-5-
jar/org/zeroturnaround/zip/commons/FilenameUtils.java
* /opt/cola/permits/1820506552_1697149599.2539036/0/zt-zip-1-14-sources-5-
jar/org/zeroturnaround/zip/commons/FileUtilsV2_2.java
* /opt/cola/permits/1820506552_1697149599.2539036/0/zt-zip-1-14-sources-5-
jar/org/zeroturnaround/zip/commons/IOUtils.java
* /opt/cola/permits/1820506552_1697149599.2539036/0/zt-zip-1-14-sources-5-
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- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/timestamps/TimestampStrategyFactory.java
- \*
- /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/timestamps/Java8TimestampStrategy.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/timestamps/PreJava8TimestampStrategy.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/timestamps/TimestampStrategy.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/ZipEntryUtil.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/ZipUtil.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/ZTFileUtil.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/FileSource.java
- \*
- /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/ZipEntrySource.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/ZipEntryCallback.java
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- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/ByteSource.java

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- \*
- /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/extra/AsiExtraField.java
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- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/extra/ZipLong.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/extra/ZipConstants.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/extra/ZipExtraField.java
- \* /opt/cola/permits/1820506552\_1697149599.2539036/0/zt-zip-1-14-sources-5-jar/org/zeroturnaround/zip/extra/UnrecognizedExtraField.java

## 1.440 libpng 1.6.38

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### ASM License
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lib/gssapi/generic/gssapi\_err\_generic.et  
lib/gssapi/mechglue/g\_accept\_sec\_context.c  
lib/gssapi/mechglue/g\_acquire\_cred.c  
lib/gssapi/mechglue/g\_canon\_name.c  
lib/gssapi/mechglue/g\_compare\_name.c  
lib/gssapi/mechglue/g\_context\_time.c  
lib/gssapi/mechglue/g\_delete\_sec\_context.c  
lib/gssapi/mechglue/g\_dsp\_name.c  
lib/gssapi/mechglue/g\_dsp\_status.c  
lib/gssapi/mechglue/g\_dup\_name.c

lib/gssapi/mechglue/g\_exp\_sec\_context.c  
lib/gssapi/mechglue/g\_export\_name.c  
lib/gssapi/mechglue/g\_glue.c  
lib/gssapi/mechglue/g\_imp\_name.c  
lib/gssapi/mechglue/g\_imp\_sec\_context.c  
lib/gssapi/mechglue/g\_init\_sec\_context.c  
lib/gssapi/mechglue/g\_initialize.c  
lib/gssapi/mechglue/g\_inquire\_context.c  
lib/gssapi/mechglue/g\_inquire\_cred.c  
lib/gssapi/mechglue/g\_inquire\_names.c  
lib/gssapi/mechglue/g\_process\_context.c  
lib/gssapi/mechglue/g\_rel\_buffer.c  
lib/gssapi/mechglue/g\_rel\_cred.c  
lib/gssapi/mechglue/g\_rel\_name.c  
lib/gssapi/mechglue/g\_rel\_oid\_set.c  
lib/gssapi/mechglue/g\_seal.c  
lib/gssapi/mechglue/g\_sign.c  
lib/gssapi/mechglue/g\_store\_cred.c  
lib/gssapi/mechglue/g\_unseal.c  
lib/gssapi/mechglue/g\_userok.c  
lib/gssapi/mechglue/g\_utils.c  
lib/gssapi/mechglue/g\_verify.c  
lib/gssapi/mechglue/gssd\_pname\_to\_uid.c  
lib/gssapi/mechglue/mglueP.h  
lib/gssapi/mechglue/oid\_ops.c  
lib/gssapi/spnego/gssapiP\_spnego.h  
lib/gssapi/spnego/spnego\_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

include/iprop\_hdr.h  
kadmin/server/ipropd\_svc.c  
lib/kdb/iprop.x  
lib/kdb/kdb\_convert.c  
lib/kdb/kdb\_log.c  
lib/kdb/kdb\_log.h  
lib/krb5/error\_tables/kdb5\_err.et  
slave/kpropd\_rpc.c  
slave/kproplog.c

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This package is currently maintained by Santiago Vila <sanvila@debian.org> and built from sources obtained from:

<ftp://ftp.info-zip.org/pub/infozip/src/unzip60.tgz>

The changes were fairly minimal, and consisted solely of adding various debian/\* files to the distribution, plus several miscellaneous fixes as reflected in the Debian changelog.

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Source: <https://github.com/Cyan4973/xxHash>

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Upstream-Name: GnuPG - The GNU Privacy Guard (modern version)

Upstream-Contact: GnuPG development mailing list <[gnupg-devel@gnupg.org](mailto:gnupg-devel@gnupg.org)>

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- \* added Debian GNU/Linux package maintenance system files
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This is the Debian GNU/Linux prepackaged version of the Python programming  
language. Python was written by Guido van Rossum <guido@cwi.nl> and others.

This package was put together by Klee Dienes <klee@debian.org> from  
sources from `ftp.python.org:/pub/python`, based on the Debianization by  
the previous maintainers Bernd S. Brentrup <bsb@uni-muenster.de> and  
Bruce Perens.

Current maintainer is Matthias Klose <doko@debian.org> until the final  
2.3 version is released.

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A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting

Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2	1991-1995 CWI			yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes
2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes

2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009		
PSF	yes			
3.0	2.6	2008	PSF	yes
3.0.1	3.0	2009	PSF	yes
3.1	3.0.1	2009	PSF	yes
3.1.1	3.1	2009	PSF	yes

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- (2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

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Upstream-Name: libnsl

Upstream-Contact: Thorsten Kukuk <kukuk@thkukuk.de>

Source: <https://github.com/thkukuk/libnsl>

Files: debian/\*

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Files: AUTHORS

configure.ac

config.h.in

libnsl.pc.in

Makefile.am

NEWS

README

src/Makefile.am

src/do\_ypcall.c

src/internal.h

src/libnsl.map

src/nisplus/nis\_error.c

src/taddr2host.c

src/taddr2ipstr.c

src/taddr2port.c

src/yp\_first.c

src/yp\_get\_default\_domain.c

src/yp\_maplist.c

src/yp\_master.c

src/yp\_match.c  
src/yp\_next.c  
src/yp\_order.c  
src/ypbinderr\_string.c  
src/yperr\_string.c  
src/ypprot\_err.c

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Files: src/libc-lock.h

src/nisplus/nis\_add.c  
src/nisplus/nis\_addmember.c  
src/nisplus/nis\_call.c  
src/nisplus/nis\_callback.c  
src/nisplus/nis\_checkpoint.c  
src/nisplus/nis\_clone\_dir.c  
src/nisplus/nis\_clone\_obj.c  
src/nisplus/nis\_clone\_res.c  
src/nisplus/nis\_creategroup.c  
src/nisplus/nis\_defaults.c  
src/nisplus/nis\_destroygroup.c  
src/nisplus/nis\_domain\_of.c  
src/nisplus/nis\_domain\_of\_r.c  
src/nisplus/nis\_file.c  
src/nisplus/nis\_findserv.c  
src/nisplus/nis\_free.c  
src/nisplus/nis\_getservlist.c  
src/nisplus/nis\_hash.c  
src/nisplus/nis\_intern.h  
src/nisplus/nis\_ismember.c  
src/nisplus/nis\_local\_names.c  
src/nisplus/nis\_lookup.c  
src/nisplus/nis\_mkdir.c  
src/nisplus/nis\_modify.c  
src/nisplus/nis\_ping.c  
src/nisplus/nis\_print.c  
src/nisplus/nis\_print\_group\_entry.c  
src/nisplus/nis\_remove.c  
src/nisplus/nis\_removemember.c  
src/nisplus/nis\_rmdir.c  
src/nisplus/nis\_server.c  
src/nisplus/nis\_subr.c  
src/nisplus/nis\_table.c  
src/nisplus/nis\_util.c  
src/nisplus/nis\_verifygroup.c  
src/nisplus/nis\_xdr.c  
src/nisplus/nis\_xdr.h  
src/rpcsvc/nislib.h

src/rpcsvc/ypclnt.h

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Files: src/rpcsvc/nis\_callback.h

src/rpcsvc/nis\_callback.x

src/rpcsvc/nis\_object.x

src/rpcsvc/nis\_tags.h

src/rpcsvc/nis.h

src/rpcsvc/nis.x

src/rpcsvc/yp.h

src/rpcsvc/yp.x

src/rpcsvc/yp\_prot.h

src/rpcsvc/yppasswd.h

src/rpcsvc/yppasswd.x

src/rpcsvc/ypupd.h

src/yp\_xdr.c

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src/Makefile.in

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config.guess

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Files: compile

depcomp

missing

test-driver

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Files: ltmain.sh

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Files: config.rpath

m4/gettext.m4

m4/host-cpu-c-abi.m4

m4/iconv.m4

m4/intlmacosx.m4

m4/lib-ld.m4

m4/lib-link.m4

m4/lib-prefix.m4

m4/libtool.m4

m4/ltoptions.m4

m4/ltsugar.m4

m4/ltversion.m4

m4/lt~obsolete.m4

m4/nls.m4

m4/po.m4

m4/progtest.m4

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Files: ABOUT-NLS

po/Makefile.in.in

po/Makevars

po/POTFILES.in

po/Rules-quot

po/boldquot.sed

po/en@boldquot.header

po/en@quot.header

po/insert-header.sin

po/libnsl.pot

po/quot.sed

po/remove-potcdate.sin

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Some parts substantially in src/su.c derived from an ancestor of su for GNU. Run a shell with substitute user and group IDs.

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1986 Gary S. Brown  
1990 Gordon Irlam (gordoni@cs.ua.oz.au)  
1991, 1992 Linus Torvalds  
1991-2004 Miquel van Smoorenburg  
1992 A. V. Le Blanc (LeBlanc@mcc.ac.uk)  
1992-1997 Michael K. Johnson, johnsonm@redhat.com  
1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002,  
2003, 2004, 2005, 2008 Theodore Ts'o <tytso@mit.edu>  
1994 Kevin E. Martin (martin@cs.unc.edu)  
1994 Salvatore Valente <svalente@mit.edu>  
1994,1996 Alessandro Rubini (rubini@ipvvis.unipv.it)  
1994-2005 Jeff Tranter (tranter@pobox.com)  
1995, 1999, 2000 Andries E. Brouwer <aeb@cw.nl>  
1997-2005 Frodo Looijaard  
<frodo@frodo.looijaard.name>  
1998 Danek Duvall <duvall@alumni.princeton.edu>  
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2005 Adrian Bunk  
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2007, 2011, 2012, 2016 SuSE LINUX Products GmbH  
2008 Cai Qian <qcai@redhat.com>  
2008 Hayden A. James (hayden.james@gmail.com)  
2008 James Youngman <jay@gnu.org>  
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2009 Mikhail Gusarov <dottedmag@dottedmag.net>  
2010, 2011, 2012 Davidlohr Bueso <dave@gnu.org>  
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2008-2013 Karel Zak <kzak@redhat.com>

2009 Bastian Friedrich <bastian.friedrich@collax.com>

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2010 Andrew Nayenko <resver@gmail.com>

2010 Jeroen Oortwijn <oortwijn@gmail.com>

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2011 Philipp Marek <philipp.marek@linbit.com>

2012 Milan Broz <mbroz@redhat.com>

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1996-2003 Martin Mitchell (martin@debian.org)  
2008-2012 Frank Lichtenheld (djpig@debian.org)  
2014 Andreas  
Henriksson <andreas@fatal.se>  
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astur <malditoastur@gmail.com>  
Axel Bojer <axelb@skolelinux.no>  
Bart Cornelis <cobaco@skolelinux.no>  
Bartosz Feski <fenio@o2.pl>  
Basil Shubin <bashu@surgut.ru>  
Baurzhan Muftakhidinov <baurthefirst@gmail.com>  
Bjorn Steensrud <bjornst@powertech.no>  
Claus Hindsgaul <claus\_h@image.dk>  
Clytie Siddall <clytie@riverland.net.au>

Dafydd Tomos <l10n@da.fydd.org>  
Damyán Ivanov <dam@modsoftsys.com>  
Daniel Franganillo <dfranganillo@gmail.com>  
Daniel Nylander <po@danielnylander.se>  
Danishka Navin <danishka@gmail.com>  
Dauren Sarsenov <daur88@inbox.ru>  
Dominik Zablótny <dominz@wp.pl>  
Dr.T.Vasudevan <agnihot3@gmail.com>  
Eddy Petrisor <eddy.petrisor@gmail.com>  
Eder L. Marques <frolic@debian-ce.org>  
Elian Myftiu <elian.myftiu@gmail.com>  
Emmanuel Galatoulas <galas@tee.gr>  
Esko Arajrvi <edu@iki.fi>  
Frank Lichtenheld <djpig@debian.org>  
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Gabor Burjan <buga@buvoshetes.hu>

George Papamichelakis <george@step.gr>  
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Hvard Korsvoll <korsvoll@gmail.com>  
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Kstutis Bilinas <kebil@kaunas.init.lt>  
Kevin Scannell <kscanne@gmail.com>  
Khoem Sokhem <khoemsokhem@khmeros.info>  
Klaus Ade Johnstad <klaus@skolelinux.no>  
Knut Yrvin <knuty@skolelinux.no>

Konstantinos Margaritis <markos@debian.org>  
Kostas Papadimas <pkst@gnome.org>  
Kumar Appaiah <a.kumar@alumni.iitm.ac.in>  
Lior Kaplan <kaplan@debian.org>  
Luiz Portella <lfpor@lujz.org>  
Mallikarjuna <Mallikarjunasj@gmail.com>  
Mert Dirik <mertdirik@gmail.com>  
Milo Casagrande <milo@ubuntu.com>  
Ming Hua <minghua@ubuntu.com>  
Miroslav Kure <kurem@debian.cz>  
Mouhamadou Mamoune Mbacke <mouhamadoumamoune@gmail.com>  
Nabin Gautam <nabin@mpp.org.np>  
Ossama M. Khayat <okhayat@yahoo.com>  
Ovidiu Damian <deelerious@gmail.com>  
Parlin Imanuel Toh <parlin\_i@yahoo.com>  
Pavel Piatruk <berserker@neolocation.com>  
Piarres Beobide <pi@beobide.net>  
Praveen|

A| <pravi.a@gmail.com>  
Rdolfo Mazurs <rudolfo.mazurs@gmail.com>  
Sahran <Sahran.ug@gmail.com>  
Sampada Nakhare <sampadanakhare@gmail.com>  
Setyo Nugroho <setyo@gmx.net>  
Simo Pedro Cardoso <pthell@gmail.com>  
Stefano Melchior <stefano.melchior@openlabs.it>  
Sunjae Park <darehanl@gmail.com>  
Sveinn Felli <sveinki@nett.is>

Tetralet <tetralet@gmail.com>  
Theppitak Karoonboonyanan <thep@linux.thai.net>  
Tshewang Norbu <bumthap2006@hotmail.com>  
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vms/vmsish.h

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dist/Devel-SelfStubber/\*

dist/Dumpvalue/\*

dist/Env/\*

cpan/ExtUtils-Manifest/\*

dist/I18N-Collate/\*

dist/Safe/\*

ext/Fcntl/\*

ext/FileCache/\*

ext/GDBM\_File/\*

ext/IPC-Open3/\*

ext/NDBM\_File/\*

ext/ODBM\_File/\*

ext/Opcode/\*

ext/PerlIO-encoding/\*

ext/PerlIO-scalar/\*

ext/PerlIO-via/\*

ext/POSIX/\*

ext/re/\*

cpan/Socket/\*

ext/Sys-Hostname/\*

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cpan/autodie/lib/autodie/Util.pm  
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cpan/CPAN-Meta/lib/CPAN/Meta/History/Meta\_1\_1.pod

cpan/CPAN-Meta/lib/CPAN/Meta/History/Meta\_1\_2.pod

cpan/CPAN-Meta/lib/CPAN/Meta/History/Meta\_1\_3.pod

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cpan/Locale-Maketext-Simple/t/po\_with\_i\_default/fr.po

cpan/Locale-Maketext-Simple/t/po\_with\_i\_default/en.po

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Files:

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cpan/podlators/t/docs/pod.t

cpan/podlators/t/docs/synopsis.t

cpan/podlators/t/lib/Test/RRA.pm

cpan/podlators/t/lib/Test/RRA/Config.pm

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Upstream Authors:

Chet Ramey <chet.ramey@case.edu>

Jeff Solomon <jsolomon@stanford.edu> (examples/excallback.c)

Harold Levy <Harold.Levy@synopsys.com> (examples/rl-fgets.c)

Juergen Weigert <jnweiger@immd4.informatik.uni-erlangen.de> (examples/rlfe)

Michael Schroeder <mlschroe@immd4.informatik.uni-erlangen.de> (examples/rlfe)

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support/man2html.c

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Upstream-Author: Stepan Roh <src@users.sourceforge.net> (original author),  
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Source: <https://dejavu-fonts.github.io/>

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Source: <https://github.com/facebook/zstd>

Files-Excluded: appveyor.yml

- build/\*
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Upstream Authors (from AUTHORS file):

-----

The authors list is autogenerated from the git history; sorted by number of commits

Nikos Mavrogiannopoulos <nnav at gnutls.org>

Simon Josefsson <jas at josefsson.org>

Daiki Ueno <ueno at gnu.org>

Dmitry Baryshkov <dbaryshkov at gmail.com>

Tim Rhsen <tim.ruehsen at gmx.de>

Ludovic Courts <ludo at gnu.org>

Timo Schulz <twoaday at gnutls.org>

Jonathan Bastien-Filiatrault <joe at x2a.org>

Alon Bar-Lev <alon.barlev at gmail.com>

Andreas Metzler <ametzler at debian.org>  
Tom Vrancken <dev at tomvrancken.nl>  
Martin Storsjo <martin at martin.st>  
Tim Kosse <tim.kosse  
at filezilla-project.org>  
Simo Sorce <simo at redhat.com>  
Daniel Kahn Gillmor <dkg at fifthhorseman.net>  
Fabian Keil <fk at fabiankeil.de>  
Fabio Fiorina <fiorinaf at gnutls.org>  
Stef Walter <stefw at redhat.com>  
Anderson Toshiyuki Sasaki <ansasaki at redhat.com>  
Armin Burgmeier <armin at arbur.net>  
Andrew McDonald <admcd at gnutls.org>  
Alex Gaynor <alex.gaynor at gmail.com>  
Fiona Klute <fiona.klute at gmx.de>  
Martin Ukrop <mukrop at redhat.com>  
Jaak Ristioja <jaak.ristioja at cyber.ee>  
Attila Molnar <attilamolnar at hush.com>  
Hugo Beauze-Luyssen <hugo at beauzee.fr>  
Stefan Berger <stefanb at linux.ibm.com>  
Jakub Jelen <jjelen at redhat.com>  
Martin Sucha <anty.sk+git at gmail.com>  
Steve Lhomme <robux4 at ycbcr.xyz>  
Ander Juaristi <a at juaristi.eu>  
David Woodhouse <dwmw2 at infradead.org>  
Jan Vcelak <jan.vcelak at nic.cz>  
Kevin Cernekee <cernekee at gmail.com>  
Nikolay Sivov <nsivov at codeweavers.com>  
Sahana Prasad <sahana at redhat.com>  
Michael Catanzaro <mcatanzaro at gnome.org>  
Daniel  
Lenski <dlenski at gmail.com>  
JonasZhou <JonasZhou at zhaoxin.com>  
Stefan Srensen <stefan.sorensen at spectralink.com>  
Adam Sampson <ats at offog.org>  
Alfredo Pironti <alfredo at pironti.eu>  
Brad Hards <bradh at frogmouth.net>  
Dimitri John Ledkov <xnox at ubuntu.com>  
Michael Weiser <michael.weiser at gmx.de>  
Patrick Pelletier <code at funwithsoftware.org>  
Rolf Eike Beer <eike at sf-mail.de>  
Sjoerd Simons <sjoerd.simons at collabora.co.uk>  
Stefan Bhlér <stbuehler at web.de>  
Thomas Klute <thomas2.klute at uni-dortmund.de>  
Wolfgang Meyer zu Bergsten <w.bergsten at sirrix.com>  
Andreas Metzler <gitlab at bebt.de>  
Christian Grothoff <christian at grothoff.org>  
Daniel P. Berrange <berrange at redhat.com>

Gustavo Zacarias <gustavo at zacarias.com.ar>  
James Bottomley <James.Bottomley at HansenPartnership.com>  
Ji Klime <jklimes at redhat.com>  
Karsten Ohme <k\_o\_ at users.sourceforge.net>  
Kurt Roeckx <kurt at roeckx.be>  
Peter Wu <peter at lekensteyn.nl>  
Thierry Quemerais <tquemerais at awox.com>  
Tom  
Carroll <incentivedesign at gmail.com>  
Vitezslav Cizek <vcizek at suse.com>  
Alessandro Ghedini <alessandro at ghedini.me>  
Alex Monk <krenair at gmail.com>  
Bernhard M. Wiedemann <bwiedemann at suse.de>  
David Caldwell <david at porkrind.org>  
Diego Elio Petten <flameeyes at flameeyes.eu>  
Elta Koepp <alexi\_2019 at protonmail.com>  
Fabrice Fontaine <fontaine.fabrice at gmail.com>  
Giuseppe Scrivano <gscrivano at gnu.org>  
Hubert Kario <hkario at redhat.com>  
Ilya Tumaykin <itumaykin at gmail.com>  
Karl Tarbe <karl.tarbe at cyber.ee>  
Ke Zhao <kzhao at redhat.com>  
Mark Brand <mabrand at mabrand.nl>  
Matthias-Christian Ott <ott at mirix.org>  
Maya Rashish <coypu at sdf.org>  
Michael Catanzaro <mcatanzaro at igalia.com>  
Micha Grny <mgorny at gentoo.org>  
Petr Psa <petr.pisar at atlas.cz>  
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Roman Bogorodskiy <bogorodskiy at gmail.com>  
Steffen Jaeckel <jaeckel-floss at eyet-services.de>  
Stephan Mueller <smueller at chronox.de>  
Steve Dispensa <dispensa at phonefactor.com>  
nia  
<nia at NetBSD.org>  
raspa0 <raspa0 at protonmail.com>  
Airtower <fiona.klute at gmx.de>  
Alban Crequy <alban.crequy at collabora.co.uk>  
Albrecht Dre <albrecht.dress at arcor.de>  
Aleksei Nikiforov <darktemplar at basealt.ru>  
Alexander Kanavin <alex.kanavin at gmail.com>  
Alexander Sosedkin <asosedkin at redhat.com>  
Alexandre Bique <bique.alexandre at gmail.com>  
Anderson Sasaki <ansasaki at redhat.com>  
Andreas Schneider <asn at samba.org>  
Andreas Schwab <schwab at suse.de>  
Avinash Sonawane <rootkea at gmail.com>  
Bas van Schaik <gitlab.com at s.traiectum.net>

Bjoern Jacke <bjacke at samba.org>  
Bjrn Jacke <bjacke at samba.org>  
Bjrn Christensen <bhc at insight.dk>  
Carolin Latze <latze at angry-red-pla.net>  
Chen Hongzhi <hongzhi.chen at me.com>  
Chris Barry <chris at barry.im>  
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Dan Fandrich <dan at coneharvesters.com>  
Daniel Schaefer <git at danielschaefer.me>  
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Maciej S. Szmigiero <mail at maciej.szmigiero.name>  
Maks Naumov <maksqwe1 at ukr.net>  
Marcin Cielak <saper at saper.info>  
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Marga Manterola <marga at google.com>  
Marius Bakke <mbakke at fastmail.com>  
Marti Raudsepp <marti at juffo.org>  
Matt Turner <mattst88 at gmail.com>  
Matt Whitlock <matt at whitlock.name>  
Micah Anderson <micah at riseup.net>

Miroslav Lichvar <mlichvar at redhat.com>  
Nick Alcock <nick.alcock at oracle.com>  
Nicolas Dufresne <nicolas.dufresne at collabora.com>  
Nils Maier <maierman at web.de>  
Norbert Pocs <npocs at redhat.com>  
Olga <olyasib12 at gmail.com>  
Ondrej Moris <omoris at redhat.com>  
Petr Pavlu <petr.pavlu at suse.com>  
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Remi Olivier <remi\_8 at hotmail.com>  
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Sebastian Drge <sebastian at centricular.com>  
Simon Arlott <sa.me.uk>  
Stanislav Zidek <szidek at redhat.com>  
Thomas Klausner <wiz at NetBSD.org>  
Tobias Polzer <tobias.polzer at fau.de>  
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Tomas Mraz <tmraz at fedoraproject.org>  
Tristan Matthews <le.businessman at gmail.com>  
Werner Koch <wk at gnupg.org>  
Yuriy M. Kaminskiy <yumkam at gmail.com>  
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rrivers2 <5981058-rrivers2 at users.noreply.gitlab.com>  
sskaje <sskaje at gmail.com>  
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Anders Jonsson  
Benno Schulenberg  
Felipe  
Castro  
Francisco Javier Serrador

Jakub Bogusz  
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include/bsd/vis.h  
man/bitstring.3bsd  
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man/strnstr.3bsd  
man/strtoi.3bsd  
man/strtou.3bsd  
man/unvis.3bsd  
man/vis.3bsd  
man/wcsncpy.3bsd  
src/getbsize.c  
src/heapsort.c  
src/merge.c  
src/nlist.c  
src/pwcache.c  
src/radixsort.c  
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man/fmtcheck.3bsd

man/humanize\_number.3bsd

man/stringlist.3bsd

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src/fmtcheck.c

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man/strtonum.3bsd  
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src/arc4random\_linux.h  
src/arc4random\_openbsd.h  
src/arc4random\_uniform.c  
src/arc4random\_unix.h  
src/arc4random\_win.h  
src/closefrom.c  
src/freezero.c  
src/getentropy\_aix.c  
src/getentropy\_bsd.c  
src/getentropy\_hpux.c  
src/getentropy\_hurd.c  
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src/udev/mtd\_probe/probe\_smartmedia.c

src/udev/scsi\_id/scsi.h

src/udev/scsi\_id/scsi\_id.c

src/udev/scsi\_id/scsi\_id.h

src/udev/scsi\_id/scsi\_serial.c

src/udev/udevadm.c

src/udev/udevadm-control.c

src/udev/udevadm.h

src/udev/udevadm-info.c

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2004, 2009, 2010 David Zeuthen <david@fubar.dk>

2005, 2006 SUSE Linux Products GmbH

2003 IBM Corp.

2007 Hannes Reinecke <hare@suse.de>

2009 Canonical Ltd.

2009 Scott James Remnant <scott@netsplit.com>

2009 Martin Pitt <martin.pitt@ubuntu.com>

2009 Piter Punk <piterpunk@slackware.com>

2009, 2010 Lennart Poettering

2009 Filippo Argiolas <filippo.argiolas@gmail.com>

2010 Maxim Levitsky

2011 ProFUSION embedded systems

2011 Karel Zak <kzak@redhat.com>

2014 Zbigniew Jdrzejewski-Szmek <zbyszek@in.waw.pl>

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It is currently maintained by Marco d'Itri <md@linux.it>.

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Version 3, 29 June 2007

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Upstream-Name: libunistring

Upstream-Contact: Bruno Haible <[bruno@clisp.org](mailto:bruno@clisp.org)>

Source: <http://ftp.gnu.org/gnu/libunistring/>

Files: \*

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Date: Fri, 6 Jun 2003 10:18:52 -0700  
From: Juan Gomez <juang@us.ibm.com>  
To: Stephen Frost <sfrost@debian.org>  
X-Mailer: Lotus Notes Release 5.0.2a (Intl) 23 November 1999  
Subject: Re: Juan C. Gomez license in OpenLDAP Source

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MA

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Date: Thu, 5 Jun 2003 16:53:32 -0400 (EDT)  
From: Mark Adamson <adamson@andrew.cmu.edu>  
To: Stephen Frost <sfrost@debian.org>  
Subject: Re: Mark Adamson license in OpenLDAP source

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\* Subject: Re: OpenLDAP Licenseing issues  
\* From: "Kurt D. Zeilenga" <Kurt@OpenLDAP.org>  
\* Date: Wed, 28 May 2003 10:55:44 -0700  
\* Cc: Steve Langasek <vorlon@netexpress.net>,debian-legal@lists.debian.org, openldap-devel@OpenLDAP.org  
\* In-reply-to: <20030528162613.GB8524@ns.snowman.net>  
\* Message-id: <5.2.0.9.0.20030528094229.02924780@127.0.0.1>  
\* Old-return-path: <Kurt@OpenLDAP.org>

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This package was debianized by

Christian Schwarz <[schwarz@monet.m.isar.de](mailto:schwarz@monet.m.isar.de)> on Mon, 18 Nov 1996 00:59:57 +0100

J. Ramos Goncalves <[ramos@debian.org](mailto:ramos@debian.org)> on Thu, 13 Feb 1997 23:15:18 +0000

Nicols Lichtmaier <[nick@debian.org](mailto:nick@debian.org)> on Sat, 18 Oct 1997 21:23:12 -0300

Nol Kthe <[noel@debian.org](mailto:noel@debian.org)> on Mon, 18 Feb 2002 09:53:00 +0100

It was downloaded from <ftp://ftp.gnu.org/gnu/wget/>

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Upstream Author: Giuseppe Scrivano <gscrivano@gnu.org>

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misc/unix/getopt.c,  
file\_io/unix/mktemp.c, strings/apr\_strings.c:

/\*

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From network\_io/unix/inet\_ntop.c, network\_io/unix/inet\_pton.c:

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From strings/apr\_strnatcmp.c, include/apr\_strings.h:

strnatcmp.c -- Perform 'natural order' comparisons of strings in C.  
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From test/CuTest.c, test/CuTest.h:

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It was downloaded from <ftp://ftp.gnu.org/gnu/findutils>

Debian maintainer history: The original package was put together by  
Ian Murdock <[imurdock@debian.org](mailto:imurdock@debian.org)>, afterwards Kevin Dalley  
<[kevind@rahul.net](mailto:kevind@rahul.net)> took over. 2003-07 Andreas Metzler  
<[ametzler@debian.org](mailto:ametzler@debian.org)> followed.

Upstream Authors:

\* GNU find was written by Eric Decker <[cire@cisco.com](mailto:cire@cisco.com)>,  
with enhancements by David MacKenzie <[djm@gnu.org](mailto:djm@gnu.org)>,  
Jay Plett <[jay@silence.princeton.nj.us](mailto:jay@silence.princeton.nj.us)>,  
and Tim Wood <[axolotl!tim@toad.com](mailto:axolotl!tim@toad.com)>.

The idea for `-print0` and `xargs -0` came from

Dan Bernstein <[brnstd@kramden.acf.nyu.edu](mailto:brnstd@kramden.acf.nyu.edu)>.

Improvements have been made by James Youngman <[jay@gnu.org](mailto:jay@gnu.org)>.

\* GNU `xargs`

was originally written by Mike Rendell, with enhancements by David  
MacKenzie. Modifications by James Youngman Dmitry V. Levin

\* GNU `locate` and its associated utilities were originally

written by James Woods, with enhancements by David MacKenzie, James Youngman  
and Bas van Gompel.

Upstream's AUTHORS lists these major contributors:

Eric B. Decker  
Michael Rendell  
David  
J. MacKenzie  
Jim Meyering  
Tim Wood  
Kevin Dalley <kevind@rahul.net>  
Paul Eggert <eggert@cs.ucla.edu>  
James Youngman <jay@gnu.org>  
Jay Plett  
Paul Sheer  
Dmitry V. Levin  
Bas van Gompel  
Eric Blake <ebb9@byu.net>  
Andreas Metzler  
Kamil Dudka <kdudka@redhat.com>  
Bernhard Voelker <mail@bernhard-voelker.de>

Current upstream maintainer is James Youngman <jay@gnu.org>.

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This is the Debian GNU/Linux prepackaged version of libxcrypt.

It has been packaged by Marco d'Itri <md@linux.it>.

Original sources were obtained from:

<https://github.com/besser82/libxcrypt>

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build-aux/gen-crypt-h, build-aux/gen-crypt-symbol-vers-h,  
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The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

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Jean-loup Gailly      Mark Adler  
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Since Nov 27 1996, it was maintained by Guy Maor <maor@debian.org>. He rewrote most of it.

Since May 20 2000, it is maintained by Roland Bauerschmidt <rb@debian.org>.

Since March 24 2004, it is maintained by Roland Bauerschmidt <rb@debian.org>, and co-maintained by Marc Haber <mh+debian-packages@zugschlus.de>

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called

ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
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2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes

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Mersenne Twister

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The ``_random'` module includes code based on a download from ``http://www.math.keio.ac.jp/~matumoto/MT2002/emt19937ar.html'`. The following are the verbatim comments from the original code:



A C-program for MT19937, with initialization improved 2002/1/26.

Coded by Takuji Nishimura and Makoto Matsumoto.

Before using, initialize the state by using `init_genrand(seed)`  
or `init_by_array(init_key, key_length)`.

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<http://www.math.keio.ac.jp/matsumoto/emt.html>

email: [matsumoto@math.keio.ac.jp](mailto:matsumoto@math.keio.ac.jp)

Sockets

-----

The ``socket'` module uses the functions, ``getaddrinfo'`, and  
``getnameinfo'`,

which are coded in separate source files from the WIDE Project, <http://www.wide.ad.jp/about/index.html>.

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Execution tracing

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UUencode and UUdecode functions

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Modified by Jack Jansen, CWI, July 1995:

- Use binascii module to do the actual line-by-line conversion between ascii and binary. This results in a 1000-fold speedup. The C version is still 5 times faster, though.
- Arguments more compliant with python standard

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.  
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.  
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.  
@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>

@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>

@author Paulo Barreto <paulo.barreto@terra.com.br>

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Packaging is done by the Debian GCC Maintainers <debian-gcc@lists.debian.org>, with sources obtained from:

ftp://gcc.gnu.org/pub/gcc/releases/ (for full releases)  
svn://gcc.gnu.org/svn/gcc/ (for prereleases)  
ftp://sourceware.org/pub/newlib/ (for newlib)  
git://git.savannah.gnu.org/gm2.git (for Modula-2)

The current gcc-9 source package is taken from the SVN gcc-9-branch.

Changes: See changelog.Debian.gz

Debian splits the GNU Compiler Collection into packages for each language, library, and documentation as follows:

Language	Compiler package	Library package	Documentation
Ada	gnat-9	libgnat-9	gnat-9-doc
BRIG	gccbrig-9	libhsail-rt0	
C	gcc-9	gcc-9-doc	
C++	g++-9	libstdc++6	libstdc++6-9-doc
D	gdc-9		
Fortran 95	gfortran-9	libgfortran3	gfortran-9-doc
Go	gccgo-9	libgo0	
Objective C	gobjc-9	libobjc2	
Objective C++	gobjc++-9		
Modula-2	gm2-9	libgm2	

For some language run-time libraries, Debian provides source files, development files, debugging symbols and libraries containing position-independent code in separate packages:

Language	Sources	Development	Debugging	Position-Independent
C++		libstdc++6-9-dbg	libstdc++6-9-pic	

D libphobos-9-dev

Additional packages include:

All languages:

libgcc1, libgcc2, libgcc4

    GCC intrinsics (platform-dependent)

gcc-9-base	Base files common to all compilers
gcc-9-soft-float	Software floating point (ARM only)
gcc-9-source	The sources with patches

Ada:

libgnatvsn-dev, libgnatvsn9 GNAT version library

C:

cpp-9, cpp-9-doc	GNU C Preprocessor
libssp0-dev, libssp0	GCC stack smashing protection library
libquadmath0	Math routines for the __float128 type
fixincludes	Fix non-ANSI header files

C, C++ and Fortran 95:

libgomp1-dev, libgomp1 GCC OpenMP (GOMP) support library  
libitm1-dev, libitm1 GNU Transactional Memory Library

Biarch support: On some 64-bit platforms which can also run 32-bit code, Debian provides additional packages containing 32-bit versions of some libraries. These packages have names beginning with 'lib32' instead of 'lib', for example lib32stdc++6. Similarly, on some 32-bit platforms which can also run 64-bit code, Debian provides additional packages with names beginning with 'lib64' instead of 'lib'. These packages contain 64-bit versions of the libraries. (At this time, not all platforms and not all libraries support biarch.) The license terms for these lib32 or lib64 packages are identical to the ones for the lib packages.

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- \* Conversion to long double by Ulrich Drepper,
- \* Cygnus Support, drepper@cygnus.com.

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D:

gdc-9                    GNU D Compiler  
libphobos-9-dev        D standard runtime library

The D source package is made up of the following components.

The D front-end for GCC:

- d/\*

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- d/phobos/\*

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(14) Alexey Zelkin

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(15) Andrey A. Chernov

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(17) S. L. Moshier

Author: S. L. Moshier.

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02110-1301 USA

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=====

LIBGCRYPT Werner Koch 2001-06-07  
Assigns past and future changes.  
Assignment for future changes terminated on 2012-12-04.  
wk@gnupg.org  
Designed and implemented Libgrypt.

GNUPG Matthew Skala 1998-08-10  
Disclaims changes.  
mskala@ansuz.sooke.bc.ca  
Wrote cipher/twofish.c.

GNUPG Natural Resources Canada 1998-08-11  
Disclaims changes by Matthew Skala.

GNUPG Michael Roth Germany 1998-09-17  
Assigns changes.  
mroth@nessie.de  
Wrote  
cipher/des.c.  
Changes and bug fixes all over the place.

GNUPG Niklas Hernaes 1998-09-18  
Disclaims changes.  
nh@df.lth.se  
Weak key patches.

GNUPG Rmi Guyomarch 1999-05-25  
Assigns past and future changes. (g10/compress.c, g10/encr-data.c,  
g10/free-packet.c, g10/mdfilter.c, g10/plaintext.c, util/iobuf.c)  
rguyom@mail.dotcom.fr

ANY g10 Code GmbH 2001-06-07  
Assignment for future changes terminated on 2012-12-04.  
Code marked with ChangeLog entries of g10 Code employees.

LIBGCRYPT Timo Schulz 2001-08-31  
Assigns past and future changes.  
twoaday@freakmail.de

LIBGCRYPT Simon Josefsson 2002-10-25  
Assigns past and future changes to FSF (cipher/{md4,crc}.c, CTR mode,  
CTS/MAC flags, self test improvements)  
simon@josefsson.org

LIBGCRYPT Moritz Schulte 2003-04-17

Assigns past and future changes.

moritz@g10code.com

GNUTLS Nikolaos Mavrogiannopoulos 2003-11-22

nmav@gnutls.org

Original code for cipher/rfc2268.c.

LIBGCRYPT The Written Word 2005-04-15

Assigns

past and future changes. (new: src/libcrypt.pc.in,  
src/Makefile.am, src/secmem.c, mpi/hppa1.1/mpih-mul3.S,  
mpi/hppa1.1/udiv-qrnd.S, mpi/hppa1.1/mpih-mul2.S,  
mpi/hppa1.1/mpih-mul1.S, mpi/Makefile.am, tests/prime.c,  
tests/register.c, tests/ac.c, tests/basic.c, tests/tsexp.c,  
tests/keygen.c, tests/pubkey.c, configure.ac, acinclude.m4)

LIBGCRYPT Brad Hards 2006-02-09

Assigns Past and Future Changes

bradh@frogmouth.net

(Added OFB mode. Changed cipher/cipher.c, test/basic.c doc/gcrypt.tex.  
added SHA-224, changed cipher/sha256.c, added HMAC tests.)

LIBGCRYPT Hye-Shik Chang 2006-09-07

Assigns Past and Future Changes

perky@freebsd.org

(SEED cipher)

LIBGCRYPT Werner Dittmann 2009-05-20

Assigns Past and Future Changes

werner.dittmann@t-online.de

(mpi/amd64, tests/mpitests.c)

GNUPG David Shaw

Assigns past and future changes.

dshaw@jabberwocky.com

(cipher/camellia-glue.c and related stuff)

LIBGCRYPT Andrey Jivsov 2010-12-09

Assigns

Past and Future Changes

openpgp@brainhub.org

(cipher/ecc.c and related files)

LIBGCRYPT Ulrich Miller 2012-02-15

Assigns Past and Future Changes

ulm@gentoo.org

(Changes to cipher/idea.c and related files)

LIBGCRYPT Vladimir Serbinenko 2012-04-26  
Assigns Past and Future Changes  
phcoder@gmail.com  
(cipher/serpent.c)

Authors with a DCO

=====

Andrei Scherer <andsch@inbox.com>  
2014-08-22:BF7CEF794F9.000003F0andsch@inbox.com:

Christian Aistleitner <christian@quelltextlich.at>  
2013-02-26:20130226110144.GA12678@quelltextlich.at:

Christian Grothoff <christian@grothoff.org>  
2013-03-21:514B5D8A.6040705@grothoff.org:

Dmitry Eremin-Solenikov <dbaryshkov@gmail.com>  
2013-07-13:20130713144407.GA27334@fangorn.rup.mentorg.com:

Dmitry Kasatkin <dmitry.kasatkin@intel.com>  
2012-12-14:50CAE2DB.80302@intel.com:

Jrmie Courrges-Anglas <jca@wxcvbn.org>  
2016-05-26:87bn3ssqg0.fsf@ritchie.wxcvbn.org

Jussi Kivilinna <jussi.kivilinna@mbnet.fi>  
2012-11-15:20121115172331.150537dzb5i6jmy8@www.dalek.fi:

Jussi

Kivilinna <jussi.kivilinna@iki.fi>  
2013-05-06:5186720A.4090101@iki.fi:

Markus Teich <markus dot teich at stusta dot mhn dot de>  
2014-10-08:20141008180509.GA2770@trolle:

Mathias L. Baumann <mathias.baumann at sociomantic.com>  
2017-01-30:07c06d79-0828-b564-d604-fd16c7c86ebe@sociomantic.com:

Milan Broz <gmazyland@gmail.com>  
2014-01-13:52D44CC6.4050707@gmail.com:

Peter Wu <peter@lekensteyn.nl>  
2015-07-22:20150722191325.GA8113@al:



Rafal Carr <funman@videolan.org>  
2012-04-20:4F91988B.1080502@videolan.org:

Sergey V. <sftp.mtuci@gmail.com>  
2013-11-07:2066221.51Ya7Yq760@darkstar:

Stephan Mueller <smueller@chronox.de>  
2014-08-22:2008899.25OeolVVA@myon.chronox.de:

Tom Mrz <tm@t8m.info>  
2012-04-16:1334571250.5056.52.camel@vespa.frost.loc:

Vitezslav Cizek <vcizek@suse.com>  
2015-11-05:20151105131424.GA32700@kolac.suse.cz

Werner Koch <wk@gnupg.org> (g10 Code GmbH)  
2012-12-05:87obi8u4h2.fsf@vigenere.g10code.de:

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This package was put together by Chris Fearnley <cjf@netaxs.com>, from sources obtained from:  
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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to

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src/xdr\_array.c  
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src/xdr\_mem.c  
src/xdr\_rec.c  
src/xdr\_reference.c  
src/xdr\_sizeof.c  
src/xdr\_stdio.c  
tirpc/rpc/auth\_des.h  
tirpc/rpc/auth\_unix.h  
tirpc/rpc/des\_crypt.h  
tirpc/rpc/pmap\_clnt.h  
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## THE BASIC LIBRARY FUNCTIONS

-----

Written by: Philip Hazel  
Email local part: ph10  
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Marc Stevens

Cryptology Group

Centrum Wiskunde & Informatica

P.O. Box 94079, 1090 GB Amsterdam, Netherlands

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Files: imap-send.c

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2002-2004, Oswald Buddenhagen <ossi@users.sf.net>

2004, Theodore Y. Ts'o <tytso@mit.edu>

2006, Mike McCormack

Name: git-imap-send - drops patches into an imap Drafts folder  
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Files: perl/private-Error.pm

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Jrmie Nikaes <jeremie.nikaes@ensimag.imag.fr>

Arnaud Lacurie <arnaud.lacurie@ensimag.imag.fr>

Claire Fousse <claire.fousse@ensimag.imag.fr>

David Amouyal <david.amouyal@ensimag.imag.fr>

Matthieu Moy <matthieu.moy@grenoble-inp.fr>

2012

Charles Roussel <charles.roussel@ensimag.imag.fr>

Simon Cathebras <simon.cathebras@ensimag.imag.fr>

Julien Khayat <julien.khayat@ensimag.imag.fr>

Guillaume Sasdy <guillaume.sasdy@ensimag.imag.fr>

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Source: <https://download.savannah.gnu.org/releases/sysvinit/>

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Upstream-Contact:

Lasse Collin <lasse.collin@tukaani.org>

<https://tukaani.org/xz/lists.html>

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To: Jonathan Nieder <[jrnieder@gmail.com](mailto:jrnieder@gmail.com)>

Subject: Re: XZ utils for Debian

Date: Sun, 19 Jul 2009 13:28:23 +0300

Message-Id: <200907191328.23816.lasse.collin@tukaani.org>

[...]

> AUTHORS, ChangeLog, COPYING, README, THANKS, TODO,

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windows/README

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Files: m4/getopt.m4 m4/posix-shell.m4

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<stevenj@alum.mit.edu>

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files: m4/ax\_check\_capsicum.m4

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Files: Doxyfile.in

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Origin: Doxygen 1.4.7

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Files: src/liblzma/check/crc32\_table\_?e.h

src/liblzma/check/crc64\_table\_?e.h

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src/liblzma/check/crc32\_tablegen.c

src/liblzma/check/crc64\_tablegen.c

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changelog.gz (commit 975d8fd) explains:

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Files: dos/config.h

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Other-Authors: Roland McGrath, Akim Demaille, Paul Eggert,

David Mackenzie, Bruno Haible, and many others.

Origin: configure.ac from XZ Utils,

visibility.m4 serial 1 (gettext-0.15),

Autoconf 2.52g

License: config-h

configure.ac:

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[...]

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dos/config.h was generated with autoheader, which tells Autoconf to  
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Files: po/Makevars

Origin: gettext-runtime/po/Makevars (gettext-0.12)

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Authors: Bruno Haible

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Upstream-Name: brotli

Source: <https://github.com/google/brotli>

Files: \*

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Files: debian/\*

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misc/unix/getopt.c,  
file\_io/unix/mktemp.c, strings/apr\_strings.c:

/\*

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From network\_io/unix/inet\_ntop.c, network\_io/unix/inet\_pton.c:

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From dso/aix/dso.c:

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From strings/apr\_strnatcmp.c, include/apr\_strings.h:

strnatcmp.c -- Perform 'natural order' comparisons of strings in C.

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```
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Upstream-Name: libassuan

Upstream-Contact: Werner Koch <[wk@gnupg.org](mailto:wk@gnupg.org)>

Source: <https://gnupg.org/ftp/gcrypt/libassuan/>

Files: \*

Makefile.am

src/Makefile.am

src/assuan-buffer.c

src/assuan-error.c

src/assuan-inquire.c

src/assuan-io.c

src/assuan-listen.c

src/assuan-pipe-server.c

src/assuan-socket-connect.c

src/assuan-socket-server.c

src/assuan-socket.c

src/assuan-uds.c

src/client.c

src/context.c

src/funopen.c

src/memrchr.c

src/posix-fd-t.inc.h

src/posix-includes.inc.h

src/posix-sock-nonce.inc.h

src/posix-sys-pth-impl.h

src/posix-types.inc.h

src/putc\_unlocked.c

src/server.c

src/setenv.c

src/stpcpy.c

src/system-posix.c

src/system-w32.c

src/system-w32ce.c

src/system.c

src/w32-fd-t.inc.h

src/w32-includes.inc.h

src/w32-sock-nonce.inc.h

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m4/ltversion.m4  
m4/lt~obsolete.m4  
m4/onceonly.m4  
m4/socklen.m4  
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Upstream-Name: Nettle

Upstream-Contact: Niels Mller <nisse@lysator.liu.se>

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Simon Josefsson <jas@extundo.com>  
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This package was put together by Yann Dirson <dirson@debian.org>,  
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src/base/ftcid.c

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include/freetype/internal/services/svgxval.h  
include/freetype/internal/services/svttcmap.h  
src/base/ftgxval.c

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src/bdf/bdfdrivr.c src/bdf/bdfdrivr.h

src/bdf/bdferror.h

src/bdf/module.mk

src/bdf/README

src/bdf/rules.mk

src/pcf/module.mk

src/pcf/pcf.c src/pcf/pcf.h

src/pcf/pcfdrivr.c src/pcf/pcfdrivr.h

src/pcf/pcfread.c src/pcf/pcfread.h

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src/psaux/psfixed.h  
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o freetype@nongnu.org

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If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

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Packaging is done by the Debian GCC Maintainers <[debian-gcc@lists.debian.org](mailto:debian-gcc@lists.debian.org)>, with sources obtained from:

<ftp://gcc.gnu.org/pub/gcc/releases/> (for full releases)

<svn://gcc.gnu.org/svn/gcc/> (for prereleases)

<ftp://sourceware.org/pub/newlib/> (for newlib)

<git://git.savannah.gnu.org/gm2.git> (for Modula-2)

The current gcc-10 source package is taken from the SVN gcc-10-branch.

Changes: See changelog.Debian.gz

Debian splits the GNU Compiler Collection into packages for each language, library, and documentation as follows:

Language	Compiler package	Library package	Documentation
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Ada	gnat-10	libgnat-10	gnat-10-doc
BRIG	gccbrig-10	libhsail-rt0	
C	gcc-10	gcc-10-doc	
C++	g++-10	libstdc++6	libstdc++6-10-doc
D	gdc-10		
Fortran 95	gfortran-10	libgfortran5	gfortran-10-doc
Go	gccgo-10	libgo0	
Objective C	gobjc-10	libobjc4	
Objective C++	gobjc++-10		
Modula-2	gm2-10	libgm2	

For some language run-time libraries, Debian provides source files, development files, debugging symbols and libraries containing position-independent code in separate packages:

Language	Sources	Development	Debugging	Position-Independent
C++		libstdc++6-10-dbg	libstdc++6-10-pic	
D	libphobos-10-dev			

Additional packages include:

All languages:

libgcc1,	
libgcc2, libgcc4	GCC intrinsics (platform-dependent)
gcc-10-base	Base files common to all compilers
gcc-10-soft-float	Software floating point (ARM only)
gcc-10-source	The sources with patches

Ada:

libgnat-util10-dev, libgnat-util10 GNAT version library

C:

cpp-10, cpp-10-doc	GNU C Preprocessor
libssp0-dev, libssp0	GCC stack smashing protection library
libquadmath0	Math routines for the __float128 type
fixincludes	Fix non-ANSI header files

C, C++ and Fortran 95:

libgomp1-dev, libgomp1 GCC OpenMP (GOMP) support library  
libitm1-dev, libitm1 GNU Transactional Memory Library

Biarch support: On some 64-bit platforms which can also run 32-bit code, Debian provides additional packages containing 32-bit versions of some libraries. These packages have names beginning with 'lib32' instead of 'lib', for example lib32stdc++6. Similarly, on some 32-bit platforms which can

also run 64-bit code, Debian provides additional packages with names beginning with 'lib64' instead of 'lib'. These packages contain 64-bit versions of the libraries. (At this time, not all platforms and not all libraries support biarch.) The license terms for these lib32 or lib64 packages are identical to the ones for the lib packages.

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- libatomic
- libdecnumber
- libgomp
- libitm
- libssp
- libstdc++-v3

- libobjc
- libgfortran
- The libgnat-10 Ada support library and libgnat-util10 library.
- Various config files in gcc/config/ used in runtime libraries.
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libquadmath/math:

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coshq.c, erfq.c, jnq.c, lgammaq.c, powq.c, roundq.c:

Changes for 128-bit \_\_float128 are

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ldexpq.c:

- \* Conversion to long double by Ulrich Drepper,
- \* Cygnus Support, drepper@cygnus.com.

cosq\_kernel.c, expq.c, sincos\_table.c, sincosq.c, sincosq\_kernel.c,  
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Cephes Math Library Release 2.2: January, 1991

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Adapted for glibc November, 2001

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D:

gdc-10                    GNU D Compiler  
libphobos-10-dev        D standard runtime library

The D source package is made up of the following components.

The D front-end for GCC:

- d/\*

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- d/phobos/etc/c/zlib/\*

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gcc/m2/gm2-libiberty:

gcc/m2/mc-boot/:

gcc/m2/mc-boot-ch/:

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Upstream-Name: Expat

Upstream-Contact: Sebastian Pipping <[sebastian@pipping.org](mailto:sebastian@pipping.org)>

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```

Other contributors include:

Anthony Towns <ajt@debian.org>  
David Whedon <dwhedon@gordian.com>  
Dan Jacobowitz <dan@debian.org>  
Tollef Fog Heen <tfheen@debian.org>  
Attilio Fiandrotti <fiandro@tiscali.it>  
Colin Watson <cjwatson@debian.org>

Regis Boudin <regis@debian.org>

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graphics library

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```
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/BrotliDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/DeflateOptions.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZstdOptions.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/BrotliEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Brotli.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Zstd.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZstdEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/GzipOptions.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/BrotliOptions.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/CompressionOptions.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZstdConstants.java
```

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/compression/StandardCompressionOptions.java

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\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/CharSequenceValueConverter.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/DefaultHeadersImpl.java

\*

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\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/ValueConverter.java

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```
*/
/**
 * Enumeration of supported Base64 dialects.
 * <p>
 * The internal lookup tables in this class has been derived from
 * <a href="http://iharder.sourceforge.net/current/java/base64/">Robert
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```

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```
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/base64/Base64Dialect.java
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jar/io/netty/handler/codec/xml/XmlFrameDecoder.java
```

```
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/JdkZlibDecoder.java
```

```
*
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```
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Crc32c.java
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* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/META-INF/native-
```

image/io.netty.netty-codec/native-image.properties  
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jar/io/netty/handler/codec/compression/ByteBufChecksum.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/CompressionUtil.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/string/LineEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/string/LineSeparator.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/CodecOutputList.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/DateFormatter.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/DatagramPacketEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/DatagramPacketDecoder.java
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/\*\*

\* Utility class for {@link ByteBuf} that encodes and decodes to and from

\* [Base64](https://en.wikipedia.org/wiki/Base64) notation.

\* <p>

\* The encoding and decoding algorithm in this class has been derived from

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\* [Base64 Encoder/Decoder](#).

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jar/io/netty/handler/codec/compression/Bzip2Decoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-  
jar/io/netty/handler/codec/json/package-info.java

\*

/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2BlockDecompressor.java

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jar/io/netty/handler/codec/compression/Bzip2MoveToFrontTable.java

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jar/io/netty/handler/codec/compression/Bzip2HuffmanStageDecoder.java

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jar/io/netty/handler/codec/compression/Bzip2BitReader.java

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jar/io/netty/handler/codec/compression/FastLzFrameEncoder.java

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jar/io/netty/handler/codec/compression/LzfDecoder.java

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jar/io/netty/handler/codec/compression/SnappyFramedDecoder.java

\*

/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-  
jar/io/netty/handler/codec/DecoderResultProvider.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2MTFAndRLE2StageEncoder.java

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jar/io/netty/handler/codec/compression/Bzip2Rand.java

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jar/io/netty/handler/codec/compression/Lz4Constants.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-  
jar/io/netty/handler/codec/compression/Bzip2DivSufSort.java

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jar/io/netty/handler/codec/compression/Crc32.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-  
jar/io/netty/handler/codec/AsciiHeadersEncoder.java

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*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/LzmaFrameEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/LzfEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/SnappyFramedEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/json/JsonObjectDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Bzip2Constants.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/MessageAggregationException.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Bzip2BitWriter.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Bzip2Encoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Lz4FrameDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/FastLzFrameDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Bzip2HuffmanStageEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/FastLz.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Bzip2BlockCompressor.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Bzip2HuffmanAllocator.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
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-->

Found in path(s):

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/META-INF/maven/io.netty/netty-codec/pom.xml

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/\*\*

\* A decoder that splits the received { @link ByteBuf}s dynamically by the  
\* value of the length field in the message. It is particularly useful when you  
\* decode a binary message which has an integer header field that represents the  
\* length of the message body or the whole message.

\*

<p>

\* { @link LengthFieldBasedFrameDecoder } has many configuration parameters so  
\* that it can decode any message with a length field, which is often seen in  
\* proprietary client-server protocols. Here are some example that will give  
\* you the basic idea on which option does what.

\*

\* <h3>2 bytes length field at offset 0, do not strip header</h3>

\*

\* The value of the length field in this example is <tt>12 (0x0C)</tt> which  
\* represents the length of "HELLO, WORLD". By default, the decoder assumes  
\* that the length field represents the number of the bytes that follows the  
\* length field. Therefore, it can be decoded with the simplistic parameter  
\* combination.

\* <pre>

\* <b>lengthFieldOffset</b> = <b>0</b>

\* <b>lengthFieldLength</b> = <b>2</b>

\* lengthAdjustment = 0

\* initialBytesToStrip = 0 (= do not strip header)

\*

```

* BEFORE DECODE (14 bytes)    AFTER DECODE (14 bytes)
* +-----+-----+ +-----+-----+
* | Length | Actual Content
* |---->| Length | Actual Content |
* | 0x000C | "HELLO, WORLD" | | 0x000C | "HELLO, WORLD" |
* +-----+-----+ +-----+-----+
* </pre>
*
* <h3>2 bytes length field at offset 0, strip header</h3>
*
* Because we can get the length of the content by calling
* { @link ByteBuf#readableBytes() }, you might want to strip the length
* field by specifying <tt>initialBytesToStrip</tt>. In this example, we
* specified <tt>2</tt>, that is same with the length of the length field, to
* strip the first two bytes.
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 2
* lengthAdjustment = 0
* <b>initialBytesToStrip</b> = <b>2</b> (= the length of the Length field)
*
* BEFORE DECODE (14 bytes)    AFTER DECODE (12 bytes)
* +-----+-----+ +-----+-----+
* | Length | Actual Content |---->| Actual Content |
* | 0x000C | "HELLO, WORLD" | | "HELLO, WORLD" |
* +-----+-----+ +-----+-----+
* </pre>
*
* <h3>2 bytes length field at offset 0, do not strip header, the length field
* represents the length of the whole message</h3>
*
* In most cases, the length field represents the length of the message body
* only, as shown in the previous examples. However, in some protocols, the
* length field represents the length of the whole message, including the
* message header. In such a case, we specify a non-zero
* <tt>lengthAdjustment</tt>. Because the length value in this example message
* is always greater than the body length by <tt>2</tt>, we specify <tt>-2</tt>
* as <tt>lengthAdjustment</tt> for compensation.
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 2
* <b>lengthAdjustment</b> = <b>-2</b> (= the length of the Length field)
* initialBytesToStrip = 0
*
* BEFORE DECODE (14 bytes)    AFTER DECODE (14 bytes)
* +-----+-----+ +-----+-----+
* | Length | Actual Content |---->| Length | Actual

```

```

Content |
* | 0x000E | "HELLO, WORLD" | | 0x000E | "HELLO, WORLD" |
* +-----+-----+ +-----+-----+
* </pre>
*
* <h3>3 bytes length field at the end of 5 bytes header, do not strip header</h3>
*
* The following message is a simple variation of the first example. An extra
* header value is prepended to the message. <tt>lengthAdjustment</tt> is zero
* again because the decoder always takes the length of the prepended data into
* account during frame length calculation.
* <pre>
* <b>lengthFieldOffset</b> = <b>2</b> (= the length of Header 1)
* <b>lengthFieldLength</b> = <b>3</b>
* lengthAdjustment = 0
* initialBytesToStrip = 0
*
* BEFORE DECODE (17 bytes)          AFTER DECODE (17 bytes)
* +-----+-----+-----+ +-----+-----+-----+
* | Header 1 | Length | Actual Content |----->| Header 1 | Length | Actual Content |
* | 0xCAFE | 0x00000C | "HELLO, WORLD" |
* | 0xCAFE | 0x00000C | "HELLO, WORLD" |
* +-----+-----+-----+ +-----+-----+-----+
* </pre>
*
* <h3>3 bytes length field at the beginning of 5 bytes header, do not strip header</h3>
*
* This is an advanced example that shows the case where there is an extra
* header between the length field and the message body. You have to specify a
* positive <tt>lengthAdjustment</tt> so that the decoder counts the extra
* header into the frame length calculation.
* <pre>
* lengthFieldOffset = 0
* lengthFieldLength = 3
* <b>lengthAdjustment</b> = <b>2</b> (= the length of Header 1)
* initialBytesToStrip = 0
*
* BEFORE DECODE (17 bytes)          AFTER DECODE (17 bytes)
* +-----+-----+-----+ +-----+-----+-----+
* | Length | Header 1 | Actual Content |----->| Length | Header 1 | Actual Content |
* | 0x00000C | 0xCAFE | "HELLO, WORLD" | | 0x00000C | 0xCAFE | "HELLO,
* WORLD" |
* +-----+-----+-----+ +-----+-----+-----+
* </pre>
*
* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,
* strip the first header field and the length field</h3>
*

```

- \* This is a combination of all the examples above. There are the prepended
- \* header before the length field and the extra header after the length field.
- \* The prepended header affects the <tt>lengthFieldOffset</tt> and the extra
- \* header affects the <tt>lengthAdjustment</tt>. We also specified a non-zero
- \* <tt>initialBytesToStrip</tt> to strip the length field and the prepended
- \* header from the frame. If you don't want to strip the prepended header, you
- \* could specify <tt>0</tt> for <tt>initialBytesToSkip</tt>.

\* <pre>

\* lengthFieldOffset = 1 (= the length of HDR1)

\* lengthFieldLength = 2

\* <b>lengthAdjustment</b> = <b>1</b> (= the length of HDR2)

\* <b>initialBytesToStrip</b> = <b>3</b> (= the length of HDR1 + LEN)

\*

\* BEFORE DECODE (16 bytes)

AFTER DECODE (13 bytes)

```
* +-----+-----+-----+-----+ +-----+-----+
```

```
* | HDR1 | Length | HDR2 | Actual Content |---->| HDR2 | Actual Content |
```

```
* | 0xCA | 0x000C | 0xFE | "HELLO, WORLD" | | 0xFE | "HELLO, WORLD" |
```

```
* +-----+-----+-----+-----+ +-----+-----+
```

\* </pre>

\*

- \* <h3>2 bytes length field at offset 1 in the middle of 4 bytes header,

- \* strip the first header field and the length field, the length field

- \* represents the length of the whole message</h3>

\*

- \* Let's give another twist to the previous example. The only difference from

- \* the previous example is that the length field represents the length of the

- \* whole message instead of the message body, just like the third example.

- \* We have to count the length of HDR1 and Length into <tt>lengthAdjustment</tt>.

- \* Please note that we don't need to take the length of HDR2 into account

- \* because

the length field already includes the whole header length.

\* <pre>

\* lengthFieldOffset = 1

\* lengthFieldLength = 2

\* <b>lengthAdjustment</b> = <b>-3</b> (= the length of HDR1 + LEN, negative)

\* <b>initialBytesToStrip</b> = <b>3</b>

\*

\* BEFORE DECODE (16 bytes)

AFTER DECODE (13 bytes)

```
* +-----+-----+-----+-----+ +-----+-----+
```

```
* | HDR1 | Length | HDR2 | Actual Content |---->| HDR2 | Actual Content |
```

```
* | 0xCA | 0x0010 | 0xFE | "HELLO, WORLD" | | 0xFE | "HELLO, WORLD" |
```

```
* +-----+-----+-----+-----+ +-----+-----+
```

\* </pre>

\* @see LengthFieldPrepender

\*/

Found in path(s):

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/LengthFieldBasedFrameDecoder.java

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\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/compression/SnappyOptions.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/compression/EncoderUtil.java

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\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/EmptyHeaders.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/Headers.java



\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/DefaultHeaders.java

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Found in path(s):

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/LineBasedFrameDecoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/DecoderException.java

\*

/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/PrematureChannelClosureException.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/ReplayingDecoderByteBuf.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/ThreadLocalMarshallerProvider.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/bytes/ByteArrayEncoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/MarshallingEncoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/MarshallingDecoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/EncoderException.java

\*

/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/MessageToMessageEncoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/FixedLengthFrameDecoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/ObjectEncoder.java

\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-

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jar/io/netty/handler/codec/compression/package-info.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/ObjectEncoderOutputStream.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/SnappyFrameDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/ObjectDecoderInputStream.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/ClassLoaderClassResolver.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/Snappy.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/string/package-info.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZlibUtil.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/JZlibEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/marshalling/DefaultMarshallerProvider.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/bytes/package-info.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/xml/package-info.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/ReplayingDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/CodecException.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/ObjectDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/MessageToByteEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/LengthFieldPrepender.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/string/StringEncoder.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/base64/package-info.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZlibEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/CompactObjectOutputStream.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/ReferenceMap.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/UnsupportedMessageTypeException.java

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\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/ClassResolver.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/string/StringDecoder.java  
\*  
/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/SoftReferenceMap.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/compression/SnappyFrameEncoder.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/compression/JZlibDecoder.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/CompatibleMarshallingEncoder.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/Delimiters.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/CompactObjectInputStream.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/TooLongFrameException.java  
\*  
/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/LimitingByteInput.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/package-info.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/ClassResolvers.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/WeakReferenceMap.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/ByteToMessageDecoder.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/ContextBoundUnmarshallerProvider.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/serialization/package-info.java  
\*  
/opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/compression/CompressionException.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/ChannelBufferByteInput.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/marshalling/UnmarshallerProvider.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/bytes/ByteArrayDecoder.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/MessageToMessageDecoder.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-jar/io/netty/handler/codec/MessageToMessageCodec.java  
\* /opt/cola/permits/1820904464\_1697192357.6491582/0/netty-codec-4-1-100-final-sources-

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jar/io/netty/handler/codec/marshalling/ThreadLocalUnmarshallerProvider.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZlibDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/DelimiterBasedFrameDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/CompatibleObjectEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZlibCodecFactory.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/marshalling/UnmarshallerProvider.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/MessageAggregator.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/CorruptedFrameException.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/marshalling/CompatibleMarshallingDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/DecompressionException.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/package-info.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/serialization/CachingClassResolver.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/DecoderResult.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/JdkZlibEncoder.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/compression/ZlibWrapper.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/base64/Base64Encoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/marshalling/package-info.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/ByteToMessageCodec.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/base64/Base64Decoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/marshalling/DefaultUnmarshallerProvider.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/marshalling/ChannelBufferByteOutput.java
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```
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```

Found in path(s):

```
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/UnsupportedValueConverter.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufEncoderNano.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufEncoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufVarint32LengthFieldPrepender.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufVarint32FrameDecoder.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufDecoderNano.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/ProtocolDetectionState.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/ProtocolDetectionResult.java
* /opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/HeadersUtils.java
*
/opt/cola/permits/1820904464_1697192357.6491582/0/netty-codec-4-1-100-final-sources-
jar/io/netty/handler/codec/protobuf/ProtobufDecoder.java
```

## 1.445 netty-resolver 4.1.100.Final

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Found in path(s):

\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/ResolvedAddressTypes.java  
\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/HostsFileEntries.java  
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\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/InetNameResolver.java  
\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/DefaultHostsFileEntriesResolver.java  
\*  
\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/AddressResolver.java  
\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/CompositeNameResolver.java  
\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/DefaultNameResolver.java  
\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-

```
jar/io/netty/resolver/InetSocketAddressResolver.java
* /opt/cola/permits/1820904471_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-
jar/io/netty/resolver/DefaultAddressResolverGroup.java
* /opt/cola/permits/1820904471_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-
jar/io/netty/resolver/HostsFileEntriesResolver.java
* /opt/cola/permits/1820904471_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-
jar/io/netty/resolver/AbstractAddressResolver.java
* /opt/cola/permits/1820904471_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-
jar/io/netty/resolver/HostsFileParser.java
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```

```
Found in path(s):
* /opt/cola/permits/1820904471_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/META-
INF/maven/io.netty/netty-resolver/pom.xml
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\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/RoundRobinInetAddressResolver.java

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\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/NameResolver.java

\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/SimpleNameResolver.java

\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/package-info.java

\*

/opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/NoopAddressResolverGroup.java

\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/AddressResolverGroup.java

\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/NoopAddressResolver.java

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Found in path(s):

\* /opt/cola/permits/1820904471\_1697192352.9256797/0/netty-resolver-4-1-100-final-sources-jar/io/netty/resolver/HostsFileEntriesProvider.java

## 1.446 netty 4.1.100.Final

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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/ReflectionUtil.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/PriorityQueue.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/LongAdderCounter.java

\*

/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/NettyRuntime.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/logging/LocationAwareSlf4JLogger.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/SuppressForbidden.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/ObjectCleaner.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/UncheckedBooleanSupplier.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/EmptyPriorityQueue.java

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```
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.apache.org/maven-v4_0_0.xsd">
```

```
<modelVersion>4.0.0</modelVersion>
```

```
<artifactId>jctools-core</artifactId>
```

```
<groupId>org.jctools</groupId>
```

```
<version>3.1.0</version>
```

```
<name>Java Concurrency Tools Core Library</name>
```

```
<description>Java Concurrency Tools Core Library</description>
```

```
<packaging>bundle</packaging>
```

```
<dependencies>
```

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<dependency>
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```
<groupId>org.hamcrest</groupId>
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<artifactId>hamcrest-all</artifactId>
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<version>${hamcrest.version}</version>
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<scope>test</scope>
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<dependency>
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<groupId>junit</groupId>
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```
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```
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```

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</dependency>
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<dependency>
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<groupId>com.google.guava</groupId>
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```
<artifactId>guava-testlib</artifactId>
```

```
<version>${guava-testlib.version}</version>
```

```
<scope>test</scope>
```

```
</dependency>
```

```
</dependencies>
```

```
<build>
```

```
<plugins>
```

```
<plugin>
```

```
<groupId>org.apache.maven.plugins</groupId>
```

```
<artifactId>maven-surefire-plugin</artifactId>
```

```
<version>3.0.0-M3</version>
```

```
<configuration>
```

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<includes>
```

```
<include>*</include>
```

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</includes>
```

```

</configuration>
</plugin>
<plugin>
  <groupId>org.apache.felix</groupId>
  <artifactId>maven-bundle-plugin</artifactId>
  <version>4.2.1</version>
  <extensions>>true</extensions>
  <configuration>
    <instructions>
      <Import-Package>sun.misc;resolution:=optional</Import-Package>
    </instructions>
  </configuration>
</plugin>
<plugin>
  <groupId>org.apache.maven.plugins</groupId>
  <artifactId>maven-source-plugin</artifactId>
  <version>3.2.0</version>
  <executions>
    <execution>
      <id>attach-sources</id>
      <phase>verify</phase>
      <goals>
        <goal>jar-no-fork</goal>
      </goals>
    </execution>
  </executions>
</plugin>
<plugin>
  <groupId>org.apache.maven.plugins</groupId>
  <artifactId>maven-javadoc-plugin</artifactId>
  <version>3.1.1</version>
  <configuration>
    <additionalOptions>
      <additionalOption>-Xdoclint:none</additionalOption>
    </additionalOptions>
    <source>8</source>
  </configuration>
  <executions>
    <execution>
      <id>attach-javadocs</id>
      <goals>
        <goal>jar</goal>
      </goals>
    </execution>
  </executions>
</plugin>
</plugins>
</build>

```

```
<distributionManagement>
  <repository>
    <id>bintray-jctools-jctools</id>
    <name>jctools-jctools</name>
    <url>https://api.bintray.com/maven/jctools/jctools/jctools-core/?publish=1</url>
  </repository>
</distributionManagement>
```

```
<url>https://github.com/JCTools</url>
<inceptionYear>2013</inceptionYear>
```

```
<licenses>
  <license>
    <name>Apache
License, Version 2.0</name>
    <url>http://www.apache.org/licenses/LICENSE-2.0.txt</url>
    <distribution>repo</distribution>
  </license>
</licenses>
```

```
<scm>
  <url>https://github.com/JCTools/JCTools</url>
  <connection>scm:git:https://github.com/JCTools/JCTools</connection>
  <tag>HEAD</tag>
</scm>
```

```
<developers>
  <developer>
    <url>https://github.com/nitsanw</url>
  </developer>
  <developer>
    <url>https://github.com/mjpt777</url>
  </developer>
  <developer>
    <url>https://github.com/RichardWarburton</url>
  </developer>
  <developer>
    <url>https://github.com/kay</url>
  </developer>
  <developer>
    <url>https://github.com/franz1981</url>
  </developer>
</developers>
```

```
<prerequisites>
  <maven>3.5.0</maven>
</prerequisites>
```

```
<properties>
<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
<java.version>1.6</java.version>
<java.test.version>1.8</java.test.version>

<maven.compiler.source>${java.version}</maven.compiler.source>
<maven.compiler.target>${java.version}</maven.compiler.target>
<maven.compiler.testSource>${java.test.version}</maven.compiler.testSource>
<maven.compiler.testTarget>${java.test.version}</maven.compiler.testTarget>

<hamcrest.version>1.3</hamcrest.version>
<junit.version>4.12</junit.version>
<guava-testlib.version>21.0</guava-testlib.version>
</properties>
</project>
```

#### Found

in path(s):

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/META-INF/maven/org.jctools/jctools-core/pom.xml

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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/NetUtilSubstitutions.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/NetUtilInitializations.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/DomainWildcardMappingBuilder.java

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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/IntegerHolder.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/ResourceLeakHint.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/Mapping.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/AsciiString.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/UnpaddedInternalThreadLocalMap.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/concurrent/FastThreadLocal.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/DomainNameMapping.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/NativeLibraryLoader.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/InternalThreadLocalMap.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/concurrent/PromiseAggregator.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/ThreadDeathWatcher.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/concurrent/PromiseNotifier.java  
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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/ThreadExecutorMap.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/svm/PlatformDependentSubstitution.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/svm/CleanerJava6Substitution.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/svm/UnsafeRefArrayAccessSubstitution.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/Hidden.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/svm/package-info.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/ReferenceCountUpdater.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/ObjectPool.java

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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/CharsetUtil.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/concurrent/DefaultEventExecutor.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/package-info.java  
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/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/logging/Slf4JLogger.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/concurrent/EventExecutorGroup.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/logging/InternalLogLevel.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/logging/Log4JLoggerFactory.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/AbstractConstant.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/SystemPropertyUtil.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/DefaultAttributeMap.java  
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/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/concurrent/MultithreadEventExecutorGroup.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/IllegalReferenceCountException.java  
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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/AttributeKey.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/Timeout.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/Constant.java  
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jar/io/netty/util/concurrent/GlobalEventExecutor.java  
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jar/io/netty/util/Signal.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/logging/AbstractInternalLogger.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/concurrent/SingleThreadEventExecutor.java  
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jar/io/netty/util/internal/logging/CommonsLoggerFactory.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/package-info.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/logging/Slf4JLoggerFactory.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/Attribute.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/HashedWheelTimer.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/AttributeMap.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/logging/JdkLoggerFactory.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/NetUtil.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/concurrent/DefaultEventExecutorGroup.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/Timer.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/logging/InternalLoggerFactory.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/concurrent/EventExecutor.java  
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/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/concurrent/FailedFuture.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/TimerTask.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/PlatformDependent.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/concurrent/BlockingOperationException.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/StringUtil.java

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jar/io/netty/util/internal/logging/InternalLogger.java
*
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/internal/logging/CommonsLogger.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/internal/logging/Log4JLogger.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-

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jar/io/netty/util/internal/logging/JdkLogger.java

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jar/io/netty/util/internal/logging/FormattingTuple.java

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jar/io/netty/util/ResourceLeakTracker.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/logging/Log4J2Logger.java

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jar/io/netty/util/internal/ThrowableUtil.java

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jar/io/netty/util/concurrent/RejectedExecutionHandler.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/ConstantTimeUtils.java

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jar/io/netty/util/IntSupplier.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/OutOfDirectMemoryError.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/concurrent/RejectedExecutionHandlers.java

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jar/io/netty/util/concurrent/UnorderedThreadPoolEventExecutor.java

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jar/io/netty/util/concurrent/UnaryPromiseNotifier.java

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/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/concurrent/NonStickyEventExecutorGroup.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/PromiseNotificationUtil.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/MacAddressUtil.java

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jar/io/netty/util/concurrent/EventExecutorChooserFactory.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/concurrent/PromiseCombiner.java

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jar/io/netty/util/BooleanSupplier.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/UnstableApi.java

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/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/logging/Log4J2LoggerFactory.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/concurrent/DefaultEventExecutorChooserFactory.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/concurrent/OrderedEventExecutor.java

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jar/io/netty/util/internal/SocketUtils.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/NativeLibraryUtil.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/DomainNameMappingBuilder.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/ResourceLeakDetectorFactory.java

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jar/io/netty/util/collection/ShortObjectMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/ByteObjectMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/ShortCollections.java
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  /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/CharObjectMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/IntCollections.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/LongCollections.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/CharObjectHashMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/LongObjectMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/IntObjectHashMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/ByteObjectHashMap.java
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  /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
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* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/IntObjectMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/LongObjectHashMap.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/collection/ByteCollections.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
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jar/io/netty/util/internal/ObjectUtil.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/collection/ShortObjectHashMap.java

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jar/io/netty/util/concurrent/Promise.java

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/EmptyArrays.java

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jar/io/netty/util/concurrent/ThreadPoolExecutor.java

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jar/io/netty/util/internal/logging/package-info.java

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jar/io/netty/util/concurrent/ImmediateExecutor.java

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jar/io/netty/util/concurrent/ScheduledFuture.java

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jar/io/netty/util/Recycler.java

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jar/io/netty/util/ReferenceCountUtil.java  
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jar/io/netty/util/concurrent/ImmediateEventExecutor.java  
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jar/io/netty/util/internal/shaded/org/jctools/queues/MpscLinkedQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/util/InternalAPI.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscUnboundedXaddArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/util/UnsafeRefArrayAccess.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/ConcurrentCircularArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/maps/NonBlockingIdentityHashMap.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscChunkedArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpscGrowableAtomicArrayQueue.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/SpSCUnboundedArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpscChunkedAtomicArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/util/UnsafeJvmInfo.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpSCLinkedAtomicQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/SpSCUnboundedAtomicArrayQueue.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/IndexedQueueSizeUtil.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpscUnboundedAtomicArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/MpmcUnboundedXaddChunk.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/MpscLinkedAtomicQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/MpscBlockingConsumerArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/ConcurrentSequencedCircularArrayQueue.java  
\*  
/opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/util/RangeUtil.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/BaseSpSCLinkedArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-

jar/io/netty/util/internal/shaded/org/jctools/queues/atomic/BaseLinkedAtomicQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/queues/SpmcArrayQueue.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/shaded/org/jctools/maps/ConcurrentAutoTable.java  
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*/
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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/ByteProcessorUtils.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-  
jar/io/netty/util/internal/ResourcesUtil.java  
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io.netty.util.internal.Hidden$NettyBlockHoundIntegration
```

Found in path(s):

\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/META-  
INF/services/reactor.blockhound.integration.BlockHoundIntegration

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* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/concurrent/ThreadProperties.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/internal/DefaultPriorityQueue.java
*
/opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/internal/LongCounter.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/internal/PriorityQueueNode.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/DomainMappingBuilder.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/HashingStrategy.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/AsyncMapping.java
* /opt/cola/permits/1820904486_1697192360.8623555/0/netty-common-4-1-100-final-sources-
jar/io/netty/util/concurrent/AbstractScheduledEventExecutor.java
```

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\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/internal/MathUtil.java  
\* /opt/cola/permits/1820904486\_1697192360.8623555/0/netty-common-4-1-100-final-sources-jar/io/netty/util/ByteProcessor.java

## 1.447 netty-transport 4.1.100.Final

### 1.447.1 Available under license :

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Manifest-Version: 1.0

Implementation-Title: Netty/Transport

Bundle-Description: Netty is an asynchronous event-driven network application framework for rapid development of maintainable high performance protocol servers and clients.

Automatic-Module-Name: io.netty.transport

Bundle-License: <https://www.apache.org/licenses/LICENSE-2.0>

Bundle-SymbolicName: io.netty.transport

Implementation-Version: 4.1.100.Final

Built-By: norman

Bnd-LastModified: 1696948198155

Bundle-ManifestVersion: 2

Implementation-Vendor-Id: io.netty

Bundle-DocURL: <https://netty.io/>

Bundle-Vendor: The Netty Project

Import-Package: io.netty.bootstrap,io.netty.buffer;version="[4.1,5)",io.netty.channel,io.netty.channel.nio,io.netty.channel.oio,io.netty.channel.socket,io.netty.resolver;version="[4.1,5)",io.netty.util;version="[4.1,5)",io.netty.util.concurrent;version="[4.1,5)",io.netty.util.internal;version="[4.1,5)",io.netty.util.internal.logging;version="[4.1,5)",sun.nio.ch;resolution:=optional,org.eclipse.jetty.npn;version="[1,2)";resolution:=optional,org.eclipse.jetty.alpn;version="[1,2)";resolution:=optional

Require-Capability: osgi.ee;filter="(&(osgi.ee=JavaSE)(version=1.6))"

Tool: Bnd-6.3.1.202206071316

Implementation-Vendor: The Netty Project

Export-Package: io.netty.bootstrap;uses:="io.netty.channel,io.netty.resolver,io.netty.util";version="4.1.100",io.netty.channel;uses:="io.netty.bootstrap,io.netty.buffer,io.netty.util,io.netty.util.concurrent";version="4.1.100",io.netty.channel.embedded;uses:="io.netty.channel"

;version="4.1.100",io.netty.channel.group;uses:="io.netty.channel,io.netty.util.concurrent";version="4.1.100",io.netty.channel.internal;version="4.1.100",io.netty.channel.local;uses:="io.netty.channel";version="4.1.100",io.netty.channel.nio;uses:="io.netty.buffer,io.netty.channel,io.netty.util,io.netty.util.concurrent";version="4.1.100",io.netty.channel.oio;uses:="io.netty.buffer,io.netty.channel";version="4.1.100",io.netty.channel.pool;uses:="io.netty.bootstrap,io.netty.channel,io.netty.util.concurrent";version="4.1.100",io.netty.channel.socket;uses:="io.netty.buffer,io.netty.channel,io.netty.util";version="4.1.100",io.netty.channel.socket.nio;uses:="io.netty.buffer,io.netty.channel,io.netty.channel.nio,io.netty.channel.socket";version="4.1.100",io.netty.channel.socket.oio;uses:="io.netty.buffer,io.netty.channel,io.netty.channel.oio,io.netty.channel.socket";version="4.1.100"

Bundle-Name: Netty/Transport

Bundle-Version: 4.1.100.Final

Build-Jdk-Spec: 1.8

Created-By: Apache Maven Bundle Plugin 5.1.8

Build-Jdk: 1.8.0\_382

Implementation-URL: <https://netty.io/netty-transport/>

Found in path(s):

\* /opt/cola/permits/1820904472\_1697534654.900729/0/netty-transport-4-1-100-final-jar/META-INF/MANIFEST.MF

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\* /opt/cola/permits/1820904472\_1697534654.900729/0/netty-transport-4-1-100-final-jar/META-INF/native-image/io.netty.netty-transport/native-image.properties

## 1.448 netty-handler 4.1.100.Final

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Found in path(s):

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io.netty.handler.ssl/SslHandshakeCompletionEvent.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslCertificateCompressionAlgorithm.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-

jar/io/netty/handler/ssl/BouncyCastlePemReader.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolNegotiationHandler.java

\*

/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolAccessor.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ApplicationProtocolNames.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ClientAuth.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/util/LazyJavaxX509Certificate.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ipfilter/IpSubnetFilterRuleComparator.java

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/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/util/FingerprintTrustManagerFactoryBuilder.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/address/ResolveAddressHandler.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/logging/ByteBufFormat.java  
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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/BouncyCastleAlpnSslEngine.java

\*

/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/GroupsConverter.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/BouncyCastleAlpnSslUtils.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/BouncyCastle.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslAsyncPrivateKeyMethod.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/SslContextOption.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/SslProtocols.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslSessionId.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslContextOption.java

\*

/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/Ciphers.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-

jar/io/netty/handler/ssl/AsyncRunnable.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-

jar/io/netty/handler/ssl/OpenSslClientSessionCache.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-

jar/io/netty/handler/ssl/OpenSslCertificateCompressionConfig.java

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jar/io/netty/handler/ssl/SslCompletionEvent.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-

jar/io/netty/handler/ssl/ConscryptAlpnSslEngine.java

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/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ocsp/OcspClientHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/SslClientHelloHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/Conscrypt.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/SslCloseCompletionEvent.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/AbstractSniHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OptionalSslHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/JdkAlpnSslUtils.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/SniCompletionEvent.java  
\*  
/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/JdkAlpnSslEngine.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ocsp/package-info.java  
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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/StacklessSSLHandshakeException.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/EnhancingX509ExtendedTrustManager.java  
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jar/io/netty/handler/pcap/EthernetPacket.java  
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jar/io/netty/handler/pcap/PcapWriter.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/pcap/PcapWriteHandler.java  
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/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/pcap/package-info.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/pcap/PcapHeaders.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/pcap/TCPpacket.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/pcap/UDPPacket.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/pcap/IPPacket.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/logging/package-info.java  
\*  
/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/package-info.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/IdleStateEvent.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/ChunkedStream.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/package-info.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/WriteTimeoutException.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/package-info.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/IdleState.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/util/package-info.java  
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/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/ChunkedInput.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/ChunkedWriteHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/IdleStateHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/ChunkedNioStream.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/TimeoutException.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/logging/LogLevel.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/ReadTimeoutException.java  
\*  
/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/ChunkedNioFile.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/NotSslRecordException.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/timeout/WriteTimeoutHandler.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/stream/ChunkedFile.java

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* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/logging/LoggingHandler.java
* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ssl/SslHandler.java
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*/
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```

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jar/io/netty/handler/ssl/OpenSslEngineMap.java
* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
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jar/io/netty/handler/ssl/IdentityCipherSuiteFilter.java  
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/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ipfilter/UniqueIpFilter.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/SslContext.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/OpenSslEngine.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/OpenSslApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/PemReader.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ipfilter/IpFilterRule.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/SslProvider.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ipfilter/RuleBasedIpFilter.java  
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jar/io/netty/handler/ssl/OpenSslServerContext.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/JettyAlpnSslEngine.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/SupportedCipherSuiteFilter.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/util/OpenJdkSelfSignedCertGenerator.java  
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jar/io/netty/handler/ssl/ApplicationProtocolNegotiator.java  
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jar/io/netty/handler/ssl/CipherSuiteConverter.java  
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jar/io/netty/handler/ssl/util/LazyX509Certificate.java  
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jar/io/netty/handler/ssl/Java7SslParametersUtils.java  
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jar/io/netty/handler/ssl/OpenSslServerSessionContext.java  
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jar/io/netty/handler/traffic/GlobalChannelTrafficCounter.java  
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jar/io/netty/handler/ipfilter/package-info.java  
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jar/io/netty/handler/ssl/JdkBaseApplicationProtocolNegotiator.java

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* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ssl/SslUtils.java
* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ipfilter/AbstractRemoteAddressFilter.java
* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
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jar/io/netty/handler/ssl/OpenSsl.java
* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
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* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
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* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ssl/util/SimpleTrustManagerFactory.java
* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ssl/ApplicationProtocolConfig.java
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/opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
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* /opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ssl/util/BouncyCastleSelfSignedCertGenerator.java
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/opt/cola/permits/1824197368_1697526507.6772025/0/netty-handler-4-1-100-final-sources-
jar/io/netty/handler/ssl/util/InsecureTrustManagerFactory.java

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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/JdkApplicationProtocolNegotiator.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ipfilter/IpSubnetFilterRule.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslContext.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslSessionContext.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslClientContext.java  
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\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/PemX509Certificate.java

\*

/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/flush/package-info.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/PemEncoded.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/Java8SslUtils.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/OpenSslCertificateException.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslClientContext.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/PemValue.java

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\*

/opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/ReferenceCountedOpenSslContext.java

\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-



jar/io/netty/handler/ssl/ReferenceCountedOpenSslServerContext.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/util/X509TrustManagerWrapper.java  
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jar/io/netty/handler/flow/package-info.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/OpenSslKeyMaterialManager.java  
\* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-  
jar/io/netty/handler/ssl/DelegatingSslContext.java  
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jar/io/netty/handler/traffic/ChannelTrafficShapingHandler.java  
\*  
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jar/io/netty/handler/ssl/ExtendedOpenSslSession.java

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jar/io/netty/handler/ssl/OpenSslCachingKeyMaterialProvider.java

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jar/io/netty/handler/ssl/SignatureAlgorithmConverter.java

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jar/io/netty/handler/ssl/OpenSslSession.java

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jar/io/netty/handler/ssl/OpenSslPrivateKey.java

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jar/io/netty/handler/ssl/OpenSslCachingX509KeyManagerFactory.java

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jar/io/netty/handler/ssl/OpenSslKeyMaterialProvider.java

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jar/io/netty/handler/ssl/OpenSslX509KeyManagerFactory.java

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jar/io/netty/handler/ssl/DefaultOpenSslKeyMaterial.java

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jar/io/netty/handler/ssl/OpenSslKeyMaterial.java

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jar/io/netty/handler/ssl/OpenSslX509TrustManagerWrapper.java

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- \* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/util/SimpleKeyManagerFactory.java
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- \* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/ssl/SslMasterKeyHandler.java
- \* /opt/cola/permits/1824197368\_1697526507.6772025/0/netty-handler-4-1-100-final-sources-jar/io/netty/handler/address/package-info.java

## 1.449 netty-transport-native-unix-common

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sources-jar/netty_unix_util.h
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sources-jar/io/netty/channel/unix/ErrorsStaticallyReferencedJniMethods.java
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/opt/cola/permits/1824197187_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-sources-
jar/io/netty/channel/unix/Limits.java
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sources-jar/netty_unix_limits.h
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sources-jar/io/netty/channel/unix/SocketWritableByteChannel.java
* /opt/cola/permits/1824197187_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-
sources-jar/io/netty/channel/unix/PeerCredentials.java
* /opt/cola/permits/1824197187_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-
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sources-jar/netty_unix_socket.h
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sources-jar/io/netty/channel/unix/DomainSocketReadMode.java
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sources-jar/io/netty/channel/unix/DomainSocketAddress.java
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sources-jar/io/netty/channel/unix/UnixChannel.java
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sources-jar/io/netty/channel/unix/DomainSocketChannelConfig.java
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\*

/opt/cola/permits/1824197187\_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-sources-jar/io/netty/channel/unix/Unix.java

\* /opt/cola/permits/1824197187\_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-sources-jar/io/netty/channel/unix/IovArray.java

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\* /opt/cola/permits/1824197187\_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-sources-jar/netty\_unix\_jni.h

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sources-jar/io/netty/channel/unix/GenericUnixChannelOption.java
* /opt/cola/permits/1824197187_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-
sources-jar/io/netty/channel/unix/IntegerUnixChannelOption.java
*
/opt/cola/permits/1824197187_1697526505.2585757/0/netty-transport-native-unix-common-4-1-100-final-sources-
jar/io/netty/channel/unix/RawUnixChannelOption.java
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## 1.450 netty-transport-classes-epoll

### 4.1.100.Final

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*/
/**
* Set the {@code TCP_MD5SIG} option on the socket. See {@code linux/tcp.h} for more details.
* Keys can only be set on, not read to prevent a potential leak, as they are confidential.
* Allowing them being read would mean anyone with access to the channel could get them.
*
*/
/**
* Set the {@code TCP_QUICKACK} option on the socket.
* See https://linux.die.net/man/7/tcp TCP_QUICKACK for
* more details.
```

\*/

Found in path(s):

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollSocketChannelConfig.java

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\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollSocketChannel.java

\*

/opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollServerSocketChannel.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/Epoll.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollTcpInfo.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollDatagramChannel.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/NativeDatagramPacketArray.java

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\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/package-info.java

\*

/opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollEventLoop.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollChannelOption.java

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jar/io/netty/channel/epoll/SegmentedDatagramPacket.java
* /opt/cola/permits/1824197247_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-
jar/io/netty/channel/epoll/EpollDomainDatagramChannelConfig.java
*
```

```
/opt/cola/permits/1824197247_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-
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*/
/**
 * Set the {@code TCP_MD5SIG} option on the socket. See {@code linux/tcp.h} for more details.
 * Keys can only be set on, not read to prevent a potential leak, as they are confidential.
 * Allowing them being read would mean anyone with access to the channel could get them.
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*/opt/cola/permits/1824197247_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-
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\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/AbstractEpollStreamChannel.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollMode.java

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/opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollEventArray.java

\* /opt/cola/permits/1824197247\_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-jar/io/netty/channel/epoll/EpollRecvByteAllocatorStreamingHandle.java

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* /opt/cola/permits/1824197247_1697526509.5122175/0/netty-transport-classes-epoll-4-1-100-final-sources-
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jar/io/netty/handler/codec/rtsp/RtspDecoder.java
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jar/io/netty/handler/codec/http/cookie/CookieUtil.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/cookie/DefaultCookie.java
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* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/CookieUtil.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/HttpExpectationFailedEvent.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/cookie/Cookie.java
*
/opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/cookie/ServerCookieEncoder.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/EmptyHttpHeaders.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/cookie/CookieEncoder.java
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jar/io/netty/handler/codec/http/HttpChunkedInput.java
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jar/io/netty/handler/codec/http/websocketx/extensions/compression/DeflateEncoder.java
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jar/io/netty/handler/codec/rtsp/RtspHeaderValues.java
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jar/io/netty/handler/codec/spdy/SpdyFrameEncoder.java
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jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionUtil.java
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jar/io/netty/handler/codec/http/websocketx/extensions/package-info.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
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jar/io/netty/handler/codec/spdy/SpdyHeaderBlockRawDecoder.java
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jar/io/netty/handler/codec/spdy/SpdyProtocolException.java
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* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketClientProtocolConfig.java
*
/opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/websocketx/extensions/WebSocketExtensionFilter.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketServerProtocolHandler.java
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\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/CorruptedWebSocketFrameException.java  
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/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketServerHandshaker00.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketDecoderConfig.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/CloseWebSocketFrame.java  
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jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshakeException.java  
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jar/io/netty/handler/codec/http/HttpServerKeepAliveHandler.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketChunkedInput.java
*
/opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/multipart/FileUploadUtil.java
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jar/io/netty/handler/codec/http/TooLongHttpHeaderException.java
*
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jar/io/netty/handler/codec/http/multipart/HttpData.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/websocketx/WebSocketVersion.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/multipart/HttpPostRequestEncoder.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/multipart/HttpDataFactory.java
* /opt/cola/permits/1824197347_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-
jar/io/netty/handler/codec/http/multipart/AbstractDiskHttpData.java
*

```



/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketHandshakeException.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/spdy/DefaultSpdySettingsFrame.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketUtil.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker00.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/rtsp/RtspObjectDecoder.java  
\*  
/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/HttpResponseStatus.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/DefaultHttpMessage.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/HttpResponseEncoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/HttpRequestDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/HttpContentEncoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/CookieDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/HttpMessage.java  
\*  
/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/multipart/package-info.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/HttpObject.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/spdy/package-info.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/rtsp/RtspResponseDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/DefaultLastHttpContent.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/spdy/SpdyHttpEncoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/multipart/InternalAttribute.java  
\*  
/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/ContinuationWebSocketFrame.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-jar/io/netty/handler/codec/http/websocketx/WebSocket00FrameEncoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-

jar/io/netty/handler/codec/spdy/SpdyHttpResponseStreamIdHandler.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/QueryStringDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/websocketx/WebSocketClientHandshaker08.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/multipart/MixedFileUpload.java  
\*  
/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/QueryStringEncoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/DefaultHttpContent.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/HttpObjectAggregator.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/rtsp/RtspObjectEncoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/HttpContent.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/HttpResponseDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/websocketx/PingWebSocketFrame.java  
\*  
/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/multipart/MemoryFileUpload.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/rtsp/RtspRequestDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/spdy/SpdySession.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/multipart/HttpPostStandardRequestDecoder.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/HttpConstants.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/DefaultHttpObject.java  
\* /opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/HttpHeaders.java  
\*  
/opt/cola/permits/1824197347\_1697526480.4248974/0/netty-codec-http-4-1-100-final-sources-  
jar/io/netty/handler/codec/http/HttpVersion.java

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# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library. It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007.

It is currently developed by a community of developers.

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\* /opt/cola/permits/1825538429\_1697657800.9267037/0/okio-3-6-0-sources-jar/nonJvmMain/okio/RealBufferedSource.kt

\* /opt/cola/permits/1825538429\_1697657800.9267037/0/okio-3-6-0-sources-jar/commonMain/okio/Segment.kt

\* /opt/cola/permits/1825538429\_1697657800.9267037/0/okio-3-6-0-sources-jar/commonMain/okio/SegmentPool.kt

\*

/opt/cola/permits/1825538429\_1697657800.9267037/0/okio-3-6-0-sources-jar/commonMain/okio/ForwardingSource.kt

\* /opt/cola/permits/1825538429\_1697657800.9267037/0/okio-3-6-0-sources-jar/nonJvmMain/okio/SegmentPool.kt

\* /opt/cola/permits/1825538429\_1697657800.9267037/0/okio-3-6-0-sources-jar/nonJvmMain/okio/ForwardingSource.kt



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Upstream-Name: liblz4

Upstream-Contact: Yann Collet <[Cyan4973@github.com](mailto:Cyan4973@github.com)>

Source: <https://github.com/lz4/lz4>

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Upstream-Name: liblz4

Upstream-Contact: Yann Collet <Cyan4973@github.com>

Source: <https://github.com/lz4/lz4>

Files: \*

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## 1.463 hibernate-validator 6.2.4.Final

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Ahmed Al Hafoudh  
Alaa Nassef  
Andrey Derevyanko  
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Found in path(s):

```
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```
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jar/google/type/fraction.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/monitoring.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/type/expr.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/resource.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/visibility.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/type/money.proto  
*  
/opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
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jar/google/api/auth.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/type/month.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/billing.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/annotations.proto  
*  
/opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/type/timeofday.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/consumer.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-  
jar/google/api/distribution.proto  
* /opt/cola/permits/1827301020_1697881535.137695/0/proto-google-common-protos-2-22-0-
```

jar/google/api/documentation.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/latlng.proto  
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\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/routing.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/endpoint.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/rpc/code.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/rpc/status.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/rpc/context/attribute\_context.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/quota.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/postal\_address.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/error\_reason.proto  
\*  
/opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/system\_parameter.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/logging/type/log\_severity.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/config\_change.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/client.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/field\_behavior.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/usage.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/monitored\_resource.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/logging/type/http\_request.proto  
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\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/rpc/context/audit\_context.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/source\_info.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/http.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/localized\_text.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/service.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/datetime.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/log.proto  
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\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/longrunning/operations.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/calendar\_period.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/phone\_number.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/cloud/extended\_operations.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/context.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/httpbody.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/decimal.proto  
\* /opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/type/interval.proto  
\*  
/opt/cola/permits/1827301020\_1697881535.137695/0/proto-google-common-protos-2-22-0-jar/google/api/control.proto

## 1.465 grpc-protobuf 1.58.0

### 1.465.1 Available under license :

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## 1.466 jetty-util 9.4.53.v20231009

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Eclipse

The following artifacts are EPL.

\* org.eclipse.jetty.orbit:org.eclipse.jdt.core

The following artifacts are EPL and ASL2.

\* org.eclipse.jetty.orbit:javax.security.auth.message

The following artifacts are EPL and CDDL 1.0.

\* org.eclipse.jetty.orbit:javax.mail.glassfish

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Oracle

The following artifacts are CDDL + GPLv2 with classpath exception.

<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

\* javax.servlet:javax.servlet-api

\* javax.annotation:javax.annotation-api

\* javax.transaction:javax.transaction-api

\* javax.websocket:javax.websocket-api

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## Oracle OpenJDK

If ALPN is used to negotiate HTTP/2 connections, then the following artifacts may be included in the distribution or downloaded when ALPN module is selected.

\* java.sun.security.ssl

These artifacts replace/modify OpenJDK classes. The modifications are hosted at github and both modified and original are under GPL v2 with classpath exceptions.

<http://openjdk.java.net/legal/gplv2+ce.html>

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## OW2

The following artifacts are licensed by the OW2 Foundation according to the terms of <http://asm.ow2.org/license.html>

org.ow2.asm:asm-commons

org.ow2.asm:asm

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## Apache

The following artifacts are ASL2 licensed.

org.apache.taglibs:taglibs-standard-spec

org.apache.taglibs:taglibs-standard-impl

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## MortBay

The following artifacts are ASL2 licensed. Based on selected classes from following Apache Tomcat jars, all ASL2 licensed.

org.mortbay.jasper:apache-jsp

org.apache.tomcat:tomcat-jasper

org.apache.tomcat:tomcat-juli

org.apache.tomcat:tomcat-jsp-api

org.apache.tomcat:tomcat-el-api

org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-api

org.apache.tomcat:tomcat-util-scan  
org.apache.tomcat:tomcat-util

org.mortbay.jasper:apache-el  
org.apache.tomcat:tomcat-jasper-el  
org.apache.tomcat:tomcat-el-api

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Mortbay

The following artifacts are CDDL + GPLv2 with classpath exception.

<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

org.eclipse.jetty.toolchain:jetty-schemas

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Assorted

The UnixCrypt.java code implements the one way cryptography used by Unix systems for simple password protection. Copyright 1996 Aki Yoshida, modified April 2001 by Iris Van den Broeke, Daniel Deville.

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Eclipse

The following artifacts are EPL.

- \* org.eclipse.jetty.orbit:org.eclipse.jdt.core

The following artifacts are EPL and ASL2.

- \* org.eclipse.jetty.orbit:javac.security.auth.message

The following artifacts are EPL and CDDL 1.0.

- \* org.eclipse.jetty.orbit:javac.mail.glassfish

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Oracle

The following artifacts are CDDL + GPLv2 with classpath exception.

<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

- \* javax.servlet:javax.servlet-api
- \* javax.annotation:javax.annotation-api
- \* javax.transaction:javax.transaction-api
- \* javax.websocket:javax.websocket-api

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Oracle OpenJDK

If ALPN is used to negotiate HTTP/2 connections, then the following artifacts may be included in the distribution or downloaded when ALPN module is selected.

- \* java.sun.security.ssl

These artifacts replace/modify OpenJDK classes. The modifications are hosted at github and both modified and original are under GPL v2 with classpath exceptions.

<http://openjdk.java.net/legal/gplv2+ce.html>

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OW2

The following artifacts are licensed by the OW2 Foundation according to the terms of <http://asm.ow2.org/license.html>

org.ow2.asm:asm-commons

org.ow2.asm:asm

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Apache

The following artifacts are ASL2 licensed.

org.apache.taglibs:taglibs-standard-spec

org.apache.taglibs:taglibs-standard-impl

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MortBay

The following artifacts are ASL2 licensed. Based on selected classes from following Apache Tomcat jars, all ASL2 licensed.

org.mortbay.jasper:apache-jsp

org.apache.tomcat:tomcat-jasper

org.apache.tomcat:tomcat-juli

org.apache.tomcat:tomcat-jsp-api

org.apache.tomcat:tomcat-el-api

org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-api

org.apache.tomcat:tomcat-util-scan

org.apache.tomcat:tomcat-util

org.mortbay.jasper:apache-el

org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-el-api

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Mortbay

The following artifacts are CDDL + GPLv2 with classpath exception.

<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

org.eclipse.jetty.toolchain:jetty-schemas

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Assorted

The UnixCrypt.java code implements the one way cryptography used by Unix systems for simple password protection. Copyright 1996 Aki Yoshida, modified April 2001 by Iris Van den Broeke, Daniel Deville.

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# 1.468 jetty-servlets 9.4.53.v20231009

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\* org.eclipse.jetty.orbit:javax.security.auth.message



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\* org.eclipse.jetty.orbit:javafx.mail.glassfish

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Oracle

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<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

\* javax.servlet:javax.servlet-api

\* javax.annotation:javax.annotation-api

\* javax.transaction:javax.transaction-api

\* javax.websocket:javax.websocket-api

-----

Oracle OpenJDK

If ALPN is used to negotiate HTTP/2 connections, then the following artifacts may be included in the distribution or downloaded when ALPN module is selected.

\* java.sun.security.ssl

These artifacts replace/modify OpenJDK classes. The modifications are hosted at github and both modified and original are under GPL v2 with classpath exceptions.

<http://openjdk.java.net/legal/gplv2+ce.html>

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OW2

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org.ow2.asm:asm-commons

org.ow2.asm:asm

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Apache

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org.apache.taglibs:taglibs-standard-spec

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-----

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org.mortbay.jasper:apache-jsp  
org.apache.tomcat:tomcat-jasper  
org.apache.tomcat:tomcat-juli  
org.apache.tomcat:tomcat-jsp-api  
org.apache.tomcat:tomcat-el-api  
org.apache.tomcat:tomcat-jasper-el  
org.apache.tomcat:tomcat-api  
org.apache.tomcat:tomcat-util-scan  
org.apache.tomcat:tomcat-util

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org.apache.tomcat:tomcat-jasper-el  
org.apache.tomcat:tomcat-el-api

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org.eclipse.jetty.toolchain:jetty-schemas

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## Assorted

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\* javax.transaction:javax.transaction-api

\* javax.websocket:javax.websocket-api

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If ALPN is used to negotiate HTTP/2 connections, then the following artifacts may be included in the distribution or downloaded when ALPN module is selected.

\* java.sun.security.ssl

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org.mortbay.jasper:apache-jsp

org.apache.tomcat:tomcat-jasper

org.apache.tomcat:tomcat-juli

org.apache.tomcat:tomcat-jsp-api

org.apache.tomcat:tomcat-el-api

org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-api

org.apache.tomcat:tomcat-util-scan  
org.apache.tomcat:tomcat-util

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# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library. It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007.

It is currently developed by a community of developers, as well as supported commercially by FasterXML.com.

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# 1.471 jackson-datatype-guava 2.15.3

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\* org.eclipse.jetty.orbit:javafx.security.auth.message

The following artifacts are EPL and CDDL 1.0.  
\* org.eclipse.jetty.orbit:javafx.mail.glassfish

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<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

\* javax.servlet:javax.servlet-api  
\* javax.annotation:javax.annotation-api  
\* javax.transaction:javax.transaction-api  
\* javax.websocket:javax.websocket-api

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Oracle OpenJDK

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\* java.sun.security.ssl

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<http://openjdk.java.net/legal/gplv2+ce.html>

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OW2

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org.ow2.asm:asm-commons  
org.ow2.asm:asm

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Apache

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org.apache.taglibs:taglibs-standard-spec  
org.apache.taglibs:taglibs-standard-impl

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org.mortbay.jasper:apache-jsp  
org.apache.tomcat:tomcat-jasper  
org.apache.tomcat:tomcat-juli  
org.apache.tomcat:tomcat-jsp-api  
org.apache.tomcat:tomcat-el-api  
org.apache.tomcat:tomcat-jasper-el  
org.apache.tomcat:tomcat-api  
org.apache.tomcat:tomcat-util-scan  
org.apache.tomcat:tomcat-util

org.mortbay.jasper:apache-el  
org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-el-api

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<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

org.eclipse.jetty.toolchain:jetty-schemas

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Assorted

The UnixCrypt.java code implements the one way cryptography used by Unix systems for simple password protection. Copyright 1996 Aki Yoshida, modified April 2001 by Iris Van den Broeke, Daniel Deville.

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- \* org.eclipse.jetty.orbit:org.eclipse.jdt.core

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- \* org.eclipse.jetty.orbit:javafx.security.auth.message

The following artifacts are EPL and CDDL 1.0.

- \* org.eclipse.jetty.orbit:javafx.mail.glassfish

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#### Oracle

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<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

- \* javax.servlet:javax.servlet-api
- \* javax.annotation:javax.annotation-api
- \* javax.transaction:javax.transaction-api
- \* javax.websocket:javax.websocket-api

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#### Oracle OpenJDK

If ALPN is used to negotiate HTTP/2 connections, then the following artifacts may be included in the distribution or downloaded when ALPN module is selected.

- \* java.sun.security.ssl

These artifacts replace/modify OpenJDK classes. The modifications are hosted at github and both modified and original are under GPL v2 with classpath exceptions.

<http://openjdk.java.net/legal/gplv2+ce.html>

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#### OW2

The following artifacts are licensed by the OW2 Foundation according to the terms of <http://asm.ow2.org/license.html>

org.ow2.asm:asm-commons

org.ow2.asm:asm

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Apache

The following artifacts are ASL2 licensed.

org.apache.taglibs:taglibs-standard-spec

org.apache.taglibs:taglibs-standard-impl

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MortBay

The following artifacts are ASL2 licensed. Based on selected classes from following Apache Tomcat jars, all ASL2 licensed.

org.mortbay.jasper:apache-jsp

org.apache.tomcat:tomcat-jasper

org.apache.tomcat:tomcat-juli

org.apache.tomcat:tomcat-jsp-api

org.apache.tomcat:tomcat-el-api

org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-api

org.apache.tomcat:tomcat-util-scan

org.apache.tomcat:tomcat-util

org.mortbay.jasper:apache-el

org.apache.tomcat:tomcat-jasper-el

org.apache.tomcat:tomcat-el-api

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Mortbay

The following artifacts are CDDL + GPLv2 with classpath exception.

<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

org.eclipse.jetty.toolchain:jetty-schemas

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Assorted

The UnixCrypt.java code implements the one way cryptography used by

Unix systems for simple password protection. Copyright 1996 Aki Yoshida, modified April 2001 by Iris Van den Broeke, Daniel Deville.  
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# 1.475 jetty-security 9.4.53.v20231009

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Eclipse

The following artifacts are EPL.

\* org.eclipse.jetty.orbit:org.eclipse.jdt.core

The following artifacts are EPL and ASL2.

\* org.eclipse.jetty.orbit:javax.security.auth.message

The following artifacts are EPL and CDDL 1.0.

\* org.eclipse.jetty.orbit:javax.mail.glassfish

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Oracle

The following artifacts are CDDL + GPLv2 with classpath exception.  
<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

- \* javax.servlet:javax.servlet-api
- \* javax.annotation:javax.annotation-api
- \* javax.transaction:javax.transaction-api
- \* javax.websocket:javax.websocket-api

-----

Oracle OpenJDK

If ALPN is used to negotiate HTTP/2 connections, then the following artifacts may be included in the distribution or downloaded when ALPN module is selected.

- \* java.sun.security.ssl

These artifacts replace/modify OpenJDK classes. The modifications are hosted at github and both modified and original are under GPL v2 with classpath exceptions.

<http://openjdk.java.net/legal/gplv2+ce.html>

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OW2

The following artifacts are licensed by the OW2 Foundation according to the terms of <http://asm.ow2.org/license.html>

org.ow2.asm:asm-commons  
org.ow2.asm:asm

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Apache

The following artifacts are ASL2 licensed.

org.apache.taglibs:taglibs-standard-spec  
org.apache.taglibs:taglibs-standard-impl

-----

MortBay

The following artifacts are ASL2 licensed. Based on selected classes from

following Apache Tomcat jars, all ASL2 licensed.

org.mortbay.jasper:apache-jsp  
org.apache.tomcat:tomcat-jasper  
org.apache.tomcat:tomcat-juli  
org.apache.tomcat:tomcat-jsp-api  
org.apache.tomcat:tomcat-el-api  
org.apache.tomcat:tomcat-jasper-el  
org.apache.tomcat:tomcat-api  
org.apache.tomcat:tomcat-util-scan  
org.apache.tomcat:tomcat-util

org.mortbay.jasper:apache-el  
org.apache.tomcat:tomcat-jasper-el  
org.apache.tomcat:tomcat-el-api

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Mortbay

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<https://glassfish.dev.java.net/nonav/public/CDDL+GPL.html>

org.eclipse.jetty.toolchain:jetty-schemas

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Assorted

The UnixCrypt.java code implements the one way cryptography used by Unix systems for simple password protection. Copyright 1996 Aki Yoshida, modified April 2001 by Iris Van den Broeke, Daniel Deville.

Permission to use, copy, modify and distribute UnixCrypt for non-commercial or commercial purposes and without fee is granted provided that the copyright notice appears in all copies.

## 1.476 jackson-module-guice 2.15.3

### 1.476.1 Available under license :

# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library. It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007.

It is currently developed by a community of developers, as well as supported

commercially by FasterXML.com.

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# 1.477 libcxabi 10.0.1

## 1.477.1 Available under license :

```
; NOTE: Assertions have been autogenerated by utils/update_llc_test_checks.py
```

```
; RUN: llc < %s -mtriple=aarch64-- | FileCheck %s
```

```
; A shuffle mask with all undef elements is always legal.
```

```
define <4 x i32> @PR41535(<2 x i32> %p1, <2 x i32> %p2) {  
; CHECK-LABEL: PR41535:  
; CHECK:      // %bb.0:  
; CHECK-NEXT:  ext v0.8b, v0.8b, v1.8b, #4  
; CHECK-NEXT:  mov v0.d[1], v0.d[0]  
; CHECK-NEXT:  ret  
%cat1 = shufflevector <2 x i32> %p1, <2 x i32> undef, <4 x i32> <i32 undef, i32 1, i32 undef, i32 undef>  
%cat2 = shufflevector <2 x i32> %p2, <2 x i32> undef, <4 x i32> <i32 0, i32 undef, i32 undef, i32 undef>  
%r = shufflevector <4 x i32> %cat1, <4 x i32> %cat2, <4 x i32> <i32 undef, i32 undef, i32 1, i32 4>  
ret <4 x i32> %r  
}  
; RUN: llc < %s -mtriple=s390x-linux-gnu -mcpu=zEC12 -verify-machineinstrs | FileCheck %s  
;  
; Test that early if conversion produces LOCR with operands of the right  
; register classes.
```

```

define void @autogen_SD4739(i8*) {
; CHECK-NOT: Expected a GR32Bit register, but got a GRX32Bit register
BB:
%L34 = load i8, i8* %0
%Cmp56 = icmp sgt i8 undef, %L34
br label %CF246

CF246:                                ; preds = %CF246, %BB
%S1163 = select i1 %Cmp56, i8 %L34, i8 undef
br i1 undef, label %CF246, label %CF248

CF248:                                ; preds = %CF248, %CF246
store i8 %S1163, i8* %0
br label %CF248
}

```

Ptyprocess is under the ISC license, as code derived from Pexpect.

<http://opensource.org/licenses/ISC>

Copyright (c) 2013-2014, Pexpect development team

Copyright (c) 2012, Noah Spurrier <noah@noah.org>

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; RUN: opt %s -inline -S | FileCheck %s

define internal void @innerSmall() "min-legal-vector-width"="128" {

ret void

}

define internal void @innerLarge() "min-legal-vector-width"="512" {

ret void

}

define internal void @innerNoAttribute() {

ret void

}

```

; We should not add an attribute during inlining. No attribute means unknown.
; Inlining doesn't change the fact that we don't know anything about this
; function.
define void @outerNoAttribute() {
  call void @innerLarge()
  ret void
}

define void @outerConflictingAttributeSmall() "min-legal-vector-width"="128" {
  call void @innerLarge()
  ret void
}

define void @outerConflictingAttributeLarge() "min-legal-vector-width"="512" {
  call void @innerSmall()
  ret void
}

```

```

; We should remove the attribute after inlining since the callee's
; vector width requirements are unknown.
define void @outerAttribute() "min-legal-vector-width"="128" {
  call void @innerNoAttribute()
  ret void
}

```

```

; CHECK: define void @outerNoAttribute() {
; CHECK:
define void @outerConflictingAttributeSmall() #0
; CHECK: define void @outerConflictingAttributeLarge() #0
; CHECK: define void @outerAttribute() {
; CHECK: attributes #0 = { "min-legal-vector-width"="512" }

```

-----  
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-----

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; RUN: llc -march=hexagon < %s

; REQUIRES: asserts

; The two loads based on %struct.0, loading two different data types  
; cause LSR to assume type "void" for the memory type. This would then  
; cause an assert in isLegalAddressingMode. Make sure we no longer crash.

target triple = "hexagon"

%struct.0 = type { i8\*, i8, %union.anon.0 }

%union.anon.0 = type { i8\* }

define hidden fastcc void @fred() unnamed\_addr #0 {

entry:

br i1 undef, label %while.end, label %while.body.lr.ph

while.body.lr.ph: ; preds = %entry

br label %while.body

while.body: ; preds = %exit.2, %while.body.lr.ph

%lsrc.iv = phi %struct.0\* [ %cgep22, %exit.2 ], [ undef, %while.body.lr.ph ]

switch i32 undef, label %exit [

i32 1, label %sw.bb.i

i32 2, label %sw.bb3.i

]

sw.bb.i: ; preds = %while.body

unreachable

sw.bb3.i: ; preds = %while.body

unreachable

exit:

; preds = %while.body

switch i32 undef, label %exit.2 [

i32 1, label %sw.bb.i17

i32 2, label %sw.bb3.i20

]

sw.bb.i17: ; preds = %exit

%0 = bitcast %struct.0\* %lsrc.iv to i32\*

%1 = load i32, i32\* %0, align 4

unreachable

```
sw.bb3.i20:                ; preds = %exit  
%2 = bitcast %struct.0* %lsrc.iv to i8**  
%3 = load i8*, i8** %2, align 4  
unreachable
```

```
exit.2:                    ; preds = %exit  
%cgep22 = getelementptr %struct.0, %struct.0* %lsrc.iv, i32 1  
br label %while.body
```

```
while.end:                 ; preds = %entry  
ret void  
}
```

```
attributes #0 = { nounwind optsize "target-cpu"="hexagonv55" }
```

---

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; RUN: llc -mtriple=aarch64-apple-ios %s -o - | FileCheck %s

define <16 x double> @test\_sitofp\_fixed(<16 x i32> %in) {  
; CHECK-LABEL: test\_sitofp\_fixed:

; First, extend each i32 to i64  
; CHECK-DAG: sshll2.2d [[BLOCK0\_HI:v[0-9]+]], v0, #0

```

; CHECK-DAG: sshll.2d [[BLOCK1_HI:v[0-9]+]], v1, #0
; CHECK-DAG: sshll.2d [[BLOCK2_HI:v[0-9]+]], v2, #0
; CHECK-DAG: sshll.2d [[BLOCK3_HI:v[0-9]+]], v3, #0
; CHECK-DAG: sshll.2d [[BLOCK0_LO:v[0-9]+]], v0, #0
; CHECK-DAG: sshll.2d [[BLOCK1_LO:v[0-9]+]], v1, #0
; CHECK-DAG: sshll.2d [[BLOCK2_LO:v[0-9]+]], v2, #0
; CHECK-DAG: sshll.2d [[BLOCK3_LO:v[0-9]+]], v3, #0

; Next, convert each to double.
; CHECK-DAG: scvtf.2d v0, [[BLOCK0_LO]]
; CHECK-DAG: scvtf.2d v1, [[BLOCK0_HI]]
; CHECK-DAG: scvtf.2d v2, [[BLOCK1_LO]]
; CHECK-DAG: scvtf.2d v3, [[BLOCK1_HI]]
; CHECK-DAG: scvtf.2d v4, [[BLOCK2_LO]]
; CHECK-DAG: scvtf.2d v5, [[BLOCK2_HI]]
; CHECK-DAG: scvtf.2d v6, [[BLOCK3_LO]]
; CHECK-DAG: scvtf.2d v7, [[BLOCK3_HI]]

; CHECK: ret
%flt = sitofp <16 x i32>
%in to <16 x double>
%res = fdiv <16 x double> %flt, <double 64.0, double 64.0, double 64.0, double 64.0, double 64.0, double 64.0,
double 64.0, double 64.0, double 64.0, double 64.0, double 64.0, double 64.0, double 64.0, double 64.0, double 64.0,
double 64.0>
ret <16 x double> %res
}

; This one is small enough to satisfy isSimple, but still illegally large.
define <4 x double> @test_sitofp_fixed_shortish(<4 x i64> %in) {
; CHECK-LABEL: test_sitofp_fixed_shortish:

; CHECK-DAG: scvtf.2d v0, v0
; CHECK-DAG: scvtf.2d v1, v1

; CHECK: ret
%flt = sitofp <4 x i64> %in to <4 x double>
%res = fdiv <4 x double> %flt, <double 64.0, double 64.0, double 64.0, double 64.0>
ret <4 x double> %res
}

; NOTE: Assertions have been autogenerated by utils/update_analyze_test_checks.py
; RUN: opt < %s -cost-model -analyze -mtriple=x86_64-apple-macosx10.8.0 -mattr=+avx2 | FileCheck %s --check-
prefixes=CHECK,VEC256,AVX
; RUN: opt < %s -cost-model -analyze -mtriple=x86_64-apple-macosx10.8.0 -
mattr=+avx512vl,+avx512bw,+avx512dq,+prefer-256-bit | FileCheck %s --check-
prefixes=CHECK,VEC256,SKX256
; RUN: opt < %s -cost-model -analyze -mtriple=x86_64-apple-macosx10.8.0 -
mattr=+avx512vl,+avx512bw,+avx512dq,-prefer-256-bit | FileCheck %s --check-prefixes=CHECK,VEC512

```

```

define void @zext256() "min-legal-vector-width"="256" {
; VEC256-LABEL: 'zext256'
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %A = zext <8 x i16> undef to <8 x i64>
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %B = zext <8 x i32> undef to <8 x i64>
; VEC256-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %C = zext <16 x i8> undef to <16 x i32>
; VEC256-NEXT:
  Cost Model: Found an estimated cost of 4 for instruction: %D = zext <16 x i16> undef to <16 x i32>
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %E = zext <32 x i8> undef to <32 x i16>
; VEC256-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
; VEC512-LABEL: 'zext256'
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %A = zext <8 x i16> undef to <8 x i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %B = zext <8 x i32> undef to <8 x i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %C = zext <16 x i8> undef to <16 x i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %D = zext <16 x i16> undef to <16 x i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %E = zext <32 x i8> undef to <32 x i16>
; VEC512-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
  %A = zext <8 x i16>
  undef to <8 x i64>
  %B = zext <8 x i32> undef to <8 x i64>
  %C = zext <16 x i8> undef to <16 x i32>
  %D = zext <16 x i16> undef to <16 x i32>
  %E = zext <32 x i8> undef to <32 x i16>
  ret void
}

```

```

define void @zext512() "min-legal-vector-width"="512" {
; AVX-LABEL: 'zext512'
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %A = zext <8 x i16> undef to <8 x i64>
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %B = zext <8 x i32> undef to <8 x i64>
; AVX-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %C = zext <16 x i8> undef to <16 x i32>
; AVX-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %D = zext <16 x i16> undef to <16 x i32>
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %E = zext <32 x i8> undef to <32 x i16>
; AVX-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
; SKX256-LABEL: 'zext512'
; SKX256-NEXT: Cost Model: Found an estimated cost of

```

```

1 for instruction: %A = zext <8 x i16> undef to <8 x i64>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %B = zext <8 x i32> undef to <8 x
i64>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %C = zext <16 x i8> undef to <16 x
i32>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %D = zext <16 x i16> undef to <16 x
i32>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %E = zext <32 x i8> undef to <32 x
i16>
; SKX256-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
; VEC512-LABEL: 'zext512'
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %A = zext <8 x i16> undef to <8 x
i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %B = zext <8 x i32> undef to <8 x
i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %C = zext <16 x i8> undef to <16 x
i32>
; VEC512-NEXT: Cost Model: Found
an estimated cost of 1 for instruction: %D = zext <16 x i16> undef to <16 x i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %E = zext <32 x i8> undef to <32 x
i16>
; VEC512-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
%A = zext <8 x i16> undef to <8 x i64>
%B = zext <8 x i32> undef to <8 x i64>
%C = zext <16 x i8> undef to <16 x i32>
%D = zext <16 x i16> undef to <16 x i32>
%E = zext <32 x i8> undef to <32 x i16>
ret void
}

define void @sext256("min-legal-vector-width"="256" {
; VEC256-LABEL: 'sext256'
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %A = sext <8 x i8> undef to <8 x i64>
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %B = sext <8 x i16> undef to <8 x
i64>
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %C = sext <8 x i32> undef to <8 x
i64>
; VEC256-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %D
= sext <16 x i8> undef to <16 x i32>
; VEC256-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %E = sext <16 x i16> undef to <16 x
i32>
; VEC256-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %F = sext <32 x i8> undef to <32 x
i16>
; VEC256-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
; VEC512-LABEL: 'sext256'

```

```

; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %A = sext <8 x i8> undef to <8 x i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %B = sext <8 x i16> undef to <8 x i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %C = sext <8 x i32> undef to <8 x i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %D = sext <16 x i8> undef to <16 x i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %E = sext <16 x i16> undef to <16 x i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1
for instruction: %F = sext <32 x i8> undef to <32 x i16>
; VEC512-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
%A = sext <8 x i8> undef to <8 x i64>
%B = sext <8 x i16> undef to <8 x i64>
%C = sext <8 x i32> undef to <8 x i64>
%D = sext <16 x i8> undef to <16 x i32>
%E = sext <16 x i16> undef to <16 x i32>
%F = sext <32 x i8> undef to <32 x i16>
ret void
}

```

```

define void @sext512() "min-legal-vector-width"="512" {
; AVX-LABEL: 'sext512'
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %A = sext <8 x i8> undef to <8 x i64>
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %B = sext <8 x i16> undef to <8 x i64>
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %C = sext <8 x i32> undef to <8 x i64>
; AVX-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %D = sext <16 x i8> undef to <16 x i32>
; AVX-NEXT: Cost Model: Found an estimated cost of 4 for instruction: %E =
sext <16 x i16> undef to <16 x i32>
; AVX-NEXT: Cost Model: Found an estimated cost of 3 for instruction: %F = sext <32 x i8> undef to <32 x i16>
; AVX-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
; SKX256-LABEL: 'sext512'
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %A = sext <8 x i8> undef to <8 x i64>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %B = sext <8 x i16> undef to <8 x i64>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %C = sext <8 x i32> undef to <8 x i64>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %D = sext <16 x i8> undef to <16 x i32>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %E = sext <16 x i16> undef to <16 x i32>
; SKX256-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %F = sext <32 x i8> undef to <32 x i16>
; SKX256-NEXT: Cost Model: Found an estimated cost of 0 for instruction:
ret void
;

```

```

; VEC512-LABEL: 'sext512'
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %A = sext <8 x i8> undef to <8 x i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %B = sext <8 x i16> undef to <8 x
i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %C = sext <8 x i32> undef to <8 x
i64>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %D = sext <16 x i8> undef to <16 x
i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %E = sext <16 x i16> undef to <16 x
i32>
; VEC512-NEXT: Cost Model: Found an estimated cost of 1 for instruction: %F = sext <32 x i8> undef to <32 x
i16>
; VEC512-NEXT: Cost Model: Found an estimated cost of 0 for instruction: ret void
;
%A = sext <8 x i8> undef to <8 x i64>
%B = sext <8 x i16> undef to <8 x i64>
%C = sext <8 x i32> undef to <8 x i64>
%D = sext <16 x i8> undef to <16 x i32>
%E = sext <16 x i16>
undef to <16 x i32>
%F = sext <32 x i8> undef to <32 x i16>
ret void
}
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#   Name <email address>
#
# Please keep the list sorted.

```

Albert Pretorius <pretoalb@gmail.com>

Arne Beer <arne@twobeer.de>  
Billy  
Robert O'Neal III <billy.oneal@gmail.com> <bion@microsoft.com>  
Chris Kennelly <ckennelly@google.com> <ckennelly@ckennelly.com>  
Christopher Seymour <chris.j.seymour@hotmail.com>  
David Coeurjolly <david.coeurjolly@liris.cnrs.fr>  
Deniz Evrenci <denizevrenci@gmail.com>  
Dominic Hamon <dma@stripysock.com> <dominic@google.com>  
Dominik Czarnota <dominik.b.czarnota@gmail.com>  
Eric Fiselier <eric@efcs.ca>  
Eugene Zhuk <eugene.zhuk@gmail.com>  
Evgeny Safronov <division494@gmail.com>  
Felix Homann <linuxaudio@showlabor.de>  
Ismael Jimenez Martinez <ismael.jimenez.martinez@gmail.com>  
Jern-Kuan Leong <jernkuan@gmail.com>  
JianXiong Zhou <zhoujianxiong2@gmail.com>  
Joao Paulo Magalhaes <joaoppmagalhaes@gmail.com>  
John Millikin <jmillikin@stripe.com>  
Jussi Knuutila <jussi.knuutila@gmail.com>  
Kai Wolf <kai.wolf@gmail.com>  
Kishan Kumar <kumar.kishan@outlook.com>  
Kaito Udagawa <umireon@gmail.com>  
Lei Xu <eddyxu@gmail.com>  
Matt Clarkson <mattyclarkson@gmail.com>  
Maxim Vafin <maxvafin@gmail.com>  
Nick Hutchinson  
<nshutchinson@gmail.com>  
Oleksandr Sochka <sasha.sochka@gmail.com>  
Pascal Leroy <phl@google.com>  
Paul Redmond <paul.redmond@gmail.com>  
Pierre Phaneuf <pphaneuf@google.com>  
Radoslav Yovchev <radoslav.tm@gmail.com>  
Raul Marin <rmrodriguez@cartodb.com>  
Ray Glover <ray.glover@uk.ibm.com>  
Robert Guo <robert.guo@mongodb.com>  
Roman Lebedev <lebedev.ri@gmail.com>  
Shuo Chen <chenshuo@chenshuo.com>  
Tobias Ulvgrd <tobias.ulvgard@dirac.se>  
Tom Madams <tom.ej.madams@gmail.com> <tmadams@google.com>  
Yixuan Qiu <yixuanq@gmail.com>  
Yusuke Suzuki <utatane.tea@gmail.com>  
Zbigniew Skowron <zbychs@gmail.com>  
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```
; RUN: opt -consthoist -S -o - %s | FileCheck %s
```

```
target datalayout = "e-m:e-p:32:32-i64:64-v128:64:128-a:0:32-n32-S64"
```

```
target triple = "thumbv6m-none--musleabi"
```

```
; Check that for i8 type, the maximum legal offset is 31.
```

```
; Also check that an constant used as value to be stored rather than
```

```
; pointer in a store instruction is hoisted.
```

```
; CHECK: foo_i8
```

```
; CHECK-DAG: %[[C1:const[0-9]?]] = bitcast i32 805874720 to i32
```

```
; CHECK-DAG: %[[C2:const[0-9]?]] = bitcast i32 805874688 to i32
```

```
; CHECK-DAG: %[[C3:const[0-9]?]] = bitcast i32 805873720 to i32
```

```
; CHECK-DAG: %[[C4:const[0-9]?]] = bitcast i32 805873688 to i32
```

```
; CHECK: %0 = inttoptr i32 %[[C2]] to i8*
```

```
; CHECK-NEXT: %1 = load volatile i8, i8* %0
```

```
; CHECK-NEXT: %[[M1:const_mat[0-9]?]] = add i32 %[[C2]], 4
```

```
; CHECK-NEXT: %2 = inttoptr i32 %[[M1]] to i8*
```

```
; CHECK-NEXT: %3 = load volatile i8, i8* %2
```

```
; CHECK-NEXT: %[[M2:const_mat[0-9]?]] = add i32 %[[C2]], 31
```

```
; CHECK-NEXT: %4 = inttoptr i32 %[[M2]] to i8*
```

```
; CHECK-NEXT: %5 = load volatile i8, i8*
```

```
%4
```

```
; CHECK-NEXT: %6 = inttoptr i32 %[[C1]] to i8*
```

```
; CHECK-NEXT: %7 = load volatile i8, i8* %6
```

```
; CHECK-NEXT: %[[M3:const_mat[0-9]?]] = add i32 %[[C1]], 7
```

```
; CHECK-NEXT: %8 = inttoptr i32 %[[M3]] to i8*
```

```

; CHECK-NEXT: %9 = load volatile i8, i8* %8
; CHECK-NEXT: %10 = inttoptr i32 %[[C4]] to i8*
; CHECK-NEXT: store i8 %9, i8* %10
; CHECK-NEXT: %[[M4:const_mat[0-9]?]] = add i32 %[[C4]], 31
; CHECK-NEXT: %11 = inttoptr i32 %[[M4]] to i8*
; CHECK-NEXT: store i8 %7, i8* %11
; CHECK-NEXT: %12 = inttoptr i32 %[[C3]] to i8*
; CHECK-NEXT: store i8 %5, i8* %12
; CHECK-NEXT: %[[M5:const_mat[0-9]?]] = add i32 %[[C3]], 7
; CHECK-NEXT: %13 = inttoptr i32 %[[M5]] to i8*
; CHECK-NEXT: store i8 %3, i8* %13
; CHECK-NEXT: %[[M6:const_mat[0-9]?]] = add i32 %[[C1]], 80
; CHECK-NEXT: %14 = inttoptr i32 %[[M6]] to i8*
; CHECK-NEXT: store i8* %14, i8** @goo

```

```
@goo = global i8* undef
```

```

define void @foo_i8() {
entry:
%0 = load volatile i8, i8* inttoptr (i32 805874688 to i8*)
%1 = load volatile
i8, i8* inttoptr (i32 805874692 to i8*)
%2 = load volatile i8, i8* inttoptr (i32 805874719 to i8*)
%3 = load volatile i8, i8* inttoptr (i32 805874720 to i8*)
%4 = load volatile i8, i8* inttoptr (i32 805874727 to i8*)
store i8 %4, i8* inttoptr(i32 805873688 to i8*)
store i8 %3, i8* inttoptr(i32 805873719 to i8*)
store i8 %2, i8* inttoptr(i32 805873720 to i8*)
store i8 %1, i8* inttoptr(i32 805873727 to i8*)
store i8* inttoptr(i32 805874800 to i8*), i8** @goo
ret void
}

```

```

; Check that for i16 type, the maximum legal offset is 62.
; CHECK: foo_i16
; CHECK-DAG: %[[C1:const[0-9]?]] = bitcast i32 805874752 to i32
; CHECK-DAG: %[[C2:const[0-9]?]] = bitcast i32 805874688 to i32
; CHECK: %0 = inttoptr i32 %[[C2]] to i16*
; CHECK-NEXT: %1 = load volatile i16, i16* %0, align 2
; CHECK-NEXT: %[[M1:const_mat[0-9]?]] = add i32 %[[C2]], 4
; CHECK-NEXT: %2 = inttoptr i32 %[[M1]] to i16*
; CHECK-NEXT: %3 = load volatile i16, i16* %2, align 2
; CHECK-NEXT: %[[M2:const_mat[0-9]?]] = add i32
%[[C2]], 32
; CHECK-NEXT: %4 = inttoptr i32 %[[M2]] to i16*
; CHECK-NEXT: %5 = load volatile i16, i16* %4, align 2
; CHECK-NEXT: %[[M3:const_mat[0-9]?]] = add i32 %[[C2]], 62
; CHECK-NEXT: %6 = inttoptr i32 %[[M3]] to i16*

```

```

; CHECK-NEXT: %7 = load volatile i16, i16* %6, align 2
; CHECK-NEXT: %8 = inttoptr i32 %[[C1]] to i16*
; CHECK-NEXT: %9 = load volatile i16, i16* %8, align 2
; CHECK-NEXT: %[[M4:const_mat[0-9]?]] = add i32 %[[C1]], 22
; CHECK-NEXT: %10 = inttoptr i32 %[[M4]] to i16*
; CHECK-NEXT: %11 = load volatile i16, i16* %10, align 2

```

```

define void @foo_i16() {
entry:
%0 = load volatile i16, i16* inttoptr (i32 805874688 to i16*), align 2
%1 = load volatile i16, i16* inttoptr (i32 805874692 to i16*), align 2
%2 = load volatile i16, i16* inttoptr (i32 805874720 to i16*), align 2
%3 = load volatile i16, i16* inttoptr (i32 805874750 to i16*), align 2
%4 = load volatile i16, i16* inttoptr (i32 805874752 to i16*), align 2
%5 = load volatile i16, i16* inttoptr (i32 805874774
to i16*), align 2
ret void
}

```

```

; Check that for i32 type, the maximum legal offset is 124.
; CHECK: foo_i32
; CHECK-DAG: %[[C1:const[0-9]?]] = bitcast i32 805874816 to i32
; CHECK-DAG: %[[C2:const[0-9]?]] = bitcast i32 805874688 to i32
; CHECK: %0 = inttoptr i32 %[[C2]] to i32*
; CHECK-NEXT: %1 = load volatile i32, i32* %0, align 4
; CHECK-NEXT: %[[M1:const_mat[0-9]?]] = add i32 %[[C2]], 4
; CHECK-NEXT: %2 = inttoptr i32 %[[M1]] to i32*
; CHECK-NEXT: %3 = load volatile i32, i32* %2, align 4
; CHECK-NEXT: %[[M2:const_mat[0-9]?]] = add i32 %[[C2]], 124
; CHECK-NEXT: %4 = inttoptr i32 %[[M2]] to i32*
; CHECK-NEXT: %5 = load volatile i32, i32* %4, align 4
; CHECK-NEXT: %6 = inttoptr i32 %[[C1]] to i32*
; CHECK-NEXT: %7 = load volatile i32, i32* %6, align 4
; CHECK-NEXT: %[[M3:const_mat[0-9]?]] = add i32 %[[C1]], 8
; CHECK-NEXT: %8 = inttoptr i32 %[[M3]] to i32*
; CHECK-NEXT: %9 = load volatile i32, i32* %8, align 4
; CHECK-NEXT: %[[M4:const_mat[0-9]?]] = add i32 %[[C1]],
12
; CHECK-NEXT: %10 = inttoptr i32 %[[M4]] to i32*
; CHECK-NEXT: %11 = load volatile i32, i32* %10, align 4

```

```

define void @foo_i32() {
entry:
%0 = load volatile i32, i32* inttoptr (i32 805874688 to i32*), align 4
%1 = load volatile i32, i32* inttoptr (i32 805874692 to i32*), align 4
%2 = load volatile i32, i32* inttoptr (i32 805874812 to i32*), align 4
%3 = load volatile i32, i32* inttoptr (i32 805874816 to i32*), align 4
%4 = load volatile i32, i32* inttoptr (i32 805874824 to i32*), align 4

```

```
%5 = load volatile i32, i32* inttoptr (i32 805874828 to i32*), align 4
ret void
}
```

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```
; NOTE: Assertions have been autogenerated by utils/update_llc_test_checks.py
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mcpu=skylake-avx512 -mattr=prefer-256-bit | FileCheck %s
--check-prefixes=CHECK,CHECK-AVX512
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mcpu=skylake-avx512 -mattr=prefer-256-bit,avx512vbmi |
FileCheck %s --check-prefixes=CHECK,CHECK-VBMI
; Make sure CPUs default to prefer-256-bit. avx512vnni isn't interesting as it just adds an isel peephole for
vpmaddwd+vpadd
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mcpu=skylake-avx512 | FileCheck %s --check-
prefixes=CHECK,CHECK-AVX512
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mattr=-avx512vnni -mcpu=cascadelake | FileCheck %s --
check-prefixes=CHECK,CHECK-AVX512
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mattr=-avx512vnni -mcpu=cooperlake | FileCheck %s --
check-prefixes=CHECK,CHECK-AVX512
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mcpu=cannonlake | FileCheck %s --check-
prefixes=CHECK,CHECK-VBMI
;
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mattr=-avx512vnni -mcpu=icelake-client | FileCheck %s --
check-prefixes=CHECK,CHECK-VBMI
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mattr=-avx512vnni -mcpu=icelake-server | FileCheck %s --
check-prefixes=CHECK,CHECK-VBMI
; RUN: llc < %s -mtriple=x86_64-unknown-unknown -mattr=-avx512vnni -mcpu=tigerlake | FileCheck %s --check-
prefixes=CHECK,CHECK-VBMI
```

; This file primarily contains tests for specific places in X86ISelLowering.cpp that needed be made aware of the legalizer not allowing 512-bit vectors due to prefer-256-bit even though AVX512 is enabled.

```
define void @add256(<16 x i32>* %a, <16 x i32>* %b, <16 x i32>* %c) "min-legal-vector-width"="256" {
; CHECK-LABEL: add256:
; CHECK:      # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT:  vpadd 32(%rsi), %ymm1, %ymm1
; CHECK-NEXT:  vpadd (%rsi), %ymm0, %ymm0
; CHECK-NEXT:  vmovdqa %ymm0, (%rdx)
; CHECK-NEXT:  vmovdqa %ymm1,
32(%rdx)
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
%d = load <16 x i32>, <16 x i32>* %a
```







```

    %m = mul nsw <32 x i32> %a, %b
    %odd = shufflevector <32 x i32> %m, <32 x i32> undef, <16 x i32> <i32 0, i32 2, i32 4, i32 6, i32 8, i32 10, i32
12, i32 14, i32 16, i32 18, i32 20, i32 22, i32 24, i32 26, i32 28, i32 30>
    %even = shufflevector <32 x i32> %m, <32 x i32> undef, <16 x i32> <i32 1, i32 3, i32 5, i32 7, i32 9, i32 11, i32
13, i32 15, i32 17, i32 19, i32 21, i32
23, i32 25, i32 27, i32 29, i32 31>
    %ret = add <16 x i32> %odd, %even
    store <16 x i32> %ret, <16 x i32>* %CPtr
    ret void
}

```

```

define void @pmaddwd_32_512(<32 x i16>* %APtr, <32 x i16>* %BPtr, <16 x i32>* %CPtr) "min-legal-vector-
width"="512" {
; CHECK-LABEL: pmaddwd_32_512:
; CHECK:      # %bb.0:
; CHECK-NEXT:  vmovdqa64 (%rdi), %zmm0
; CHECK-NEXT:  vpmaddwd (%rsi), %zmm0, %zmm0
; CHECK-NEXT:  vmovdqa64 %zmm0, (%rdx)
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
    %A = load <32 x i16>, <32 x i16>* %APtr
    %B = load <32 x i16>, <32 x i16>* %BPtr
    %a = sext <32 x i16> %A to <32 x i32>
    %b = sext <32 x i16> %B to <32 x i32>
    %m = mul nsw <32 x i32> %a, %b
    %odd = shufflevector <32 x i32> %m, <32 x i32> undef, <16 x i32> <i32 0, i32 2, i32 4, i32 6, i32 8, i32 10, i32
12, i32 14, i32 16, i32 18, i32 20, i32 22, i32 24, i32 26, i32 28, i32 30>
    %even = shufflevector <32 x i32> %m, <32 x i32> undef, <16 x i32> <i32 1, i32 3, i32 5, i32 7, i32 9, i32 11, i32
13,
i32 15, i32 17, i32 19, i32 21, i32 23, i32 25, i32 27, i32 29, i32 31>
    %ret = add <16 x i32> %odd, %even
    store <16 x i32> %ret, <16 x i32>* %CPtr
    ret void
}

```

```

define void @psubus_64i8_max_256(<64 x i8>* %xptr, <64 x i8>* %yptr, <64 x i8>* %zptr) "min-legal-vector-
width"="256" {
; CHECK-LABEL: psubus_64i8_max_256:
; CHECK:      # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT:  vpsubusb 32(%rsi), %ymm1, %ymm1
; CHECK-NEXT:  vpsubusb (%rsi), %ymm0, %ymm0
; CHECK-NEXT:  vmovdqa %ymm0, (%rdx)
; CHECK-NEXT:  vmovdqa %ymm1, 32(%rdx)
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
    %x = load <64 x i8>, <64 x i8>* %xptr

```

```

%y = load <64 x i8>, <64 x i8>* %yptr
%cmp = icmp ult <64 x i8> %x, %y
%max = select <64 x i1> %cmp, <64 x i8> %y, <64 x i8> %x
%res = sub <64 x i8> %max, %y
store <64 x i8> %res, <64 x i8>* %zptr
ret void
}

```

```

define void @psubus_64i8_max_512(<64 x i8>* %xptr, <64 x i8>* %yptr, <64 x i8>* %zptr)
"min-legal-vector-width"="512" {
; CHECK-LABEL: psubus_64i8_max_512:
; CHECK:      # %bb.0:
; CHECK-NEXT: vmovdqa64 (%rdi), %zmm0
; CHECK-NEXT: vpsubusb (%rsi), %zmm0, %zmm0
; CHECK-NEXT: vmovdqa64 %zmm0, (%rdx)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%x = load <64 x i8>, <64 x i8>* %xptr
%y = load <64 x i8>, <64 x i8>* %yptr
%cmp = icmp ult <64 x i8> %x, %y
%max = select <64 x i1> %cmp, <64 x i8> %y, <64 x i8> %x
%res = sub <64 x i8> %max, %y
store <64 x i8> %res, <64 x i8>* %zptr
ret void
}

```

```

define i32 @_Z9test_charPcS_i_256(i8* nocapture readonly, i8* nocapture readonly, i32) "min-legal-vector-
width"="256" {
; CHECK-LABEL: _Z9test_charPcS_i_256:
; CHECK:      # %bb.0: # %entry
; CHECK-NEXT: movl %edx, %eax
; CHECK-NEXT: vpxor %xmm0, %xmm0, %xmm0
; CHECK-NEXT: xorl %ecx, %ecx
; CHECK-NEXT: vpxor %xmm1, %xmm1, %xmm1
; CHECK-NEXT: vpxor %xmm2, %xmm2, %xmm2
; CHECK-NEXT: .p2align 4, 0x90
; CHECK-NEXT: .LBB8_1: # %vector.body
; CHECK-NEXT:
; # =>This Inner Loop Header: Depth=1
; CHECK-NEXT: vpmovsxbw (%rdi,%rcx), %ymm3
; CHECK-NEXT: vpmovsxbw 16(%rdi,%rcx), %ymm4
; CHECK-NEXT: vpmovsxbw (%rsi,%rcx), %ymm5
; CHECK-NEXT: vpmaddwd %ymm3, %ymm5, %ymm3
; CHECK-NEXT: vpadd %ymm1, %ymm3, %ymm1
; CHECK-NEXT: vpmovsxbw 16(%rsi,%rcx), %ymm3
; CHECK-NEXT: vpmaddwd %ymm4, %ymm3, %ymm3
; CHECK-NEXT: vpadd %ymm2, %ymm3, %ymm2
; CHECK-NEXT: addq $32, %rcx

```

```

; CHECK-NEXT:  cmpq %rcx, %rax
; CHECK-NEXT:  jne .LBB8_1
; CHECK-NEXT:  # %bb.2: # %middle.block
; CHECK-NEXT:  vpaddd %ymm0, %ymm1, %ymm1
; CHECK-NEXT:  vpaddd %ymm0, %ymm2, %ymm0
; CHECK-NEXT:  vpaddd %ymm0, %ymm1, %ymm0
; CHECK-NEXT:  vextracti128 $1, %ymm0, %xmm1
; CHECK-NEXT:  vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT:  vpshufd { {.#+} } xmm1 = xmm0[2,3,0,1]
; CHECK-NEXT:  vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT:  vpshufd { {.#+} } xmm1 = xmm0[1,1,2,3]
; CHECK-NEXT:  vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT:  vmovd %xmm0,
%eax
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
entry:
%3 = zext i32 %2 to i64
br label %vector.body

```

vector.body:

```

%index = phi i64 [ %index.next, %vector.body ], [ 0, %entry ]
%vec.phi = phi <32 x i32> [ %11, %vector.body ], [ zeroinitializer, %entry ]
%4 = getelementptr inbounds i8, i8* %0, i64 %index
%5 = bitcast i8* %4 to <32 x i8>*
%wide.load = load <32 x i8>, <32 x i8>* %5, align 1
%6 = sext <32 x i8> %wide.load to <32 x i32>
%7 = getelementptr inbounds i8, i8* %1, i64 %index
%8 = bitcast i8* %7 to <32 x i8>*
%wide.load14 = load <32 x i8>, <32 x i8>* %8, align 1
%9 = sext <32 x i8> %wide.load14 to <32 x i32>
%10 = mul nsw <32 x i32> %9, %6
%11 = add nsw <32 x i32> %10, %vec.phi
%index.next = add i64 %index, 32
%12 = icmp eq i64 %index.next, %3
br i1 %12, label %middle.block, label %vector.body

```

middle.block:

```

%rdx.shuf1 = shufflevector <32 x i32> %11, <32 x i32> undef, <32 x i32> <i32 16, i32 17, i32 18, i32 19, i32 20,
i32 21, i32 22,
i32 23, i32 24, i32 25, i32 26, i32 27, i32 28, i32 29, i32 30, i32 31, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef>
%bin.rdx1 = add <32 x i32> %11, %rdx.shuf1
%rdx.shuf = shufflevector <32 x i32> %bin.rdx1, <32 x i32> undef, <32 x i32> <i32 8, i32 9, i32 10, i32 11, i32
12, i32 13, i32 14, i32 15, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>

```

```

%bin.rdx = add <32 x i32> %bin.rdx1, %rdx.shuf
%rdx.shuf15 = shufflevector <32 x i32> %bin.rdx, <32 x i32> undef, <32 x i32> <i32 4, i32 5, i32 6, i32 7, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx32 = add <32 x i32> %bin.rdx, %rdx.shuf15
%rdx.shuf17 = shufflevector <32 x i32> %bin.rdx32, <32 x i32> undef, <32 x i32> <i32 2, i32 3, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx18 = add <32 x i32> %bin.rdx32, %rdx.shuf17
%rdx.shuf19 = shufflevector <32 x i32> %bin.rdx18, <32 x i32> undef, <32 x i32> <i32 1, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef>
%bin.rdx20 = add <32 x i32> %bin.rdx18, %rdx.shuf19
%13 = extractelement <32 x i32> %bin.rdx20, i32 0
ret i32 %13
}

```

```

define i32 @_Z9test_charPcS_i_512(i8* nocapture readonly, i8* nocapture readonly, i32) "min-legal-vector-
width"="512" {

```

```

; CHECK-LABEL: _Z9test_charPcS_i_512:
; CHECK:      # %bb.0: # %entry
; CHECK-NEXT:  movl %edx, %eax
; CHECK-NEXT:  vpxor %xmm0, %xmm0, %xmm0
; CHECK-NEXT:  xorl %ecx, %ecx
; CHECK-NEXT:  vpxor %xmm1, %xmm1, %xmm1
; CHECK-NEXT:  .p2align 4, 0x90
; CHECK-NEXT:  .LBB9_1: # %vector.body
; CHECK-NEXT:  # =>This Inner Loop Header: Depth=1
; CHECK-NEXT:  vpmovsxbw (%rdi,%rcx), %zmm2
; CHECK-NEXT:  vpmovsxbw (%rsi,%rcx), %zmm3
; CHECK-NEXT:  vpmaddwd %zmm2, %zmm3, %zmm2
; CHECK-NEXT:  vpadd %zmm1, %zmm2, %zmm1
; CHECK-NEXT:  addq $32, %rcx
; CHECK-NEXT:  cmpq %rcx, %rax
; CHECK-NEXT:  jne .LBB9_1
; CHECK-NEXT:
; CHECK-NEXT:  # %bb.2: # %middle.block
; CHECK-NEXT:  vpadd %zmm0, %zmm1, %zmm0
; CHECK-NEXT:  vextracti64x4 $1, %zmm0, %ymm1
; CHECK-NEXT:  vpadd %zmm1, %zmm0, %zmm0
; CHECK-NEXT:  vextracti128 $1, %ymm0, %xmm1
; CHECK-NEXT:  vpadd %xmm1, %xmm0, %xmm0
; CHECK-NEXT:  vpshufd {.*#+} xmm1 = xmm0[2,3,0,1]

```

```

; CHECK-NEXT:  vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT:  vpshufd { {. *#+} } xmm1 = xmm0[1,1,2,3]
; CHECK-NEXT:  vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT:  vmovd %xmm0, %eax
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
entry:
%3 = zext i32 %2 to i64
br label %vector.body

vector.body:
%index = phi i64 [ %index.next, %vector.body ], [ 0, %entry ]
%vec.phi = phi <32 x i32> [ %11, %vector.body ], [ zeroinitializer, %entry ]
%4 = getelementptr inbounds i8, i8* %0, i64 %index
%5 = bitcast i8* %4 to <32 x i8>*
%wide.load = load <32 x i8>, <32 x i8>* %5, align 1
%6 = sext <32 x i8> %wide.load to <32 x i32>
%7 = getelementptr inbounds i8, i8* %1, i64 %index
%8 = bitcast i8* %7 to <32 x i8>*
%wide.load14 = load <32 x i8>, <32 x i8>* %8, align 1
%9 = sext <32 x i8> %wide.load14 to <32 x i32>
%10 = mul nsw <32 x i32> %9, %6
%11 = add nsw <32 x i32> %10, %vec.phi
%index.next = add i64 %index, 32
%12 = icmp eq i64 %index.next, %3
br i1 %12, label %middle.block, label %vector.body

middle.block:
%rdx.shuf1 = shufflevector <32 x i32> %11, <32 x i32> undef, <32 x i32> <i32 16, i32 17, i32 18, i32 19, i32 20,
i32 21, i32 22, i32 23, i32 24, i32 25, i32 26, i32 27, i32 28, i32 29, i32 30, i32 31, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef>
%bin.rdx1 = add <32 x i32> %11, %rdx.shuf1
%rdx.shuf = shufflevector <32 x i32> %bin.rdx1, <32 x i32> undef, <32 x i32> <i32 8, i32 9, i32 10, i32 11, i32
12, i32 13, i32 14, i32 15, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef>
%bin.rdx = add <32 x i32> %bin.rdx1, %rdx.shuf
%rdx.shuf15 = shufflevector <32 x i32> %bin.rdx, <32 x i32> undef, <32 x i32> <i32 4, i32 5, i32 6, i32 7, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef>
%bin.rdx32 = add <32 x i32> %bin.rdx, %rdx.shuf15
%rdx.shuf17 = shufflevector <32 x i32> %bin.rdx32, <32 x i32> undef, <32 x i32> <i32 2, i32 3, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32
undef, i32 undef, i32 undef, i32 undef>

```

```

%bin.rdx18 = add <32 x i32> %bin.rdx32, %rdx.shuf17
%rdx.shuf19 = shufflevector <32 x i32> %bin.rdx18, <32 x i32> undef, <32 x i32> <i32 1, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef,
i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx20 = add <32 x i32> %bin.rdx18, %rdx.shuf19
%13 = extractelement <32 x i32> %bin.rdx20, i32 0
ret i32 %13
}

```

```
@a = global [1024 x i8] zeroinitializer, align 16
```

```
@b = global [1024 x i8] zeroinitializer, align 16
```

```
define i32 @sad_16i8_256() "min-legal-vector-width"="256" {
```

```
; CHECK-LABEL: sad_16i8_256:
```

```
; CHECK:      # %bb.0: # %entry
```

```
; CHECK-NEXT: vpxor %xmm0, %xmm0,
%xmm0
```

```
; CHECK-NEXT: movq $-1024, %rax # imm = 0xFC00
```

```
; CHECK-NEXT: vpxor %xmm1, %xmm1, %xmm1
```

```
; CHECK-NEXT: .p2align 4, 0x90
```

```
; CHECK-NEXT: .LBB10_1: # %vector.body
```

```
; CHECK-NEXT: # =>This Inner Loop Header: Depth=1
```

```
; CHECK-NEXT: vmovdqu a+1024(%rax), %xmm2
```

```
; CHECK-NEXT: vpsadbw b+1024(%rax), %xmm2, %xmm2
```

```
; CHECK-NEXT: vpadd %ymm1, %ymm2, %ymm1
```

```
; CHECK-NEXT: addq $4, %rax
```

```
; CHECK-NEXT: jne .LBB10_1
```

```
; CHECK-NEXT: # %bb.2: # %middle.block
```

```
; CHECK-NEXT: vpadd %ymm0, %ymm1, %ymm0
```

```
; CHECK-NEXT: vextracti128 $1, %ymm0, %xmm1
```

```
; CHECK-NEXT: vpadd %xmm1, %xmm0, %xmm0
```

```
; CHECK-NEXT: vpshufd {.*#+} xmm1 = xmm0[2,3,0,1]
```

```
; CHECK-NEXT: vpadd %xmm1, %xmm0, %xmm0
```

```
; CHECK-NEXT: vpshufd {.*#+} xmm1 = xmm0[1,1,2,3]
```

```
; CHECK-NEXT: vpadd %xmm1, %xmm0, %xmm0
```

```
; CHECK-NEXT: vmovd %xmm0, %eax
```

```
; CHECK-NEXT: vzeroupper
```

```
; CHECK-NEXT: retq
```

```
entry:
```

```
br label %vector.body
```

```
vector.body:
```

```
%index = phi i64 [ 0, %entry ], [ %index.next, %vector.body ]
```

```
%vec.phi
```

```
= phi <16 x i32> [ zeroinitializer, %entry ], [ %10, %vector.body ]
```

```
%0 = getelementptr inbounds [1024 x i8], [1024 x i8]* @a, i64 0, i64 %index
```

```
%1 = bitcast i8* %0 to <16 x i8>*
```



```

%wide.load = load <16 x i8>, <16 x i8>* %1, align 4
%2 = zext <16 x i8> %wide.load to <16 x i32>
%3 = getelementptr inbounds [1024 x i8], [1024 x i8]* @b, i64 0, i64 %index
%4 = bitcast i8* %3 to <16 x i8>*
%wide.load1 = load <16 x i8>, <16 x i8>* %4, align 4
%5 = zext <16 x i8> %wide.load1 to <16 x i32>
%6 = sub nsw <16 x i32> %2, %5
%7 = icmp sgt <16 x i32> %6, <i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1>
%8 = sub nsw <16 x i32> zeroinitializer, %6
%9 = select <16 x i1> %7, <16 x i32> %6, <16 x i32> %8
%10 = add nsw <16 x i32> %9, %vec.phi
%index.next = add i64 %index, 4
%11 = icmp eq i64 %index.next, 1024
br i1 %11, label %middle.block, label %vector.body

```

middle.block:

```

%.lcssa = phi
<16 x i32> [ %10, %vector.body ]
%rdx.shuf = shufflevector <16 x i32> %.lcssa, <16 x i32> undef, <16 x i32> <i32 8, i32 9, i32 10, i32 11, i32 12, i32 13, i32 14, i32 15, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx = add <16 x i32> %.lcssa, %rdx.shuf
%rdx.shuf2 = shufflevector <16 x i32> %bin.rdx, <16 x i32> undef, <16 x i32> <i32 4, i32 5, i32 6, i32 7, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx2 = add <16 x i32> %bin.rdx, %rdx.shuf2
%rdx.shuf3 = shufflevector <16 x i32> %bin.rdx2, <16 x i32> undef, <16 x i32> <i32 2, i32 3, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx3 = add <16 x i32> %bin.rdx2, %rdx.shuf3
%rdx.shuf4 = shufflevector <16 x i32> %bin.rdx3, <16 x i32> undef, <16 x i32> <i32 1, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx4 = add <16 x i32> %bin.rdx3, %rdx.shuf4
%12 = extractelement <16 x i32> %bin.rdx4, i32 0
ret i32 %12
}

```

```

define i32 @sad_16i8_512() "min-legal-vector-width"="512" {

```

```

; CHECK-LABEL: sad_16i8_512:
; CHECK:      # %bb.0: # %entry
; CHECK-NEXT: vpxor %xmm0, %xmm0, %xmm0
; CHECK-NEXT: movq $-1024, %rax # imm = 0xFC00
; CHECK-NEXT: .p2align 4, 0x90
; CHECK-NEXT: .LBB11_1: # %vector.body
; CHECK-NEXT: # =>This Inner Loop Header: Depth=1
; CHECK-NEXT: vmovdqu a+1024(%rax), %xmm1
; CHECK-NEXT: vpsadbw b+1024(%rax), %xmm1, %xmm1

```

```

; CHECK-NEXT: vpaddd %zmm0, %zmm1, %zmm0
; CHECK-NEXT: addq $4, %rax
; CHECK-NEXT: jne .LBB11_1
; CHECK-NEXT: # %bb.2: # %middle.block
; CHECK-NEXT: vextracti64x4 $1, %zmm0, %ymm1
; CHECK-NEXT: vpaddd %zmm1, %zmm0, %zmm0
; CHECK-NEXT: vextracti128 $1, %ymm0, %xmm1
; CHECK-NEXT:
    vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT: vpshufd {{.*#+}} xmm1 = xmm0[2,3,0,1]
; CHECK-NEXT: vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT: vpshufd {{.*#+}} xmm1 = xmm0[1,1,2,3]
; CHECK-NEXT: vpaddd %xmm1, %xmm0, %xmm0
; CHECK-NEXT: vmovd %xmm0, %eax
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
entry:
br label %vector.body

vector.body:
%index = phi i64 [ 0, %entry ], [ %index.next, %vector.body ]
%vec.phi = phi <16 x i32> [ zeroinitializer, %entry ], [ %10, %vector.body ]
%0 = getelementptr inbounds [1024 x i8], [1024 x i8]* @a, i64 0, i64 %index
%1 = bitcast i8* %0 to <16 x i8>*
%wide.load = load <16 x i8>, <16 x i8>* %1, align 4
%2 = zext <16 x i8> %wide.load to <16 x i32>
%3 = getelementptr inbounds [1024 x i8], [1024 x i8]* @b, i64 0, i64 %index
%4 = bitcast i8* %3 to <16 x i8>*
%wide.load1 = load <16 x i8>, <16 x i8>* %4, align 4
%5 = zext <16 x i8> %wide.load1 to <16 x i32>
%6 = sub nsw <16 x i32> %2, %5
%7 = icmp sgt <16 x i32>
%6, <i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1, i32 -1,
i32 -1>
%8 = sub nsw <16 x i32> zeroinitializer, %6
%9 = select <16 x i1> %7, <16 x i32> %6, <16 x i32> %8
%10 = add nsw <16 x i32> %9, %vec.phi
%index.next = add i64 %index, 4
%11 = icmp eq i64 %index.next, 1024
br i1 %11, label %middle.block, label %vector.body

middle.block:
%.lcssa = phi <16 x i32> [ %10, %vector.body ]
%rdx.shuf = shufflevector <16 x i32> %.lcssa, <16 x i32> undef, <16 x i32> <i32 8, i32 9, i32 10, i32 11, i32 12,
i32 13, i32 14, i32 15, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx = add <16 x i32> %.lcssa, %rdx.shuf
%rdx.shuf2 = shufflevector <16 x i32> %bin.rdx, <16 x i32> undef, <16 x i32> <i32 4, i32 5, i32 6, i32 7, i32
undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>

```

```

i32 undef>
%bin.rdx2 = add <16 x i32> %bin.rdx, %rdx.shuf2
%rdx.shuf3 = shufflevector <16 x i32> %bin.rdx2, <16 x i32> undef, <16 x i32> <i32 2, i32 3, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx3 = add <16 x i32> %bin.rdx2, %rdx.shuf3
%rdx.shuf4 = shufflevector <16 x i32> %bin.rdx3, <16 x i32> undef, <16 x i32> <i32 1, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef, i32 undef>
%bin.rdx4 = add <16 x i32> %bin.rdx3, %rdx.shuf4
%12 = extractelement <16 x i32> %bin.rdx4, i32 0
ret i32 %12
}

```

```

define void @sbto16f32_256(<16 x i16> %a, <16 x float>* %res) "min-legal-vector-width"="256" {
; CHECK-LABEL: sbto16f32_256:
; CHECK:      # %bb.0:
; CHECK-NEXT: vpmovw2m %ymm0, %k0
; CHECK-NEXT: kshiftrw $8, %k0, %k1
; CHECK-NEXT: vpmovm2d %k1, %ymm0
; CHECK-NEXT: vcvt dq2ps %ymm0, %ymm0
;
; CHECK-NEXT: vpmovm2d %k0, %ymm1
; CHECK-NEXT: vcvt dq2ps %ymm1, %ymm1
; CHECK-NEXT: vmovaps %ymm1, (%rdi)
; CHECK-NEXT: vmovaps %ymm0, 32(%rdi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = sitofp <16 x i1> %mask to <16 x float>
store <16 x float> %1, <16 x float>* %res
ret void
}

```

```

define void @sbto16f32_512(<16 x i16> %a, <16 x float>* %res) "min-legal-vector-width"="512" {
; CHECK-LABEL: sbto16f32_512:
; CHECK:      # %bb.0:
; CHECK-NEXT: vpmovw2m %ymm0, %k0
; CHECK-NEXT: vpmovm2d %k0, %zmm0
; CHECK-NEXT: vcvt dq2ps %zmm0, %zmm0
; CHECK-NEXT: vmovaps %zmm0, (%rdi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = sitofp <16 x i1> %mask to <16 x float>
store <16 x float> %1, <16 x float>* %res
ret void
}

```

```

}

define void @sbto16f64_256(<16 x i16> %a, <16 x double>* %res) "min-legal-vector-width"="256" {
; CHECK-LABEL: sbto16f64_256:
;
CHECK:    # %bb.0:
; CHECK-NEXT:  vpmovw2m %ymm0, %k0
; CHECK-NEXT:  kshiftrw $8, %k0, %k1
; CHECK-NEXT:  vpmovm2d %k1, %ymm0
; CHECK-NEXT:  vcvtdq2pd %xmm0, %ymm1
; CHECK-NEXT:  vextracti128 $1, %ymm0, %xmm0
; CHECK-NEXT:  vcvtdq2pd %xmm0, %ymm0
; CHECK-NEXT:  vpmovm2d %k0, %ymm2
; CHECK-NEXT:  vcvtdq2pd %xmm2, %ymm3
; CHECK-NEXT:  vextracti128 $1, %ymm2, %xmm2
; CHECK-NEXT:  vcvtdq2pd %xmm2, %ymm2
; CHECK-NEXT:  vmovaps %ymm2, 32(%rdi)
; CHECK-NEXT:  vmovaps %ymm3, (%rdi)
; CHECK-NEXT:  vmovaps %ymm0, 96(%rdi)
; CHECK-NEXT:  vmovaps %ymm1, 64(%rdi)
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = sitofp <16 x i1> %mask to <16 x double>
store <16 x double> %1, <16 x double>* %res
ret void
}

```

```

define void @sbto16f64_512(<16 x i16> %a, <16 x double>* %res) "min-legal-vector-width"="512" {
; CHECK-LABEL: sbto16f64_512:
; CHECK:    # %bb.0:
; CHECK-NEXT:  vpmovw2m %ymm0, %k0
; CHECK-NEXT:
vpmovm2d %k0, %zmm0
; CHECK-NEXT:  vcvtdq2pd %ymm0, %zmm1
; CHECK-NEXT:  vextracti64x4 $1, %zmm0, %ymm0
; CHECK-NEXT:  vcvtdq2pd %ymm0, %zmm0
; CHECK-NEXT:  vmovaps %zmm0, 64(%rdi)
; CHECK-NEXT:  vmovaps %zmm1, (%rdi)
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = sitofp <16 x i1> %mask to <16 x double>
store <16 x double> %1, <16 x double>* %res
ret void
}

```

```

define void @ubto16f32_256(<16 x i16> %a, <16 x float>* %res) "min-legal-vector-width"="256" {

```

```

; CHECK-LABEL: ubto16f32_256:
; CHECK:    # %bb.0:
; CHECK-NEXT:  vpmovw2m %ymm0, %k0
; CHECK-NEXT:  kshiftrw $8, %k0, %k1
; CHECK-NEXT:  vpmovm2d %k1, %ymm0
; CHECK-NEXT:  vpsrld $31, %ymm0, %ymm0
; CHECK-NEXT:  vcvt dq2ps %ymm0, %ymm0
; CHECK-NEXT:  vpmovm2d %k0, %ymm1
; CHECK-NEXT:  vpsrld $31, %ymm1, %ymm1
; CHECK-NEXT:  vcvt dq2ps %ymm1, %ymm1
; CHECK-NEXT:  vmovaps %ymm1, (%rdi)
; CHECK-NEXT:  vmovaps %ymm0, 32(%rdi)
; CHECK-NEXT:  vzeroupper
;
CHECK-NEXT:  retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = uitofp <16 x i1> %mask to <16 x float>
store <16 x float> %1, <16 x float>* %res
ret void
}

define void @ubto16f32_512(<16 x i16> %a, <16 x float>* %res) "min-legal-vector-width"="512" {
; CHECK-LABEL: ubto16f32_512:
; CHECK:    # %bb.0:
; CHECK-NEXT:  vpmovw2m %ymm0, %k0
; CHECK-NEXT:  vpmovm2d %k0, %zmm0
; CHECK-NEXT:  vpsrld $31, %zmm0, %zmm0
; CHECK-NEXT:  vcvt dq2ps %zmm0, %zmm0
; CHECK-NEXT:  vmovaps %zmm0, (%rdi)
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = uitofp <16 x i1> %mask to <16 x float>
store <16 x float> %1, <16 x float>* %res
ret void
}

define void @ubto16f64_256(<16 x i16> %a, <16 x double>* %res) "min-legal-vector-width"="256" {
; CHECK-LABEL: ubto16f64_256:
; CHECK:    # %bb.0:
; CHECK-NEXT:  vpmovw2m %ymm0, %k0
; CHECK-NEXT:  kshiftrw $8, %k0, %k1
; CHECK-NEXT:  vpmovm2d %k1, %ymm0
; CHECK-NEXT:
; CHECK-NEXT:  vpsrld $31, %ymm0, %ymm0
; CHECK-NEXT:  vcvt dq2pd %xmm0, %ymm1
; CHECK-NEXT:  vextracti128 $1, %ymm0, %xmm0
; CHECK-NEXT:  vcvt dq2pd %xmm0, %ymm0

```

```

; CHECK-NEXT: vpmovm2d %k0, %ymm2
; CHECK-NEXT: vpsrld $31, %ymm2, %ymm2
; CHECK-NEXT: vcvtdq2pd %xmm2, %ymm3
; CHECK-NEXT: vextracti128 $1, %ymm2, %xmm2
; CHECK-NEXT: vcvtdq2pd %xmm2, %ymm2
; CHECK-NEXT: vmovaps %ymm2, 32(%rdi)
; CHECK-NEXT: vmovaps %ymm3, (%rdi)
; CHECK-NEXT: vmovaps %ymm0, 96(%rdi)
; CHECK-NEXT: vmovaps %ymm1, 64(%rdi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = uitofp <16 x i1> %mask to <16 x double>
store <16 x double> %1, <16 x double>* %res
ret void
}

```

```

define void @ubto16f64_512(<16 x i16> %a, <16 x double>* %res) "min-legal-vector-width"="512" {
; CHECK-LABEL: ubto16f64_512:
; CHECK:    # %bb.0:
; CHECK-NEXT: vpmovw2m %ymm0, %k0
; CHECK-NEXT: vpmovm2d %k0, %zmm0
; CHECK-NEXT: vpsrld $31, %zmm0, %zmm0
;
; CHECK-NEXT: vcvtdq2pd %ymm0, %zmm1
; CHECK-NEXT: vextracti64x4 $1, %zmm0, %ymm0
; CHECK-NEXT: vcvtdq2pd %ymm0, %zmm0
; CHECK-NEXT: vmovaps %zmm0, 64(%rdi)
; CHECK-NEXT: vmovaps %zmm1, (%rdi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%mask = icmp slt <16 x i16> %a, zeroinitializer
%1 = uitofp <16 x i1> %mask to <16 x double>
store <16 x double> %1, <16 x double>* %res
ret void
}

```

```

define <16 x i16> @test_16f32toub_256(<16 x float>* %ptr, <16 x i16> %passthru) "min-legal-vector-width"="256" {
; CHECK-LABEL: test_16f32toub_256:
; CHECK:    # %bb.0:
; CHECK-NEXT: vcvttps2dq (%rdi), %ymm1
; CHECK-NEXT: vpslld $31, %ymm1, %ymm1
; CHECK-NEXT: vpmovd2m %ymm1, %k0
; CHECK-NEXT: vcvttps2dq 32(%rdi), %ymm1
; CHECK-NEXT: vpslld $31, %ymm1, %ymm1
; CHECK-NEXT: vpmovd2m %ymm1, %k1
; CHECK-NEXT: kunpckbw %k0, %k1, %k1

```

```

; CHECK-NEXT: vmovdqu16 %ymm0, %ymm0 {%k1} {z}
; CHECK-NEXT: retq
%a = load <16 x float>, <16 x float>* %ptr
%mask =
fptoui <16 x float> %a to <16 x i1>
%select = select <16 x i1> %mask, <16 x i16> %passthru, <16 x i16> zeroinitializer
ret <16 x i16> %select
}

define <16 x i16> @test_16f32toub_512(<16 x float>* %ptr, <16 x i16> %passthru) "min-legal-vector-
width"="512" {
; CHECK-LABEL: test_16f32toub_512:
; CHECK: # %bb.0:
; CHECK-NEXT: vcvttps2dq (%rdi), %zmm1
; CHECK-NEXT: vpslld $31, %zmm1, %zmm1
; CHECK-NEXT: vpmovd2m %zmm1, %k1
; CHECK-NEXT: vmovdqu16 %ymm0, %ymm0 {%k1} {z}
; CHECK-NEXT: retq
%a = load <16 x float>, <16 x float>* %ptr
%mask = fptoui <16 x float> %a to <16 x i1>
%select = select <16 x i1> %mask, <16 x i16> %passthru, <16 x i16> zeroinitializer
ret <16 x i16> %select
}

define <16 x i16> @test_16f32tosb_256(<16 x float>* %ptr, <16 x i16> %passthru) "min-legal-vector-
width"="256" {
; CHECK-LABEL: test_16f32tosb_256:
; CHECK: # %bb.0:
; CHECK-NEXT: vcvttps2dq (%rdi), %ymm1
; CHECK-NEXT: vpmovd2m %ymm1, %k0
; CHECK-NEXT: vcvttps2dq 32(%rdi),
%ymm1
; CHECK-NEXT: vpmovd2m %ymm1, %k1
; CHECK-NEXT: kunpckbw %k0, %k1, %k1
; CHECK-NEXT: vmovdqu16 %ymm0, %ymm0 {%k1} {z}
; CHECK-NEXT: retq
%a = load <16 x float>, <16 x float>* %ptr
%mask = fptosi <16 x float> %a to <16 x i1>
%select = select <16 x i1> %mask, <16 x i16> %passthru, <16 x i16> zeroinitializer
ret <16 x i16> %select
}

define <16 x i16> @test_16f32tosb_512(<16 x float>* %ptr, <16 x i16> %passthru) "min-legal-vector-
width"="512" {
; CHECK-LABEL: test_16f32tosb_512:
; CHECK: # %bb.0:
; CHECK-NEXT: vcvttps2dq (%rdi), %zmm1
; CHECK-NEXT: vpmovd2m %zmm1, %k1

```

```

; CHECK-NEXT: vmovdqu16 %ymm0, %ymm0 {%k1} {z}
; CHECK-NEXT: retq
%a = load <16 x float>, <16 x float>* %ptr
%mask = fptosi <16 x float> %a to <16 x i1>
%select = select <16 x i1> %mask, <16 x i16> %passthru, <16 x i16> zeroinitializer
ret <16 x i16> %select
}

define void @mul256(<64 x i8>* %a, <64 x i8>* %b, <64 x i8>* %c) "min-legal-vector-width"="256" {
; CHECK-AVX512-LABEL:
mul256:
; CHECK-AVX512: # %bb.0:
; CHECK-AVX512-NEXT: vmovdqa (%rdi), %ymm0
; CHECK-AVX512-NEXT: vmovdqa 32(%rdi), %ymm1
; CHECK-AVX512-NEXT: vmovdqa (%rsi), %ymm2
; CHECK-AVX512-NEXT: vmovdqa 32(%rsi), %ymm3
; CHECK-AVX512-NEXT: vpunpckhbw {{.*#+}} %ymm4 =
ymm3[8],ymm0[8],ymm3[9],ymm0[9],ymm3[10],ymm0[10],ymm3[11],ymm0[11],ymm3[12],ymm0[12],ymm3[13
],ymm0[13],ymm3[14],ymm0[14],ymm3[15],ymm0[15],ymm3[24],ymm0[24],ymm3[25],ymm0[25],ymm3[26],ym
m0[26],ymm3[27],ymm0[27],ymm3[28],ymm0[28],ymm3[29],ymm0[29],ymm3[30],ymm0[30],ymm3[31],ymm0[
31]
; CHECK-AVX512-NEXT: vpunpckhbw {{.*#+}} %ymm5 =
ymm1[8],ymm0[8],ymm1[9],ymm0[9],ymm1[10],ymm0[10],ymm1[11],ymm0[11],ymm1[12],ymm0[12],ymm1[13
],ymm0[13],ymm1[14],ymm0[14],ymm1[15],ymm0[15],ymm1[24],ymm0[24],ymm1[25],ymm0[25],ymm1[26],ym
m0[26],ymm1[27],ymm0[27],ymm1[28],ymm0[28],ymm1[29],ymm0[29],ymm1[30],ymm0[30],ymm1[31],ymm0[
31]
; CHECK-AVX512-NEXT: vpmullw %ymm4, %ymm5, %ymm4
; CHECK-AVX512-NEXT: vmovdqa {{.*#+}}
ymm5 = [255,255,255,255,255,255,255,255,255,255,255,255,255,255,255]
; CHECK-AVX512-NEXT: vpand %ymm5, %ymm4, %ymm4
; CHECK-AVX512-NEXT: vpunpcklbw {{.*#+}} %ymm3 =
ymm3[0],ymm0[0],ymm3[1],ymm0[1],ymm3[2],ymm0[2],ymm3[3],ymm0[3],ymm3[4],ymm0[4],ymm3[5],ymm0[
5],ymm3[6],ymm0[6],ymm3[7],ymm0[7],ymm3[16],ymm0[16],ymm3[17],ymm0[17],ymm3[18],ymm0[18],ymm3[
19],ymm0[19],ymm3[20],ymm0[20],ymm3[21],ymm0[21],ymm3[22],ymm0[22],ymm3[23],ymm0[23]
; CHECK-AVX512-NEXT: vpunpcklbw {{.*#+}} %ymm1 =
ymm1[0],ymm0[0],ymm1[1],ymm0[1],ymm1[2],ymm0[2],ymm1[3],ymm0[3],ymm1[4],ymm0[4],ymm1[5],ymm0[
5],ymm1[6],ymm0[6],ymm1[7],ymm0[7],ymm1[16],ymm0[16],ymm1[17],ymm0[17],ymm1[18],ymm0[18],ymm1[
19],ymm0[19],ymm1[20],ymm0[20],ymm1[21],ymm0[21],ymm1[22],ymm0[22],ymm1[23],ymm0[23]
; CHECK-AVX512-NEXT: vpmullw %ymm3, %ymm1, %ymm1
; CHECK-AVX512-NEXT: vpand %ymm5, %ymm1, %ymm1
; CHECK-AVX512-NEXT: vpackuswb %ymm4, %ymm1, %ymm1
; CHECK-AVX512-NEXT: vpunpckhbw {{.*#+}} %ymm3 =
ymm2[8],ymm0[8],ymm2[9],ymm0[9],ymm2[10],ymm0[10],ymm2[11],ymm0[11],ymm2[12],ymm0[12],ymm2[13
],ymm0[13],ymm2[14],ymm0[14],ymm2[15],ymm0[15],ymm2[24],ymm0[24],ymm2[25],ymm0[25],ymm2[26],ym
m0[26],ymm2[27],ymm0[27],ymm2[28],ymm0[28],ymm2[29],ymm0[29],ymm2[30],ymm0[30],ymm2[31],ymm0[
31]
;

```



```

CHECK-AVX512-NEXT:  vpunpckhbw {{.*#+}} ymm4 =
ymm0[8,8,9,9,10,10,11,11,12,12,13,13,14,14,15,15,24,24,25,25,26,26,27,27,28,28,29,29,30,30,31,31]
; CHECK-AVX512-NEXT:  vpmullw %ymm3, %ymm4, %ymm3
; CHECK-AVX512-NEXT:  vpand %ymm5, %ymm3, %ymm3
; CHECK-AVX512-NEXT:  vpunpcklbw {{.*#+}} ymm2 =
ymm2[0],ymm0[0],ymm2[1],ymm0[1],ymm2[2],ymm0[2],ymm2[3],ymm0[3],ymm2[4],ymm0[4],ymm2[5],ymm0[
5],ymm2[6],ymm0[6],ymm2[7],ymm0[7],ymm2[16],ymm0[16],ymm2[17],ymm0[17],ymm2[18],ymm0[18],ymm2[
19],ymm0[19],ymm2[20],ymm0[20],ymm2[21],ymm0[21],ymm2[22],ymm0[22],ymm2[23],ymm0[23]
; CHECK-AVX512-NEXT:  vpunpcklbw {{.*#+}} ymm0 =
ymm0[0,0,1,1,2,2,3,3,4,4,5,5,6,6,7,7,16,16,17,17,18,18,19,19,20,20,21,21,22,22,23,23]
; CHECK-AVX512-NEXT:  vpmullw
%ymm2, %ymm0, %ymm0
; CHECK-AVX512-NEXT:  vpand %ymm5, %ymm0, %ymm0
; CHECK-AVX512-NEXT:  vpackuswb %ymm3, %ymm0, %ymm0
; CHECK-AVX512-NEXT:  vmovdqa %ymm0, (%rdx)
; CHECK-AVX512-NEXT:  vmovdqa %ymm1, 32(%rdx)
; CHECK-AVX512-NEXT:  vzeroupper
; CHECK-AVX512-NEXT:  retq
;
; CHECK-VBMI-LABEL: mul256:
; CHECK-VBMI:  # %bb.0:
; CHECK-VBMI-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-VBMI-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-VBMI-NEXT:  vmovdqa (%rsi), %ymm2
; CHECK-VBMI-NEXT:  vmovdqa 32(%rsi), %ymm3
; CHECK-VBMI-NEXT:  vpunpckhbw {{.*#+}} ymm4 =
ymm3[8],ymm0[8],ymm3[9],ymm0[9],ymm3[10],ymm0[10],ymm3[11],ymm0[11],ymm3[12],ymm0[12],ymm3[13
],ymm0[13],ymm3[14],ymm0[14],ymm3[15],ymm0[15],ymm3[24],ymm0[24],ymm3[25],ymm0[25],ymm3[26],ymm
0[26],ymm3[27],ymm0[27],ymm3[28],ymm0[28],ymm3[29],ymm0[29],ymm3[30],ymm0[30],ymm3[31],ymm0[
31]
; CHECK-VBMI-NEXT:  vpunpckhbw {{.*#+}} ymm5 =
ymm1[8],ymm0[8],ymm1[9],ymm0[9],ymm1[10],ymm0[10],ymm1[11],ymm0[11],ymm1[12],ymm0[12],ymm1[13
],ymm0[13],ymm1[14],ymm0[14],ymm1[15],ymm0[15],ymm1[24],ymm0[24],ymm1[25],ymm0[25],ymm1[26],ym
m0[26],ymm1[27],ymm0[27],ymm1[28],ymm0[28],ymm1[29],ymm0[29],ymm1[30],ymm0[30],ymm1[31],ymm0[
31]
;
CHECK-VBMI-NEXT:  vpmullw %ymm4, %ymm5, %ymm4
; CHECK-VBMI-NEXT:  vpunpcklbw {{.*#+}} ymm3 =
ymm3[0],ymm0[0],ymm3[1],ymm0[1],ymm3[2],ymm0[2],ymm3[3],ymm0[3],ymm3[4],ymm0[4],ymm3[5],ymm0[
5],ymm3[6],ymm0[6],ymm3[7],ymm0[7],ymm3[16],ymm0[16],ymm3[17],ymm0[17],ymm3[18],ymm0[18],ymm3[
19],ymm0[19],ymm3[20],ymm0[20],ymm3[21],ymm0[21],ymm3[22],ymm0[22],ymm3[23],ymm0[23]
; CHECK-VBMI-NEXT:  vpunpcklbw {{.*#+}} ymm1 =
ymm1[0],ymm0[0],ymm1[1],ymm0[1],ymm1[2],ymm0[2],ymm1[3],ymm0[3],ymm1[4],ymm0[4],ymm1[5],ymm0[
5],ymm1[6],ymm0[6],ymm1[7],ymm0[7],ymm1[16],ymm0[16],ymm1[17],ymm0[17],ymm1[18],ymm0[18],ymm1[
19],ymm0[19],ymm1[20],ymm0[20],ymm1[21],ymm0[21],ymm1[22],ymm0[22],ymm1[23],ymm0[23]
; CHECK-VBMI-NEXT:  vpmullw %ymm3, %ymm1, %ymm1
; CHECK-VBMI-NEXT:  vmovdqa {{.*#+}} ymm3 =
[0,2,4,6,8,10,12,14,32,34,36,38,40,42,44,46,16,18,20,22,24,26,28,30,48,50,52,54,56,58,60,62]

```

```

;
CHECK-VBMI-NEXT: vpermt2b %ymm4, %ymm3, %ymm1
; CHECK-VBMI-NEXT: vpunpckhbw {{.*#+}} ymm4 =
ymm2[8],ymm0[8],ymm2[9],ymm0[9],ymm2[10],ymm0[10],ymm2[11],ymm0[11],ymm2[12],ymm0[12],ymm2[13],ymm0[13],ymm2[14],ymm0[14],ymm2[15],ymm0[15],ymm2[24],ymm0[24],ymm2[25],ymm0[25],ymm2[26],ymm0[26],ymm2[27],ymm0[27],ymm2[28],ymm0[28],ymm2[29],ymm0[29],ymm2[30],ymm0[30],ymm2[31],ymm0[31]
; CHECK-VBMI-NEXT: vpunpckhbw {{.*#+}} ymm5 =
ymm0[8,8,9,9,10,10,11,11,12,12,13,13,14,14,15,15,24,24,25,25,26,26,27,27,28,28,29,29,30,30,31,31]
; CHECK-VBMI-NEXT: vpmullw %ymm4, %ymm5, %ymm4
; CHECK-VBMI-NEXT: vpunpcklbw {{.*#+}} ymm2 =
ymm2[0],ymm0[0],ymm2[1],ymm0[1],ymm2[2],ymm0[2],ymm2[3],ymm0[3],ymm2[4],ymm0[4],ymm2[5],ymm0[5],ymm2[6],ymm0[6],ymm2[7],ymm0[7],ymm2[16],ymm0[16],ymm2[17],ymm0[17],ymm2[18],ymm0[18],ymm2[19],ymm0[19],ymm2[20],ymm0[20],ymm2[21],ymm0[21],ymm2[22],ymm0[22],ymm2[23],ymm0[23]
; CHECK-VBMI-NEXT: vpunpcklbw
{{.*#+}} ymm0 = ymm0[0,0,1,1,2,2,3,3,4,4,5,5,6,6,7,7,16,16,17,17,18,18,19,19,20,20,21,21,22,22,23,23]
; CHECK-VBMI-NEXT: vpmullw %ymm2, %ymm0, %ymm0
; CHECK-VBMI-NEXT: vpermt2b %ymm4, %ymm3, %ymm0
; CHECK-VBMI-NEXT: vmovdqa %ymm0, (%rdx)
; CHECK-VBMI-NEXT: vmovdqa %ymm1, 32(%rdx)
; CHECK-VBMI-NEXT: vzeroupper
; CHECK-VBMI-NEXT: retq
%d = load <64 x i8>, <64 x i8>* %a
%e = load <64 x i8>, <64 x i8>* %b
%f = mul <64 x i8> %d, %e
store <64 x i8> %f, <64 x i8>* %c
ret void
}

```

```

define void @mul512(<64 x i8>* %a, <64 x i8>* %b, <64 x i8>* %c) "min-legal-vector-width"="512" {
; CHECK-AVX512-LABEL: mul512:
; CHECK-AVX512: # %bb.0:
; CHECK-AVX512-NEXT: vmovdqa64 (%rdi), %zmm0
; CHECK-AVX512-NEXT: vmovdqa64 (%rsi), %zmm1
; CHECK-AVX512-NEXT: vpunpckhbw {{.*#+}} zmm2 =
zmm1[8],zmm0[8],zmm1[9],zmm0[9],zmm1[10],zmm0[10],zmm1[11],zmm0[11],zmm1[12],zmm0[12],zmm1[13],zmm0[13],zmm1[14],zmm0[14],zmm1[15],zmm0[15],zmm1[24],zmm0[24],zmm1[25],zmm0[25],zmm1[26],zmm0[26],zmm1[27],zmm0[27],zmm1[28],zmm0[28],zmm1[29],zmm0[29],zmm1[30],zmm0[30],zmm1[31],zmm0[31],zmm1[40],zmm0[40],zmm1[41],zmm0[41],zmm1[42],zmm0[42],zmm1[43],zmm0[43],zmm1[44],zmm0[44],zmm1[45],zmm0[45],zmm1[46],zmm0[46],zmm1[47],zmm0[47],zmm1[56],zmm0[56],zmm1[57],zmm0[57],zmm1[58],zmm0[58],zmm1[59],zmm0[59],zmm1[60],zmm0[60],zmm1[61],zmm0[61],zmm1[62],zmm0[62],zmm1[63],zmm0[63]
;
CHECK-AVX512-NEXT: vpunpckhbw {{.*#+}} zmm3 =
zmm0[8,8,9,9,10,10,11,11,12,12,13,13,14,14,15,15,24,24,25,25,26,26,27,27,28,28,29,29,30,30,31,31,40,40,41,41,42,42,43,43,44,44,45,45,46,46,47,47,56,56,57,57,58,58,59,59,60,60,61,61,62,62,63,63]
; CHECK-AVX512-NEXT: vpmullw %zmm2, %zmm3, %zmm2
; CHECK-AVX512-NEXT: vmovdqa64 {{.*#+}} zmm3 =

```



```

6,37,37,38,38,39,39,48,48,49,49,50,50,51,51,52,52,53,53,54,54,55,55]
; CHECK-VBMI-NEXT: vpmullw %zmm1, %zmm0, %zmm0
; CHECK-VBMI-NEXT:
    vmovdqa64 {{.*#+}} zmm1 =
[0,2,4,6,8,10,12,14,64,66,68,70,72,74,76,78,16,18,20,22,24,26,28,30,80,82,84,86,88,90,92,94,32,34,36,38,40,42,44,
46,96,98,100,102,104,106,108,110,48,50,52,54,56,58,60,62,112,114,116,118,120,122,124,126]
; CHECK-VBMI-NEXT: vpermi2b %zmm2, %zmm0, %zmm1
; CHECK-VBMI-NEXT: vmovdqa64 %zmm1, (%rdx)
; CHECK-VBMI-NEXT: vzeroupper
; CHECK-VBMI-NEXT: retq
%d = load <64 x i8>, <64 x i8>* %a
%e = load <64 x i8>, <64 x i8>* %b
%f = mul <64 x i8> %d, %e
store <64 x i8> %f, <64 x i8>* %c
ret void
}

```

; This threw an assertion at one point.

```

define <4 x i32> @mload_v4i32(<4 x i32> %trigger, <4 x i32>* %addr, <4 x i32> %dst) "min-legal-vector-
width"="256" {
; CHECK-LABEL: mload_v4i32:
; CHECK:    # %bb.0:
; CHECK-NEXT: vptestnmd %xmm0, %xmm0, %k1
; CHECK-NEXT: vblendmd (%rdi), %xmm1, %xmm0 {%k1}
; CHECK-NEXT: retq
%mask = icmp eq <4 x i32> %trigger, zeroinitializer
%res = call <4 x i32> @llvm.masked.load.v4i32.p0v4i32(<4 x i32>*
%addr, i32 4, <4 x i1> %mask, <4 x i32> %dst)
ret <4 x i32> %res
}
declare <4 x i32> @llvm.masked.load.v4i32.p0v4i32(<4 x i32>*, i32, <4 x i1>, <4 x i32>)

```

```

define <16 x i32> @trunc_v16i64_v16i32(<16 x i64>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v16i64_v16i32:
; CHECK:    # %bb.0:
; CHECK-NEXT: vmovdqa (%rdi), %ymm0
; CHECK-NEXT: vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT: vmovdqa 64(%rdi), %ymm2
; CHECK-NEXT: vmovdqa 96(%rdi), %ymm3
; CHECK-NEXT: vpmovqd %ymm0, %xmm0
; CHECK-NEXT: vpmovqd %ymm1, %xmm1
; CHECK-NEXT: vinserti128 $1, %xmm1, %ymm0, %ymm0
; CHECK-NEXT: vpmovqd %ymm2, %xmm1
; CHECK-NEXT: vpmovqd %ymm3, %xmm2
; CHECK-NEXT: vinserti128 $1, %xmm2, %ymm1, %ymm1
; CHECK-NEXT: retq
%a = load <16 x i64>, <16 x i64>* %x
%b = trunc <16 x i64> %a to <16 x i32>

```

```

ret <16 x i32> %b
}

define <16 x i8> @trunc_v16i64_v16i8(<16 x i64>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v16i64_v16i8:
; CHECK:
    # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT:  vmovdqa 64(%rdi), %ymm2
; CHECK-NEXT:  vmovdqa 96(%rdi), %ymm3
; CHECK-NEXT:  vpmovqb %ymm3, %xmm3
; CHECK-NEXT:  vpmovqb %ymm2, %xmm2
; CHECK-NEXT:  vpunpckldq {{.*#+}} xmm2 = xmm2[0],xmm3[0],xmm2[1],xmm3[1]
; CHECK-NEXT:  vpmovqb %ymm1, %xmm1
; CHECK-NEXT:  vpmovqb %ymm0, %xmm0
; CHECK-NEXT:  vpunpckldq {{.*#+}} xmm0 = xmm0[0],xmm1[0],xmm0[1],xmm1[1]
; CHECK-NEXT:  vpunpckldq {{.*#+}} xmm0 = xmm0[0],xmm2[0]
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
    %a = load <16 x i64>, <16 x i64>* %x
    %b = trunc <16 x i64> %a to <16 x i8>
    ret <16 x i8> %b
}

define <16 x i8> @trunc_v16i32_v16i8(<16 x i32>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v16i32_v16i8:
; CHECK:    # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT:  vpmovdb %ymm1, %xmm1
; CHECK-NEXT:  vpmovdb %ymm0, %xmm0
;
; CHECK-NEXT:  vpunpckldq {{.*#+}} xmm0 = xmm0[0],xmm1[0]
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
    %a = load <16 x i32>, <16 x i32>* %x
    %b = trunc <16 x i32> %a to <16 x i8>
    ret <16 x i8> %b
}

define <8 x i8> @trunc_v8i64_v8i8(<8 x i64>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v8i64_v8i8:
; CHECK:    # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT:  vpmovqb %ymm1, %xmm1
; CHECK-NEXT:  vpmovqb %ymm0, %xmm0

```

```

; CHECK-NEXT:  vpunpckldq {{.*#+}} xmm0 = xmm0[0],xmm1[0],xmm0[1],xmm1[1]
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
%a = load <8 x i64>, <8 x i64>* %x
%b = trunc <8 x i64> %a to <8 x i8>
ret <8 x i8> %b
}

define <8 x i16> @trunc_v8i64_v8i16(<8 x i64>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v8i64_v8i16:
; CHECK:      # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm0
; CHECK-NEXT:  vmovdqa 32(%rdi), %ymm1
; CHECK-NEXT:  vpmovqw %ymm1,
%xmm1
; CHECK-NEXT:  vpmovqw %ymm0, %xmm0
; CHECK-NEXT:  vpunpckldq {{.*#+}} xmm0 = xmm0[0],xmm1[0]
; CHECK-NEXT:  vzeroupper
; CHECK-NEXT:  retq
%a = load <8 x i64>, <8 x i64>* %x
%b = trunc <8 x i64> %a to <8 x i16>
ret <8 x i16> %b
}

define <8 x i32> @trunc_v8i64_v8i32_zeroes(<8 x i64>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v8i64_v8i32_zeroes:
; CHECK:      # %bb.0:
; CHECK-NEXT:  vpsrlq $48, 32(%rdi), %ymm1
; CHECK-NEXT:  vpsrlq $48, (%rdi), %ymm2
; CHECK-NEXT:  vmovdqa {{.*#+}} ymm0 = [0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30]
; CHECK-NEXT:  vpermi2w %ymm1, %ymm2, %ymm0
; CHECK-NEXT:  retq
%a = load <8 x i64>, <8 x i64>* %x
%b = lshr <8 x i64> %a, <i64 48, i64 48, i64 48, i64 48, i64 48, i64 48, i64 48, i64 48>
%c = trunc <8 x i64> %b to <8 x i32>
ret <8 x i32> %c
}

define <16 x i16> @trunc_v16i32_v16i16_zeroes(<16 x i32>* %x) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_v16i32_v16i16_zeroes:
;
; CHECK:      # %bb.0:
; CHECK-NEXT:  vmovdqa (%rdi), %ymm1
; CHECK-NEXT:  vmovdqa {{.*#+}} ymm0 = [1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31]
; CHECK-NEXT:  vpermi2w 32(%rdi), %ymm1, %ymm0
; CHECK-NEXT:  retq
%a = load <16 x i32>, <16 x i32>* %x
%b = lshr <16 x i32> %a, <i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16, i32 16>

```







```

; CHECK-NEXT: vpmovzxwq {{.*#+}} ymm1 =
xmm1[0],zero,zero,zero,xmm1[1],zero,zero,zero,xmm1[2],zero,zero,zero,xmm1[3],zero,zero,zero
; CHECK-NEXT: vpmovzxbq {{.*#+}} ymm0 =
xmm0[0],zero,zero,zero,zero,zero,zero,zero,xmm0[1],zero,zero,zero,zero,zero,zero,zero,xmm0[2],zero,zero,zero,zer
o,zero,zero,zero,xmm0[3],zero,zero,zero,zero,zero,zero,zero
;
CHECK-NEXT: vmovdqa %ymm0, (%rdi)
; CHECK-NEXT: vmovdqa %ymm1, 64(%rdi)
; CHECK-NEXT: vmovdqa %ymm3, 96(%rdi)
; CHECK-NEXT: vmovdqa %ymm2, 32(%rdi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%a = zext <16 x i8> %x to <16 x i64>
store <16 x i64> %a, <16 x i64>* %y
ret void
}

```

```

define void @sext_v16i8_v16i64(<16 x i8> %x, <16 x i64>* %y) nounwind "min-legal-vector-width"="256" {
; CHECK-LABEL: sext_v16i8_v16i64:
; CHECK:    # %bb.0:
; CHECK-NEXT: vpmovsxbw %xmm0, %ymm0
; CHECK-NEXT: vpshufd {{.*#+}} xmm1 = xmm0[2,3,0,1]
; CHECK-NEXT: vpmovswwq %xmm1, %ymm1
; CHECK-NEXT: vextracti128 $1, %ymm0, %xmm2
; CHECK-NEXT: vpshufd {{.*#+}} xmm3 = xmm2[2,3,0,1]
; CHECK-NEXT: vpmovswwq %xmm3, %ymm3
; CHECK-NEXT: vpmovswwq %xmm0, %ymm0
; CHECK-NEXT: vpmovswwq %xmm2, %ymm2
; CHECK-NEXT: vmovdqa %ymm2, 64(%rdi)
; CHECK-NEXT:
    vmovdqa %ymm0, (%rdi)
; CHECK-NEXT: vmovdqa %ymm3, 96(%rdi)
; CHECK-NEXT: vmovdqa %ymm1, 32(%rdi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%a = sext <16 x i8> %x to <16 x i64>
store <16 x i64> %a, <16 x i64>* %y
ret void
}

```

```

define void @vselect_split_v8i16_setcc(<8 x i16> %s, <8 x i16> %t, <8 x i64>* %p, <8 x i64>* %q, <8 x i64>*
%r) "min-legal-vector-width"="256" {
; CHECK-LABEL: vselect_split_v8i16_setcc:
; CHECK:    # %bb.0:
; CHECK-NEXT: vmovdqa (%rsi), %ymm2
; CHECK-NEXT: vmovdqa 32(%rsi), %ymm3
; CHECK-NEXT: vpcmpeqw %xmm1, %xmm0, %k1
; CHECK-NEXT: kshiftrb $4, %k1, %k2

```

```

; CHECK-NEXT: vmovdqa64 32(%rdi), %ymm3 {%k2}
; CHECK-NEXT: vmovdqa64 (%rdi), %ymm2 {%k1}
; CHECK-NEXT: vmovdqa %ymm2, (%rdx)
; CHECK-NEXT: vmovdqa %ymm3, 32(%rdx)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%x = load <8 x i64>, <8 x i64>* %p
%y = load <8 x i64>, <8 x i64>* %q
%a = icmp eq <8 x i16> %s, %t
%b = select <8 x i1> %a, <8 x i64> %x, <8 x i64>
%y
store <8 x i64> %b, <8 x i64>* %r
ret void
}

define void @vselect_split_v8i32_setcc(<8 x i32> %s, <8 x i32> %t, <8 x i64>* %p, <8 x i64>* %q, <8 x i64>*
%r) "min-legal-vector-width"="256" {
; CHECK-LABEL: vselect_split_v8i32_setcc:
; CHECK: # %bb.0:
; CHECK-NEXT: vmovdqa (%rsi), %ymm2
; CHECK-NEXT: vmovdqa 32(%rsi), %ymm3
; CHECK-NEXT: vpcmpeqd %ymm1, %ymm0, %k1
; CHECK-NEXT: kshiftrb $4, %k1, %k2
; CHECK-NEXT: vmovdqa64 32(%rdi), %ymm3 {%k2}
; CHECK-NEXT: vmovdqa64 (%rdi), %ymm2 {%k1}
; CHECK-NEXT: vmovdqa %ymm2, (%rdx)
; CHECK-NEXT: vmovdqa %ymm3, 32(%rdx)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%x = load <8 x i64>, <8 x i64>* %p
%y = load <8 x i64>, <8 x i64>* %q
%a = icmp eq <8 x i32> %s, %t
%b = select <8 x i1> %a, <8 x i64> %x, <8 x i64> %y
store <8 x i64> %b, <8 x i64>* %r
ret void
}

define void @vselect_split_v16i8_setcc(<16 x i8> %s, <16 x i8> %t, <16 x i32>* %p, <16 x i32>* %q, <16 x
i32>* %r) "min-legal-vector-width"="256"
{
; CHECK-LABEL: vselect_split_v16i8_setcc:
; CHECK: # %bb.0:
; CHECK-NEXT: vmovdqa (%rsi), %ymm2
; CHECK-NEXT: vmovdqa 32(%rsi), %ymm3
; CHECK-NEXT: vpcmpeqb %xmm1, %xmm0, %k1
; CHECK-NEXT: kshiftrw $8, %k1, %k2
; CHECK-NEXT: vmovdqa32 32(%rdi), %ymm3 {%k2}
; CHECK-NEXT: vmovdqa32 (%rdi), %ymm2 {%k1}

```

```

; CHECK-NEXT: vmovdqa %ymm2, (%rdx)
; CHECK-NEXT: vmovdqa %ymm3, 32(%rdx)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%x = load <16 x i32>, <16 x i32>* %p
%y = load <16 x i32>, <16 x i32>* %q
%a = icmp eq <16 x i8> %s, %t
%b = select <16 x i1> %a, <16 x i32> %x, <16 x i32> %y
store <16 x i32> %b, <16 x i32>* %r
ret void
}

define void @vselect_split_v16i16_setcc(<16 x i16> %s, <16 x i16> %t, <16 x i32>* %p, <16 x i32>* %q, <16 x
i32>* %r) "min-legal-vector-width"="256" {
; CHECK-LABEL: vselect_split_v16i16_setcc:
; CHECK: # %bb.0:
; CHECK-NEXT: vmovdqa (%rsi), %ymm2
; CHECK-NEXT: vmovdqa 32(%rsi), %ymm3
; CHECK-NEXT:
vpcmpeqw %ymm1, %ymm0, %k1
; CHECK-NEXT: kshiftrw $8, %k1, %k2
; CHECK-NEXT: vmovdqa32 32(%rdi), %ymm3 { %k2 }
; CHECK-NEXT: vmovdqa32 (%rdi), %ymm2 { %k1 }
; CHECK-NEXT: vmovdqa %ymm2, (%rdx)
; CHECK-NEXT: vmovdqa %ymm3, 32(%rdx)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%x = load <16 x i32>, <16 x i32>* %p
%y = load <16 x i32>, <16 x i32>* %q
%a = icmp eq <16 x i16> %s, %t
%b = select <16 x i1> %a, <16 x i32> %x, <16 x i32> %y
store <16 x i32> %b, <16 x i32>* %r
ret void
}

define <16 x i8> @trunc_packus_v16i32_v16i8(<16 x i32>* %p) "min-legal-vector-width"="256" {
; CHECK-LABEL: trunc_packus_v16i32_v16i8:
; CHECK: # %bb.0:
; CHECK-NEXT: vmovdqa (%rdi), %ymm0
; CHECK-NEXT: vpackusdw 32(%rdi), %ymm0, %ymm0
; CHECK-NEXT: vpermq { {. *#+} } ymm0 = ymm0[0,2,1,3]
; CHECK-NEXT: vpmovuswb %ymm0, %xmm0
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%a = load <16 x i32>, <16 x i32>* %p
%b = icmp slt <16 x i32> %a, <i32 255, i32 255, i32
255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32
255>

```

```

%c = select <16 x i1> %b, <16 x i32> %a, <16 x i32> <i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255>
%d = icmp sgt <16 x i32> %c, zeroinitializer
%e = select <16 x i1> %d, <16 x i32> %c, <16 x i32> zeroinitializer
%f = trunc <16 x i32> %e to <16 x i8>
ret <16 x i8> %f
}

```

```

define void @trunc_packus_v16i32_v16i8_store(<16 x i32>* %p, <16 x i8>* %q) "min-legal-vector-width"="256"
{
; CHECK-LABEL: trunc_packus_v16i32_v16i8_store:
; CHECK:      # %bb.0:
; CHECK-NEXT: vmovdqa (%rdi), %ymm0
; CHECK-NEXT: vpackusdw 32(%rdi), %ymm0, %ymm0
; CHECK-NEXT: vpermq { {. *#+} } ymm0 = ymm0[0,2,1,3]
; CHECK-NEXT: vpmovuswb %ymm0, (%rsi)
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
%a = load <16 x i32>, <16 x i32>* %p
%b = icmp slt <16 x i32> %a, <i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255>
%c = select <16 x i1> %b, <16 x i32> %a, <16 x i32> <i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255, i32 255>
%d = icmp sgt <16 x i32> %c, zeroinitializer
%e = select <16 x i1> %d, <16 x i32> %c, <16 x i32> zeroinitializer
%f = trunc <16 x i32> %e to <16 x i8>
store <16 x i8> %f, <16 x i8>* %q
ret void
}

```

```

define <64 x i1> @v64i1_argument_return(<64 x i1> %x) "min-legal-vector-width"="256" {
; CHECK-LABEL: v64i1_argument_return:
; CHECK:      # %bb.0:
; CHECK-NEXT: retq
ret <64 x i1> %x
}

```

```

define void @v64i1_shuffle(<64 x i8>* %x, <64 x i8>* %y) "min-legal-vector-width"="256" {
; CHECK-LABEL: v64i1_shuffle:
; CHECK:      # %bb.0: # %entry
; CHECK-NEXT: vmovdqa (%rdi), %ymm1
; CHECK-NEXT: vmovdqa 32(%rdi), %ymm0
; CHECK-NEXT: vptestnmb %ymm1, %ymm1,
%k0
; CHECK-NEXT: kshiftrd $1, %k0, %k1
; CHECK-NEXT: movq $-3, %rax
; CHECK-NEXT: kmovq %rax, %k2

```

```

; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiflq $63, %k0, %k2
; CHECK-NEXT:   kshiftrq $62, %k2, %k2
; CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-5, %rax
; CHECK-NEXT:   kmovq %rax, %k2
; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiftrd $3, %k0, %k2
; CHECK-NEXT:   kshiflq $63, %k2, %k2
; CHECK-NEXT:   kshiftrq $61, %k2, %k2
; CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-9, %rax
; CHECK-NEXT:   kmovq %rax, %k2
; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiftrd $2, %k0, %k2
; CHECK-NEXT:   kshiflq $63, %k2, %k2
; CHECK-NEXT:   kshiftrq $60, %k2, %k2
; CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-17, %rax
; CHECK-NEXT:   kmovq %rax, %k2
; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiftrd $5, %k0, %k2
; CHECK-NEXT:   kshiflq $63, %k2, %k2
; CHECK-NEXT:   kshiftrq $59, %k2, %k2
;
CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-33, %rax
; CHECK-NEXT:   kmovq %rax, %k2
; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiftrd $4, %k0, %k2
; CHECK-NEXT:   kshiflq $63, %k2, %k2
; CHECK-NEXT:   kshiftrq $58, %k2, %k2
; CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-65, %rax
; CHECK-NEXT:   kmovq %rax, %k2
; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiftrd $7, %k0, %k2
; CHECK-NEXT:   kshiflq $63, %k2, %k2
; CHECK-NEXT:   kshiftrq $57, %k2, %k2
; CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-129, %rax
; CHECK-NEXT:   kmovq %rax, %k2
; CHECK-NEXT:   kandq %k2, %k1, %k1
; CHECK-NEXT:   kshiftrd $6, %k0, %k2
; CHECK-NEXT:   kshiflq $63, %k2, %k2
; CHECK-NEXT:   kshiftrq $56, %k2, %k2
; CHECK-NEXT:   korq %k2, %k1, %k1
; CHECK-NEXT:   movq $-257, %rax # imm = 0xFEFF

```

```

; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $9, %k0, %k2
; CHECK-NEXT: kshiftrlq $63,
%k2, %k2
; CHECK-NEXT: kshiftrq $55, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-513, %rax # imm = 0xFDFD
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $8, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $54, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-1025, %rax # imm = 0xFBFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $11, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $53, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-2049, %rax # imm = 0xF7FF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $10, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $52, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-4097, %rax # imm = 0xEFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT:
kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $13, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $51, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-8193, %rax # imm = 0xDFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $12, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $50, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-16385, %rax # imm = 0xBFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $15, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2

```

```

; CHECK-NEXT: kshiftrq $49, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-32769, %rax # imm = 0xFFFF7FFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $14, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $48, %k2, %k2
; CHECK-NEXT:
    korq %k2, %k1, %k1
; CHECK-NEXT: movq $-65537, %rax # imm = 0xFFFEFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $17, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $47, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-131073, %rax # imm = 0xFFFDFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $16, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $46, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-262145, %rax # imm = 0xFFFBFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $19, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $45, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-524289, %rax # imm = 0xFFF7FFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT:
    kshiftrd $18, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $44, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-1048577, %rax # imm = 0xFFEFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $21, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $43, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-2097153, %rax # imm = 0xFFDFFFFF
; CHECK-NEXT: kmovq %rax, %k2

```

```

; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $20, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $42, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-4194305, %rax # imm = 0xFFBFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $23, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $41, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
;
CHECK-NEXT: movq $-8388609, %rax # imm = 0xFF7FFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $22, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $40, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-16777217, %rax # imm = 0xFEFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $25, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $39, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-33554433, %rax # imm = 0xFDFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $24, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $38, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-67108865, %rax # imm = 0xFBFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd
$27, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $37, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-134217729, %rax # imm = 0xF7FFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $26, %k0, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $36, %k2, %k2

```



```

; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-268435457, %rax # imm = 0xEFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $29, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $35, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movq $-536870913, %rax # imm = 0xDFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $28, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $34, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT:
    movq $-1073741825, %rax # imm = 0xBFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k1
; CHECK-NEXT: kshiftrd $31, %k0, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $33, %k2, %k2
; CHECK-NEXT: korq %k2, %k1, %k1
; CHECK-NEXT: movabsq $-2147483649, %rax # imm = 0xFFFFFFFF7FFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k1, %k2
; CHECK-NEXT: vptestnmb %ymm0, %ymm0, %k1
; CHECK-NEXT: kshiftrd $30, %k0, %k0
; CHECK-NEXT: kshiftlq $63, %k0, %k0
; CHECK-NEXT: kshiftrq $32, %k0, %k0
; CHECK-NEXT: korq %k0, %k2, %k0
; CHECK-NEXT: movabsq $-4294967297, %rax # imm = 0xFFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $1, %k1, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $31, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-8589934593, %rax # imm = 0xFFFFFFFFDFFFFFFF
; CHECK-NEXT:
    kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftlq $63, %k1, %k2
; CHECK-NEXT: kshiftrq $30, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-17179869185, %rax # imm = 0xFFFFFFFFBFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0

```

```

; CHECK-NEXT: kshiftrd $3, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $29, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-34359738369, %rax # imm = 0xFFFFFFFF7FFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $2, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $28, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-68719476737, %rax # imm = 0xFFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $5, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT:
kshiftrq $27, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-137438953473, %rax # imm = 0xFFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $4, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $26, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-274877906945, %rax # imm = 0xFFFFFFFFBFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $7, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $25, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-549755813889, %rax # imm = 0xFFFFFFFF7FFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $6, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $24, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-1099511627777, %rax
# imm = 0xFFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $9, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $23, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0

```

```

; CHECK-NEXT: movabsq $-2199023255553, %rax # imm = 0xFFFFFDFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $8, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $22, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-4398046511105, %rax # imm = 0xFFFFFBFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $11, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $21, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-8796093022209, %rax # imm = 0xFFFFF7FFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT:
    kshiftrd $10, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $20, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-17592186044417, %rax # imm = 0xFFFFEFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $13, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $19, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-35184372088833, %rax # imm = 0xFFFFDFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $12, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $18, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-70368744177665, %rax # imm = 0xFFFFBFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $15, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq
$17, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-140737488355329, %rax # imm = 0xFFFF7FFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $14, %k1, %k2

```

```

; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $16, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-281474976710657, %rax # imm = 0xFFFEFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $17, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $15, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-562949953421313, %rax # imm = 0xFFFDFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $16, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $14, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-1125899906842625,
%rax # imm = 0xFFFBFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $19, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $13, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-2251799813685249, %rax # imm = 0xFFF7FFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $18, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $12, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-4503599627370497, %rax # imm = 0xFFEFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $21, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $11, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-9007199254740993, %rax # imm = 0xFFDFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq
%k2, %k0, %k0
; CHECK-NEXT: kshiftrd $20, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $10, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-18014398509481985, %rax # imm = 0xFFBFFFFFFFFFFFFFFF

```

```

; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $23, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $9, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-36028797018963969, %rax # imm = 0xFF7FFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $22, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $8, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-72057594037927937, %rax # imm = 0xFEFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $25, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2,
%k2
; CHECK-NEXT: kshiftrq $7, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-144115188075855873, %rax # imm = 0xFDFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $24, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $6, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-288230376151711745, %rax # imm = 0xFBFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $27, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $5, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-576460752303423489, %rax # imm = 0xF7FFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $26, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $4, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT:
movabsq $-1152921504606846977, %rax # imm = 0xEFFFFFFFFFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $29, %k1, %k2
; CHECK-NEXT: kshiftrlq $63, %k2, %k2

```

```

; CHECK-NEXT: kshiftrq $3, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-2305843009213693953, %rax # imm = 0xDFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $28, %k1, %k2
; CHECK-NEXT: kshiftlq $63, %k2, %k2
; CHECK-NEXT: kshiftrq $2, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: movabsq $-4611686018427387905, %rax # imm = 0xBFFFFFFF
; CHECK-NEXT: kmovq %rax, %k2
; CHECK-NEXT: kandq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $31, %k1, %k2
; CHECK-NEXT: kshiftlq $62, %k2, %k2
; CHECK-NEXT: korq %k2, %k0, %k0
; CHECK-NEXT: kshiftrd $30, %k1, %k1
; CHECK-NEXT: kshiftlq $1, %k0, %k0
; CHECK-NEXT: kshiftrq $1, %k0, %k0
; CHECK-NEXT:
    kshiftlq $63, %k1, %k1
; CHECK-NEXT: korq %k1, %k0, %k1
; CHECK-NEXT: vmovdqu8 %ymm1, (%rsi) {%k1}
; CHECK-NEXT: kshiftrq $32, %k1, %k1
; CHECK-NEXT: vmovdqu8 %ymm0, 32(%rsi) {%k1}
; CHECK-NEXT: vzeroupper
; CHECK-NEXT: retq
entry:
    %a = load <64 x i8>, <64 x i8>* %x
    %b = icmp eq <64 x i8> %a, zeroinitializer
    %shuf = shufflevector <64 x i1> %b, <64 x i1> undef, <64 x i32> <i32 1, i32 0, i32 3, i32 2, i32 5, i32 4, i32 7, i32
6, i32 9, i32 8, i32 11, i32 10, i32 13, i32 12, i32 15, i32 14, i32 17, i32 16, i32 19, i32 18, i32 21, i32 20, i32 23, i32
22, i32 25, i32 24, i32 27, i32 26, i32 29, i32 28, i32 31, i32 30, i32 33, i32 32, i32 35, i32 34, i32 37, i32 36, i32 39,
i32 38, i32 41, i32 40, i32 43, i32 42, i32 45, i32 44, i32 47, i32 46, i32 49, i32 48, i32 51, i32 50, i32 53, i32 52, i32
55, i32 54, i32 57, i32 56, i32 59, i32 58, i32 61, i32 60, i32 63, i32 62>
    call void @llvm.masked.store.v64i8.p0v64i8(<64 x i8> %a, <64 x i8>* %y, i32 1, <64 x i1> %shuf)
    ret void
}
declare void @llvm.masked.store.v64i8.p0v64i8(<64 x i8>, <64 x i8>*, i32, <64 x i1>)

@mem64_dst = global i64 0, align 8
@mem64_src = global i64 0, align 8
define i32 @v64i1_inline_asm() "min-legal-vector-width"="256" {
; CHECK-LABEL: v64i1_inline_asm:
; CHECK:    # %bb.0:
; CHECK-NEXT: kmovq {{.*}}(%rip), %k0
; CHECK-NEXT: #APP
; CHECK-NEXT: #NO_APP
; CHECK-NEXT: kmovq %k0, {{.*}}(%rip)

```

```

; CHECK-NEXT:  movl -{[0-9]+}(%rsp), %eax
; CHECK-NEXT:  retq
%1 = alloca i32, align 4
%2 = load i64, i64* @mem64_src, align 8
%3 = call i64 @asm "", "=k,k,~{dirflag},~{fpsr},~{flags}"(i64 %2)
store i64 %3, i64* @mem64_dst, align 8
%4 = load i32, i32* %1, align 4
ret i32 %4
}
; RUN: llc -O3 -mtriple=powerpc-unknown-linux-gnu -mcpu=e500 -mattr=spe < %s | FileCheck %s

```

```

; PowerPC SPE is a rare in-tree target that has the FP_TO_SINT node marked
; as Legal.

```

```

; Verify that fptosi(42.1) isn't simplified when the rounding mode is
; unknown.
; Verify that no gross errors happen.
; CHECK-LABEL: @f20
; COMMON: cfdctsiz
define i32 @f20(double %a) strictfp {
entry:
%result = call i32 @llvm.experimental.constrained.fptosi.i32.f64(double 42.1,
    metadata !"fpexcept.strict")
    strictfp
ret i32 %result
}

```

```

@llvm.fp.env = thread_local global i8 zeroinitializer, section "llvm.metadata"
declare i32 @llvm.experimental.constrained.fptosi.i32.f64(double, metadata)

```

```

=====
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```

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```
; NOTE: Assertions have been autogenerated by utils/update_test_checks.py UTC_ARGS: --function-signature --  
scrub-attributes
```

```
; RUN: opt -S -passes='attributor' -aa-pipeline='basic-aa' -attributor-disable=false -attributor-max-iterations-verify -  
attributor-max-iterations=2 <%s | FileCheck %s
```

```
; Test that we only promote arguments when the caller/callee have compatible
```

```
; function attributes.
```

```
target triple = "x86_64-unknown-linux-gnu"
```

```
; This should promote
```

```
define internal fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x i64>* %arg,  
<8 x i64>* readonly %arg1) #0 {
```

```
; CHECK-LABEL: define {{[^\s@]+}}@callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512
```

```
; CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
```

```
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
```

```
; CHECK-NEXT: bb:
```

```
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
```

```
;
```

```
CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
```

```
; CHECK-NEXT: ret void
```

```
;
```

```
bb:
```

```
%tmp = load <8 x i64>, <8 x i64>* %arg1
```

```
store <8 x i64> %tmp, <8 x i64>* %arg
```

```
ret void
```

```
}
```

```
define void @avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x i64>* %arg) #0 {
```

```
; CHECK-LABEL: define {{[^\s@]+}}@avx512_legal512_prefer512_call_avx512_legal512_prefer512
```

```
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
```

```
; CHECK-NEXT: bb:
```

```
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
```

```
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
```

```
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
```

```

; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x
i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias
nocapture nofree nonnull readonly
align 32 dereferenceable(64) [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #1 {
; CHECK-LABEL: define {{{^@}+}}@callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg) #1 {
; CHECK-LABEL: define {{{^@}+}}@avx512_legal512_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)

```

```

; CHECK-NEXT:
call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* noalias
nocapture norelease nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias nocapture norelease
nonnull readonly align 32 dereferenceable(64) [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x i64>*
%arg, <8 x i64>* readonly %arg1) #1 {
; CHECK-LABEL: define {{{^@+}}} @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* noalias nocapture norelease nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture norelease nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x i64>* %arg) #0 {
; CHECK-LABEL: define {{{^@+}}} @avx512_legal512_prefer512_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>,
align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x

```



```

i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias
nocapture nofree nonnull readonly align 32 dereferenceable(64) [[TMP]]
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>,
<8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #0 {
; CHECK-LABEL: define {{{^@+}}}@callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512
; CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x i64>* %arg) #1 {
; CHECK-LABEL: define {{{^@+}}}@avx512_legal512_prefer256_call_avx512_legal512_prefer512
;
CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x
i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias

```

```

nocapture nofree nonnull readonly align 32 dereferenceable(64) [[TMP]]
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should not promote
define internal fastcc void @callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #1 {
; CHECK-LABEL: define {{{^@}+}}@callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8
x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg) #2 {
; CHECK-LABEL: define {{{^@}+}}@avx512_legal256_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x
i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias
nocapture nofree nonnull readonly align 32 dereferenceable(64) [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align

```

32

```
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should not promote
define internal fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #2 {
; CHECK-LABEL: define {{{^@+}}}@callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256
; CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
;
CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x i64>* %arg) #1 {
; CHECK-LABEL: define {{{^@+}}}@avx512_legal512_prefer256_call_avx512_legal256_prefer256
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x
i64>* noalias nocapture nofree
nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias nocapture nofree nonnull readonly
align 32 dereferenceable(64) [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
```

```

; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>* %arg, <8
x i64>* readonly %arg1) #3 {
; CHECK-LABEL: define {{{^@+}}} @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256
;
CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>* %arg) #4 {
; CHECK-LABEL: define {{{^@+}}} @avx2_legal256_prefer256_call_avx2_legal512_prefer256
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8*
nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>*
noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias nocapture
nofree nonnull readonly align 32 dereferenceable(64) [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void

```

```

;
bb:
  %tmp = alloca <8 x i64>, align 32
  %tmp2 = alloca <8 x i64>, align 32
  %tmp3 = bitcast <8 x i64>* %tmp to i8*
  call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
  call fastcc void @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>* %tmp2, <8 x i64>*
  %tmp)
  %tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
  store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
  ret void
}

```

; This should promote

```
define internal fastcc
```

```

  void @callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>* %arg, <8 x i64>* readonly
  %arg1) #4 {
; CHECK-LABEL: define {[^@]+}@callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256
; CHECK-SAME: (<8 x i64>* noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64)
[[ARG:%.*]], <8 x i64>* noalias nocapture nofree nonnull readonly align 32 dereferenceable(64) [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]], align 32
; CHECK-NEXT: ret void
;

```

```
bb:
```

```

  %tmp = load <8 x i64>, <8 x i64>* %arg1
  store <8 x i64> %tmp, <8 x i64>* %arg
  ret void
}

```

```

define void @avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>* %arg) #3 {
; CHECK-LABEL: define {[^@]+}@avx2_legal512_prefer256_call_avx2_legal256_prefer256
; CHECK-SAME: (<8 x i64>* nocapture writeonly [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca
  <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* nonnull align 32 dereferenceable(64) [[TMP3]], i8 0, i64
32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>*
noalias nocapture nofree nonnull writeonly align 32 dereferenceable(64) [[TMP2]], <8 x i64>* noalias nocapture
nofree nonnull readonly align 32 dereferenceable(64) [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;

```

```

bb:
  %tmp = alloca <8 x i64>, align 32
  %tmp2 = alloca <8 x i64>, align 32
  %tmp3 = bitcast <8 x i64>* %tmp to i8*
  call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
  call fastcc void @callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8
  x i64>* %tmp2, <8 x i64>* %tmp)
  %tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
  store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
  ret void
}

```

; Function Attrs: argmemonly nounwind

```
declare void @llvm.memset.p0i8.i64(i8* nocapture writeonly, i8, i64, i1) #5
```

```
attributes #0 = { inlinehint norecurse nounwind uwtable "target-features"="+avx512vl" "min-legal-vector-
width"="512" "prefer-vector-width"="512" }
```

```
attributes #1 = { inlinehint norecurse nounwind uwtable "target-features"="+avx512vl" "min-legal-vector-
width"="512" "prefer-vector-width"="256" }
```

```
attributes #2 = { inlinehint norecurse nounwind uwtable "target-features"="+avx512vl" "min-legal-vector-
width"="256" "prefer-vector-width"="256" }
```

```
attributes #3 = { inlinehint norecurse nounwind uwtable "target-features"="+avx2" "min-legal-vector-width"="512"
"prefer-vector-width"="256" }
```

```
attributes #4 = { inlinehint norecurse nounwind uwtable "target-features"="+avx2" "min-legal-vector-width"="256"
"prefer-vector-width"="256" }
```

```
attributes
```

```
#5 = { argmemonly nounwind }
```

```
=====
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```
; NOTE: Assertions have been autogenerated by utils/update_test_checks.py UTC_ARGS: --function-signature --
scrub-attributes
; RUN: opt -S -argpromotion < %s | FileCheck %s
; RUN: opt -S -passes=argpromotion < %s | FileCheck %s
; Test that we only promote arguments when the caller/callee have compatible
; function attributes.
```

```
target triple = "x86_64-unknown-linux-gnu"
```

```
; This should promote
define internal fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #0 {
; CHECK-LABEL: define {{{^@}+}}@callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64> [[ARG1_VAL:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: store <8 x i64> [[ARG1_VAL]], <8 x i64>* [[ARG]]
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}
```

```
define void @avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x i64>* %arg) #0
{
; CHECK-LABEL: define {{{^@}+}}@avx512_legal512_prefer512_call_avx512_legal512_prefer512
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
```

```

; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT: [[TMP_VAL:%.*]] = load <8 x i64>, <8 x i64>* [[TMP]]
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x
i64>* [[TMP2]], <8 x i64> [[TMP_VAL]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64
32, i1 false)
call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer512(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #1 {
; CHECK-LABEL: define {{{^@+}}@callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64> [[ARG1_VAL:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: store <8 x i64> [[ARG1_VAL]], <8 x i64>* [[ARG]]
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg) #1 {
; CHECK-LABEL: define {{{^@+}}@avx512_legal512_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
;
CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT: [[TMP_VAL:%.*]] = load <8 x i64>, <8 x i64>* [[TMP]]
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x
i64>* [[TMP2]], <8 x i64> [[TMP_VAL]])

```

```

; CHECK-NEXT:  [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT:  store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT:  ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #1 {
; CHECK-LABEL: define {{{^@+}}}@callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64> [[ARG1_VAL:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT:  store <8 x i64> [[ARG1_VAL]], <8 x i64>* [[ARG]]
; CHECK-NEXT:  ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x i64>* %arg) #0 {
; CHECK-LABEL: define {{{^@+}}}@avx512_legal512_prefer512_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT:  [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT:  [[TMP2:%.*]] = alloca
<8 x i64>, align 32
; CHECK-NEXT:  [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT:  call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT:  [[TMP_VAL:%.*]] = load <8 x i64>, <8 x i64>* [[TMP]]
; CHECK-NEXT:  call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x
i64>* [[TMP2]], <8 x i64> [[TMP_VAL]])
; CHECK-NEXT:  [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT:  store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT:  ret void
;
bb:

```

```

%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer512_call_avx512_legal512_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret
void
}

```

; This should promote

```

define internal fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #0 {
; CHECK-LABEL: define {{{^@}+}}@callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64> [[ARG1_VAL:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: store <8 x i64> [[ARG1_VAL]], <8 x i64>* [[ARG]]
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

```

```

define void @avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x i64>* %arg) #1 {
; CHECK-LABEL: define {{{^@}+}}@avx512_legal512_prefer256_call_avx512_legal512_prefer512
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8*
align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT: [[TMP_VAL:%.*]] = load <8 x i64>, <8 x i64>* [[TMP]]
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x
i64>* [[TMP2]], <8 x i64> [[TMP_VAL]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)

```



```

call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal512_prefer512(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

```

; This should not promote

```

define internal fastcc void @callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8
x i64>* %arg, <8 x i64>* readonly %arg1) #1 {
; CHECK-LABEL: define {{[^\@]+}}@callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64>* readonly [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]]
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]]
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

```

```

define void @avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %arg) #2 {
; CHECK-LABEL: define {{[^\@]+}}@avx512_legal256_prefer256_call_avx512_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0,
i64 32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x
i64>* [[TMP2]], <8 x i64>* [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal256_prefer256_call_avx512_legal512_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void

```

```

}

; This should not promote
define internal fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x i64>* %arg,
<8 x i64>* readonly %arg1) #2 {
; CHECK-LABEL: define {{{^@}+}}@callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256
;
CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64>* readonly [[ARG1:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = load <8 x i64>, <8 x i64>* [[ARG1]]
; CHECK-NEXT: store <8 x i64> [[TMP]], <8 x i64>* [[ARG]]
; CHECK-NEXT: ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x i64>* %arg) #1 {
; CHECK-LABEL: define {{{^@}+}}@avx512_legal512_prefer256_call_avx512_legal256_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT: [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT: [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT: call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT: call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8
x i64>* [[TMP2]], <8 x i64>* [[TMP]])
; CHECK-NEXT: [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT: store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT: ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx512_legal512_prefer256_call_avx512_legal256_prefer256(<8 x i64>* %tmp2, <8 x
i64>* %tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>* %arg, <8
x i64>* readonly %arg1) #3 {

```

```

; CHECK-LABEL: define {{{^@+}}}@callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64> [[ARG1_VAL:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT:
    store <8 x i64> [[ARG1_VAL]], <8 x i64>* [[ARG]]
; CHECK-NEXT:  ret void
;
bb:
%tmp = load <8 x i64>, <8 x i64>* %arg1
store <8 x i64> %tmp, <8 x i64>* %arg
ret void
}

define void @avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>* %arg) #4 {
; CHECK-LABEL: define {{{^@+}}}@avx2_legal256_prefer256_call_avx2_legal512_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT:  [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT:  [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT:  [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT:  call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT:  [[TMP_VAL:%.*]] = load <8 x i64>, <8 x i64>* [[TMP]]
; CHECK-NEXT:  call fastcc void @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>*
[[TMP2]], <8 x i64> [[TMP_VAL]])
; CHECK-NEXT:  [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT:  store
<8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT:  ret void
;
bb:
%tmp = alloca <8 x i64>, align 32
%tmp2 = alloca <8 x i64>, align 32
%tmp3 = bitcast <8 x i64>* %tmp to i8*
call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
call fastcc void @callee_avx2_legal256_prefer256_call_avx2_legal512_prefer256(<8 x i64>* %tmp2, <8 x i64>*
%tmp)
%tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
ret void
}

; This should promote
define internal fastcc void @callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>* %arg, <8
x i64>* readonly %arg1) #4 {
; CHECK-LABEL: define {{{^@+}}}@callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]], <8 x i64> [[ARG1_VAL:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT:  store <8 x i64> [[ARG1_VAL]], <8 x i64>* [[ARG]]

```

```

; CHECK-NEXT:  ret void
;
bb:
  %tmp = load <8 x i64>, <8 x i64>* %arg1
  store <8 x i64>
  %tmp, <8 x i64>* %arg
  ret void
}

define void @avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>* %arg) #3 {
; CHECK-LABEL: define { {[^@]+} } @avx2_legal512_prefer256_call_avx2_legal256_prefer256
; CHECK-SAME: (<8 x i64>* [[ARG:%.*]])
; CHECK-NEXT: bb:
; CHECK-NEXT:  [[TMP:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT:  [[TMP2:%.*]] = alloca <8 x i64>, align 32
; CHECK-NEXT:  [[TMP3:%.*]] = bitcast <8 x i64>* [[TMP]] to i8*
; CHECK-NEXT:  call void @llvm.memset.p0i8.i64(i8* align 32 [[TMP3]], i8 0, i64 32, i1 false)
; CHECK-NEXT:  [[TMP_VAL:%.*]] = load <8 x i64>, <8 x i64>* [[TMP]]
; CHECK-NEXT:  call fastcc void @callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>*
[[TMP2]], <8 x i64> [[TMP_VAL]])
; CHECK-NEXT:  [[TMP4:%.*]] = load <8 x i64>, <8 x i64>* [[TMP2]], align 32
; CHECK-NEXT:  store <8 x i64> [[TMP4]], <8 x i64>* [[ARG]], align 2
; CHECK-NEXT:  ret void
;
bb:
  %tmp = alloca <8 x i64>, align 32
  %tmp2 = alloca <8 x i64>,
  align 32
  %tmp3 = bitcast <8 x i64>* %tmp to i8*
  call void @llvm.memset.p0i8.i64(i8* align 32 %tmp3, i8 0, i64 32, i1 false)
  call fastcc void @callee_avx2_legal512_prefer256_call_avx2_legal256_prefer256(<8 x i64>* %tmp2, <8 x i64>*
%tmp)
  %tmp4 = load <8 x i64>, <8 x i64>* %tmp2, align 32
  store <8 x i64> %tmp4, <8 x i64>* %arg, align 2
  ret void
}

; Function Attrs: argmemonly nounwind
declare void @llvm.memset.p0i8.i64(i8* nocapture writeonly, i8, i64, i1) #5

attributes #0 = { inlinehint norecurse nounwind uwtable "target-features"="+avx512vl" "min-legal-vector-
width"="512" "prefer-vector-width"="512" }
attributes #1 = { inlinehint norecurse nounwind uwtable "target-features"="+avx512vl" "min-legal-vector-
width"="512" "prefer-vector-width"="256" }
attributes #2 = { inlinehint norecurse nounwind uwtable "target-features"="+avx512vl" "min-legal-vector-
width"="256" "prefer-vector-width"="256" }
attributes #3 = { inlinehint norecurse nounwind uwtable "target-features"="+avx2" "min-legal-vector-width"="512"

```

```
"prefer-vector-width"="256" }
attributes #4 = { inlinehint norecurse nounwind uwtable "target-features"="+avx2" "min-legal-vector-width"="256"
"prefer-vector-width"="256" }
attributes #5 = { argmemonly nounwind }
# People who have agreed to one of the CLAs and can contribute patches.
# The AUTHORS file lists the copyright holders; this file
# lists people. For example, Google employees are listed here
# but not in AUTHORS, because Google holds the copyright.
#
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# the appropriate Contributor License Agreement, found here:
#
# https://developers.google.com/open-source/cla/individual
# https://developers.google.com/open-source/cla/corporate
#
# The agreement for individuals can be filled out on the web.
#
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#
# Please keep the list sorted.
```

Albert Pretorius <pretoalb@gmail.com>

Arne Beer <arne@twobeer.de>

Billy

Robert O'Neal III <billy.oneal@gmail.com> <bion@microsoft.com>

Chris Kennelly <ckennelly@google.com> <ckennelly@ckennelly.com>

Christopher Seymour <chris.j.seymour@hotmail.com>

Cyrille Fauchaux <cyrille.fauchaux@gmail.com>

David Coeurjolly <david.coeurjolly@liris.cnrs.fr>

Deniz Evrenci <denizevrenci@gmail.com>

Dominic Hamon <dma@stripysock.com> <dominic@google.com>

Dominik Czarnota <dominik.b.czarnota@gmail.com>

Eric Fiselier <eric@efcs.ca>

Eugene Zhuk <eugene.zhuk@gmail.com>

Evgeny Safronov <division494@gmail.com>

Federico Ficarelli <federico.ficarelli@gmail.com>

Felix Homann <linuxaudio@showlabor.de>

Ismael Jimenez Martinez <ismael.jimenez.martinez@gmail.com>

Jern-Kuan Leong <jernkuan@gmail.com>

JianXiong Zhou <zhoujianxiong2@gmail.com>

Joao Paulo Magalhaes <joaoppmagalhaes@gmail.com>

John Millikin <jmillikin@stripe.com>  
Jussi Knuutila <jussi.knuutila@gmail.com>  
Kai Wolf <kai.wolf@gmail.com>  
Kishan Kumar <kumar.kishan@outlook.com>  
Kaito Udagawa <umireon@gmail.com>  
Lei Xu <eddyxu@gmail.com>  
Matt  
Clarkson <mattyclarkson@gmail.com>  
Maxim Vafin <maxvafin@gmail.com>  
Nick Hutchinson <nshutchinson@gmail.com>  
Oleksandr Sochka <sasha.sochka@gmail.com>  
Ori Livneh <ori.livneh@gmail.com>  
Pascal Leroy <phl@google.com>  
Paul Redmond <paul.redmond@gmail.com>  
Pierre Phaneuf <pphaneuf@google.com>  
Radoslav Yovchev <radoslav.tm@gmail.com>  
Raul Marin <rmrodriguez@cartodb.com>  
Ray Glover <ray.glover@uk.ibm.com>  
Robert Guo <robert.guo@mongodb.com>  
Roman Lebedev <lebedev.ri@gmail.com>  
Shuo Chen <chenshuo@chenshuo.com>  
Tobias Ulvgrd <tobias.ulvgard@dirac.se>  
Tom Madams <tom.ej.madams@gmail.com> <tmadams@google.com>  
Yixuan Qiu <yixuanq@gmail.com>  
Yusuke Suzuki <utatane.tea@gmail.com>  
Zbigniew Skowron <zbychs@gmail.com>  
add\_lldb\_library(lldbPluginObjectContainerBSDArchive PLUGIN  
ObjectContainerBSDArchive.cpp

#### LINK\_LIBS

lldbCore  
lldbHost  
lldbSymbol

#### LINK\_COMPONENTS

Support  
)

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```
; RUN: llc < %s -mtriple=x86_64-linux-android -mattr=+mmx -enable-legalize-types-checking | FileCheck %s
;
; D31946
; Check that we dont end up with the ""LLVM ERROR: Cannot select" error.
; Additionally ensure that the output code actually put fp128 values in SSE registers.
```

```
declare fp128 @llvm.fabs.f128(fp128)
declare fp128 @llvm.copysign.f128(fp128, fp128)
```

```
define fp128 @TestSelect(fp128 %a, fp128 %b) {
  %cmp = fcmp ogt fp128 %a, %b
  %sub = fsub fp128 %a, %b
  %res = select i1 %cmp, fp128 %sub, fp128 0xL00000000000000000000000000000000
  ret fp128 %res
; CHECK-LABEL: TestSelect:
; CHECK    movaps 16(%rsp), %xmm1
; CHECK-NEXT callq __subtf3
; CHECK-NEXT testl %ebx, %ebx
; CHECK-NEXT jg .LBB0_2
; CHECK-NEXT # %bb.1:
; CHECK-NEXT movaps .LCPI0_0(%rip), %xmm0
; CHECK-NEXT .LBB0_2:
; CHECK-NEXT addq $32, %rsp
; CHECK-NEXT popq %rbx
; CHECK-NEXT retq
}
```

```
define fp128 @TestFabs(fp128 %a) {
  %res = call fp128 @llvm.fabs.f128(fp128 %a)
  ret fp128 %res
; CHECK-LABEL: TestFabs:
;
; CHECK    andps .LCPI1_0(%rip), %xmm0
; CHECK-NEXT retq
}
```

```
define fp128 @TestCopysign(fp128 %a, fp128 %b) {
  %res = call fp128 @llvm.copysign.f128(fp128 %a, fp128 %b)
  ret fp128 %res
; CHECK-LABEL: TestCopysign:
; CHECK    andps .LCPI2_1(%rip), %xmm0
; CHECK-NEXT orps %xmm1, %xmm0
; CHECK-NEXT retq
}
```

```
define fp128 @TestFneg(fp128 %a) {
  %mul = fmul fp128 %a, %a
  %res = fsub fp128 0xL00000000000000000800000000000000, %mul
}
```

```
ret fp128 %res
; CHECK-LABEL: TestFneg:
; CHECK    movaps %xmm0, %xmm1
; CHECK-NEXT callq __multf3
; CHECK-NEXT xorps .LCPI3_0(%rip), %xmm0
; CHECK-NEXT popq %rax
; CHECK-NEXT retq
}
```

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