Package java.lang

Provides classes that are fundamental to the design of the Java programming language.

See: Description

提供 Java 语言设计的基础类

Interface Summary

Interface	Description
Appendable 字符序列和值可追加	An object to which `char` sequences and values can be appended.
AutoCloseable 一个资源在不需要时必须关闭 try-with-resources	A resource that must be closed when it is no longer needed.
CharSequence 一个可读的字符值序列	A `CharSequence` is a readable sequence of `char` values.
Cloneable	A class implements the `Cloneable` interface to indicate to the `Object.clone()` method that it is legal for that method to make a field-for-field copy of instances of that class.
Comparable<T> 暴露类型对象集的总排序	This interface imposes a total ordering on the objects of each class that implements it.
Iterable<T> 允许对象用于foreach语句	Implementing this interface allows an object to be the target of the "foreach" statement.
Readable	A `Readable` is a source of characters.
Runnable 任何类型的实例想在线程中被执行都必须实现该接口	The `Runnable` interface should be implemented by any class whose instances are intended to be executed by a thread.
Thread.UncaughtExceptionHandler 当线程因为一个不可捕获的异常而粗鲁地终止时，该处理器会被调用	Interface for handlers invoked when a `Thread` abruptly terminates due to an uncaught exception.

Class Summary

Class	Description
Boolean 基本类型的包装类	The Boolean class wraps a value of the primitive type `boolean` in an object.
Byte	The `Byte` class wraps a value of primitive type `byte` in an object.
Character	The `Character` class wraps a value of the primitive type `char` in an object.
Character.Subset	Instances of this class represent particular subsets of the Unicode character set.
Character.UnicodeBlock	A family of character subsets representing the character blocks in the Unicode specification.
Class<T> 表示类型和接口的类型实例	Instances of the class `Class` represent classes and interfaces in a running Java application.
ClassLoader 负责加载类型的类加载器	A class loader is an object that is responsible for loading classes.
ClassValue<T>	Lazily associate a computed value with (potentially) every type.
Compiler	The `Compiler` class is provided to support Java-to-native-code compilers and related services. 支持"Java到本地代码"的编译器和相关的服务
Double	The `Double` class wraps a value of the primitive type `double` in an object.
Enum<E extends Enum<E>> 所有枚举类型的公共基类	This is the common base class of all Java language enumeration types.
Float	The `Float` class wraps a value of primitive type `float` in an object.
InheritableThreadLocal<T> 扩展线程本地变量，提供从父线程到子线程的值的继承	This class extends `ThreadLocal` to provide inheritance of values from parent thread to child thread: when a child thread is created, the child receives initial values for all inheritable thread-local variables for which the parent has values.
Integer	The `Integer` class wraps a value of the primitive type `int` in an object.

Long	The `Long` class wraps a value of the primitive type `long` in an object.
Math 提供基本的数字操作	The class `Math` contains methods for performing basic numeric operations such as the elementary exponential, logarithm, square root, and trigonometric functions.
Number 所有数字类型的超类	The abstract class `Number` is the superclass of classes `BigDecimal`, `BigInteger`, `Byte`, `Double`, `Float`, `Integer`, `Long`, and `Short`.
Object 类层次的根类	Class `Object` is the root of the class hierarchy.
Package 包含实现的版本信息和包的规范	`Package` objects contain version information about the implementation and specification of a Java package.
Process 表示本地进程	The **`ProcessBuilder.start()`** and **`Runtime.exec`** methods create a native process and return an instance of a subclass of `Process` that can be used to control the process and obtain information about it.
ProcessBuilder 用于创建操作系统进程	This class is used to create operating system processes.
ProcessBuilder.Redirect 表示子进程的输入源或输出地	Represents a source of subprocess input or a destination of subprocess output.
Runtime 每个 Java 应用程序都有一个运行时类型的单例	Every Java application has a single instance of class `Runtime` that allows the application to interface with the environment in which the application is running.
RuntimePermission	This class is for runtime permissions.
SecurityManager 安全管理器：允许应用实现一个安全策略	The security manager is a class that allows applications to implement a security policy.
Short	The `Short` class wraps a value of primitive type `short` in an object.
StackTraceElement 堆栈追踪元素	An element in a stack trace, as returned by **`Throwable.getStackTrace()`**.
StrictMath	The class `StrictMath` contains methods for performing basic numeric operations such as the elementary exponential, logarithm, square root, and trigonometric functions.
String 表示字符串（不可变类）	The `String` class represents character strings.
StringBuffer 线程安全、可变的字符序列	A thread-safe, mutable sequence of characters.
StringBuilder 可变的字符序列	A mutable sequence of characters.
System 包含一些有用的类型字段和方法	The `System` class contains several useful class fields and methods.
Thread 程序中的执行线程	A *thread* is a thread of execution in a program.
ThreadGroup 线程组：表示一组线程	A thread group represents a set of threads.
ThreadLocal<T> 提供线程本地变量	This class provides thread-local variables.
Throwable 所有错误和异常的超类	The `Throwable` class is the superclass of all errors and exceptions in the Java language.
Void	The `Void` class is an uninstantiable placeholder class to hold a reference to the `Class` object representing the Java keyword void.

Enum Summary

Enum	Description
Character.UnicodeScript	A family of character subsets representing the character scripts defined in the ***Unicode Standard Annex #24: Script Names***.
ProcessBuilder.Redirect.Type	The type of a **`ProcessBuilder.Redirect`**.
Thread.State 线程状态	A thread state.

Exception Summary

Exception	Description
ArithmeticException	Thrown when an exceptional arithmetic condition has occurred.

ArrayIndexOutOfBoundsException	Thrown to indicate that an array has been accessed with an illegal index.
ArrayStoreException	Thrown to indicate that an attempt has been made to store the wrong type of object into an array of objects.
ClassCastException	Thrown to indicate that the code has attempted to cast an object to a subclass of which it is not an instance.
ClassNotFoundException	Thrown when an application tries to load in a class through its string name using: The `forName` method in class `Class`.
CloneNotSupportedException	Thrown to indicate that the `clone` method in class `Object` has been called to clone an object, but that the object's class does not implement the `Cloneable` interface.
EnumConstantNotPresentException	Thrown when an application tries to access an enum constant by name and the enum type contains no constant with the specified name.
Exception 异常及其子类都是可抛出类型的一种	The class `Exception` and its subclasses are a form of `Throwable` that indicates conditions that a reasonable application might want to catch.
IllegalAccessException	An IllegalAccessException is thrown when an application tries to reflectively create an instance (other than an array), set or get a field, or invoke a method, but the currently executing method does not have access to the definition of the specified class, field, method or constructor.
IllegalArgumentException 一个方法被传递了非法或不合适的参数	Thrown to indicate that a method has been passed an illegal or inappropriate argument.
IllegalMonitorStateException	Thrown to indicate that a thread has attempted to wait on an object's monitor or to notify other threads waiting on an object's monitor without owning the specified monitor.
IllegalStateException 一个方法在非法或不合理的时间被调用	Signals that a method has been invoked at an illegal or inappropriate time.
IllegalThreadStateException	Thrown to indicate that a thread is not in an appropriate state for the requested operation.
IndexOutOfBoundsException 索引越界异常	Thrown to indicate that an index of some sort (such as to an array, to a string, or to a vector) is out of range.
InstantiationException	Thrown when an application tries to create an instance of a class using the `newInstance` method in class `Class`, but the specified class object cannot be instantiated.
InterruptedException 线程被中断	Thrown when a thread is waiting, sleeping, or otherwise occupied, and the thread is interrupted, either before or during the activity.
NegativeArraySizeException	Thrown if an application tries to create an array with negative size.
NoSuchFieldException	Signals that the class doesn't have a field of a specified name.
NoSuchMethodException	Thrown when a particular method cannot be found. 反射时才会出现
NullPointerException 试图使用 null 对象	Thrown when an application attempts to use `null` in a case where an object is required.
NumberFormatException	Thrown to indicate that the application has attempted to convert a string to one of the numeric types, but that the string does not have the appropriate format.
ReflectiveOperationException	Common superclass of exceptions thrown by reflective operations in core reflection. 反射操作异常
RuntimeException JVM 正常操作期间抛出的所有异常的超类	`RuntimeException` is the superclass of those exceptions that can be thrown during the normal operation of the Java Virtual Machine.
SecurityException	Thrown by the security manager to indicate a security violation.
StringIndexOutOfBoundsException	Thrown by `String` methods to indicate that an index is either negative or greater than the size of the string.
TypeNotPresentException	Thrown when an application tries to access a type using a string representing the type's name, but no definition for the type with the specified name can be found.

UnsupportedOperationException	Thrown to indicate that the requested operation is not supported.

请求的操作不支持

Error Summary

Error	Description
AbstractMethodError	Thrown when an application tries to call an abstract method.
AssertionError	Thrown to indicate that an assertion has failed.
BootstrapMethodError	Thrown to indicate that an `invokedynamic` instruction has failed to find its bootstrap method, or the bootstrap method has failed to provide a **call site** with a **target** of the correct **method type**.
ClassCircularityError	Thrown when the Java Virtual Machine detects a circularity in the superclass hierarchy of a class being loaded.
ClassFormatError	Thrown when the Java Virtual Machine attempts to read a class file and determines that the file is malformed or otherwise cannot be interpreted as a class file.
Error	An `Error` is a subclass of `Throwable` that indicates serious problems that a reasonable application should not try to catch.
ExceptionInInitializerError	Signals that an unexpected exception has occurred in a static initializer.
IllegalAccessError	Thrown if an application attempts to access or modify a field, or to call a method that it does not have access to.
IncompatibleClassChangeError	Thrown when an incompatible class change has occurred to some class definition.
InstantiationError	Thrown when an application tries to use the Java `new` construct to instantiate an abstract class or an interface.
InternalError	Thrown to indicate some unexpected internal error has occurred in the Java Virtual Machine.
LinkageError	Subclasses of `LinkageError` indicate that a class has some dependency on another class; however, the latter class has incompatibly changed after the compilation of the former class.
NoClassDefFoundError	Thrown if the Java Virtual Machine or a `ClassLoader` instance tries to load in the definition of a class (as part of a normal method call or as part of creating a new instance using the `new` expression) and no definition of the class could be found.
NoSuchFieldError	Thrown if an application tries to access or modify a specified field of an object, and that object no longer has that field.
NoSuchMethodError	Thrown if an application tries to call a specified method of a class (either static or instance), and that class no longer has a definition of that method.
OutOfMemoryError	Thrown when the Java Virtual Machine cannot allocate an object because it is out of memory, and no more memory could be made available by the garbage collector.
StackOverflowError	Thrown when a stack overflow occurs because an application recurses too deeply.
ThreadDeath	An instance of `ThreadDeath` is thrown in the victim thread when the (deprecated) `Thread.stop()` method is invoked.
UnknownError	Thrown when an unknown but serious exception has occurred in the Java Virtual Machine.
UnsatisfiedLinkError	Thrown if the Java Virtual Machine cannot find an appropriate native-language definition of a method declared `native`.
UnsupportedClassVersionError	Thrown when the Java Virtual Machine attempts to read a class file and determines that the major and minor version numbers in the file are not supported.
VerifyError	Thrown when the "verifier" detects that a class file, though well formed, contains some sort of internal inconsistency or security problem.
VirtualMachineError	Thrown to indicate that the Java Virtual Machine is broken or has run out of resources necessary for it to continue operating.

没有更多的内存分配对象

应用递归地太深发生栈溢出

Annotation Types Summary

Annotation Type	Description
Deprecated	A program element annotated @Deprecated is one that programmers are discouraged from using, typically because it is dangerous, or because a better alternative exists.
Override	Indicates that a method declaration is intended to override a method declaration in a supertype.
SafeVarargs	A programmer assertion that the body of the annotated method or constructor does not perform potentially unsafe operations on its varargs parameter.
SuppressWarnings	Indicates that the named compiler warnings should be suppressed in the annotated element (and in all program elements contained in the annotated element).

Package java.lang Description

提供设计的基础类 最重要的类是 Object，其是类层次结构的根。Class 表示运行时的类实例

Provides classes that are fundamental to the design of the Java programming language. The most important classes are `Object`, which is the root of the class hierarchy, and `Class`, instances of which represent classes at run time.

基本类型的包装类

Frequently it is necessary to represent a value of primitive type as if it were an object. The wrapper classes `Boolean`, `Character`, `Integer`, `Long`, `Float`, and `Double` serve this purpose. An object of type `Double`, for example, contains a field whose type is double, representing that value in such a way that a reference to it can be stored in a variable of reference type. These classes also provide a number of methods for converting among primitive values, as well as supporting such standard methods as equals and hashCode. The `Void` class is a non-instantiable class that holds a reference to a `Class` object representing the type void.

The class `Math` provides commonly used mathematical functions such as sine, cosine, and square root. The classes `String`, `StringBuffer`, and `StringBuilder` similarly provide commonly used operations on character strings.

提供公共的字符串操作 提供系统操作

Classes `ClassLoader`, `Process`, `ProcessBuilder`, `Runtime`, `SecurityManager`, and `System` provide "system operations" that manage the dynamic loading of classes, creation of external processes, host environment inquiries such as the time of day, and enforcement of security policies.

管理类型的动态加载、主机环境调查、安全策略的执行

Class `Throwable` encompasses objects that may be thrown by the `throw` statement. Subclasses of `Throwable` represent errors and exceptions.

Throwable 的子类表示错误和异常

Character Encodings 字符编码

描述字符编码的命名规范

The specification of the `java.nio.charset.Charset` class describes the naming conventions for character encodings as well as the set of standard encodings that must be supported by every implementation of the Java platform.

Since:

JDK1.0