**Java Keywords and annotations**

[**abstract**](https://en.wikipedia.org/wiki/Abstract_type)

In front of a `class` keyword, prevents this class to be directly instantiated. In front of a method signature, allows the implementation of this method to be deferred to an inheriting class.

[**assert**](https://en.wikipedia.org/wiki/Assertion_(software_development))

Assert describes a predicate (a true–false statement) placed in a java-program to indicate that the developer thinks that the predicate is always true at that place. If an assertion evaluates to false at run-time, an assertion failure results, which typically causes execution to abort. Optionally enable by ClassLoader method.

[**boolean**](https://en.wikipedia.org/wiki/Boolean_data_type)

Defines a boolean variable for the values "true" or "false" only (NB: "null" as in class Boolean is not allowed).

[**break**](https://en.wikipedia.org/wiki/Switch_statement)

Used to end the execution in the current loop body.

[**byte**](https://en.wikipedia.org/wiki/Byte)

Defines a byte variable representing a sequence of 8 bits. (NB: Only 1-byte-characters can be used, f.i. '€' would produce an error).

[**case**](https://en.wikipedia.org/wiki/Switch_statement)

A statement in the [switch](https://en.wikipedia.org/wiki/List_of_Java_keywords#switch) block can be labeled with one or more [case](https://en.wikipedia.org/wiki/List_of_Java_keywords#case) or [default](https://en.wikipedia.org/wiki/List_of_Java_keywords#default) labels. The [switch](https://en.wikipedia.org/wiki/List_of_Java_keywords#switch) statement evaluates its expression, then executes all statements that follow the matching [case](https://en.wikipedia.org/wiki/List_of_Java_keywords#case) label; see [switch](https://en.wikipedia.org/wiki/List_of_Java_keywords#switch).[[3]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-switch-3)

[**catch**](https://en.wikipedia.org/wiki/Exception_handling_syntax#Java)

Used in conjunction with a try block and an optional finally block. The statements in the catch block specify what to do if a specific type of exception is thrown by the try block.

[**char**](https://en.wikipedia.org/wiki/Character_(computing))

Defines a character variable capable of holding any character of the java source file's character set (NB: Physical storage may exceed one byte).

[**class**](https://en.wikipedia.org/wiki/Class_(computer_science)#Java)

A type that defines the implementation of a particular kind of object. A class definition defines [instance](https://en.wikipedia.org/wiki/Object_(computer_science)) and class [fields](https://en.wikipedia.org/wiki/Field_(computer_science)" \o "Field (computer science)),[methods](https://en.wikipedia.org/wiki/Method_(computer_science)), and [inner classes](https://en.wikipedia.org/wiki/Inner_class) as well as specifying the [interfaces](https://en.wikipedia.org/wiki/Interface_(computer_science)) the class implements and the immediate [superclass](https://en.wikipedia.org/wiki/Superclass_(computer_science)) of the class. If the superclass is not explicitly specified, the superclass is implicitly [Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html). The class keyword can also be used in the form Class**.class** to get a Class object without needing an instance of that class. For example,**String.class** can be used instead of doing **new String().getClass()**.

[**const**](https://en.wikipedia.org/wiki/Constant_(programming))

Although reserved as a keyword in Java, const is not used and has no function.[[2]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-keywords-2)[[1]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200520-1) For defining constants in java, see the 'final' reserved word.

[**continue**](https://en.wikipedia.org/wiki/Continue_(Java))

Used to resume program execution at the end of the current loop body. If followed by a label, continue resumes execution at the end of the enclosing labeled loop body.

[**default**](https://en.wikipedia.org/wiki/Switch_statement)

The default keyword can optionally be used in a [switch statement](https://en.wikipedia.org/wiki/Switch_statement) to label a block of statements to be executed if nocase matches the specified value; see [*switch*](https://en.wikipedia.org/wiki/List_of_Java_keywords#switch).[[3]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-switch-3)[[4]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200546-48-4) Alternatively, the default keyword can also be used to declare default values in a [Java annotation](https://en.wikipedia.org/wiki/Java_annotation). From Java 8 onwards, the default keyword is also used to specify that a method in an interface provides the default implementation of an optional method.

[**do**](https://en.wikipedia.org/wiki/Do_while_loop)

The do keyword is used in conjunction with [while](https://en.wikipedia.org/wiki/List_of_Java_keywords#while) to create a [do-while loop](https://en.wikipedia.org/wiki/Do-while_loop), which executes a block of statements associated with the loop and then tests a boolean expression associated with the while. If the expression evaluates totrue, the block is executed again; this continues until the expression evaluates to false.[[5]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-do-while-5)[[6]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200548-49-6)

[**double**](https://en.wikipedia.org/wiki/Double_precision)

The double keyword is used to declare a variable that can hold a 64-bit [double precision](https://en.wikipedia.org/wiki/Double_precision) [IEEE 754](https://en.wikipedia.org/wiki/IEEE_754) [floating-point number](https://en.wikipedia.org/wiki/Floating-point_number).[[7]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-primitive-7)[[8]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200522-8) This keyword is also used to declare that a method returns a value of the primitive type double.[[9]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-return-9)[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**else**](https://en.wikipedia.org/wiki/Conditional_(programming))

The else keyword is used in conjunction with [if](https://en.wikipedia.org/wiki/List_of_Java_keywords#if) to create an [if-else statement](https://en.wikipedia.org/wiki/Conditional_(programming)), which tests a [boolean expression](https://en.wikipedia.org/wiki/Boolean_expression" \o "Boolean expression); if the expression evaluates to true, the block of statements associated with the if are evaluated; if it evaluates tofalse, the block of statements associated with the else are evaluated.[[11]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-if-else-11)[[12]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200544-46-12)

[**enum**](https://en.wikipedia.org/wiki/Enumerated_type)**(as of**[**J2SE 5.0**](https://en.wikipedia.org/wiki/Java_version_history#J2SE_5.0_.28September_30.2C_2004.29)**)**

A Java keyword used to declare an [enumerated type](https://en.wikipedia.org/wiki/Enumerated_type). Enumerations extend the base class [Enum](https://docs.oracle.com/javase/8/docs/api/java/lang/Enum.html).

[**extends**](https://en.wikipedia.org/wiki/Inheritance_(object-oriented_programming))

Used in a class declaration to specify the superclass; used in an interface declaration to specify one or more superinterfaces. Class X extends class Y to add functionality, either by adding fields or methods to class Y, or by overriding methods of class Y. An interface Z extends one or more interfaces by adding methods. Class X is said to be a subclass of class Y; Interface Z is said to be a subinterface of the interfaces it extends.

Also used to specify an upper bound on a type parameter in Generics.

[**final**](https://en.wikipedia.org/wiki/Final_(Java))

Define an entity once that cannot be changed nor derived from later. More specifically: a final class cannot be subclassed, a final method cannot be overridden, and a final variable can occur at most once as a left-hand expression on an executed command. All methods in a final class are implicitly final.

[**finally**](https://en.wikipedia.org/wiki/Exception_handling_syntax#Java)

Used to define a block of statements for a block defined previously by the try keyword. The finally block is executed after execution exits the try block and any associated catch clauses regardless of whether an exception was thrown or caught, or execution left method in the middle of the try or catch blocks using the return keyword.

[**float**](https://en.wikipedia.org/wiki/Single_precision)

The float keyword is used to declare a variable that can hold a 32-bit [single precision](https://en.wikipedia.org/wiki/Single_precision) IEEE 754 floating-point number.[[7]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-primitive-7)[[8]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200522-8) This keyword is also used to declare that a method returns a value of the primitive type float.[[9]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-return-9)[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**for**](https://en.wikipedia.org/wiki/For_loop)

The for keyword is used to create a [for loop](https://en.wikipedia.org/wiki/For_loop), which specifies a variable initialization, a [boolean expression](https://en.wikipedia.org/wiki/Boolean_expression" \o "Boolean expression), and an incrementation. The variable initialization is performed first, and then the boolean expression is evaluated. If the expression evaluates to true, the block of statements associated with the loop are executed, and then the incrementation is performed. The boolean expression is then evaluated again; this continues until the expression evaluates to false.[[13]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-for-13)

As of [J2SE 5.0](https://en.wikipedia.org/wiki/J2SE_5.0), the for keyword can also be used to create a so-called "[enhanced for loop](https://en.wikipedia.org/wiki/Foreach)",[[14]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200550-54-14) which specifies an[array](https://en.wikipedia.org/wiki/Array_data_type) or [Iterable](https://docs.oracle.com/javase/8/docs/api/java/lang/Iterable.html) object; each iteration of the loop executes the associated block of statements using a different element in the array or Iterable.[[13]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-for-13)

[**goto**](https://en.wikipedia.org/wiki/GOTO)

Although reserved as a keyword in Java, goto is not used and has no function.[[2]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-keywords-2)[[1]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200520-1)

[**if**](https://en.wikipedia.org/wiki/If_statement)

The if keyword is used to create an [if statement](https://en.wikipedia.org/wiki/If_statement), which tests a [boolean expression](https://en.wikipedia.org/wiki/Boolean_expression" \o "Boolean expression); if the expression evaluates totrue, the block of statements associated with the if statement is executed. This keyword can also be used to create an[if-else statement](https://en.wikipedia.org/wiki/Conditional_(programming)); see [*else*](https://en.wikipedia.org/wiki/List_of_Java_keywords#else).[[11]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-if-else-11)[[12]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200544-46-12)

**implements**

Included in a class declaration to specify one or more [interfaces](https://en.wikipedia.org/wiki/Interface_(Java)) that are implemented by the current class. A class inherits the types and abstract methods declared by the interfaces.

**import**

Used at the beginning of a [source file](https://en.wikipedia.org/wiki/Source_file) to specify classes or entire [Java packages](https://en.wikipedia.org/wiki/Java_package) to be referred to later without including their package names in the reference. Since J2SE 5.0, import statements can import static members of a class.

**instanceof**

A [binary operator](https://en.wikipedia.org/wiki/Operator_(programming)) that takes an object reference as its first operand and a class or interface as its second operand and produces a boolean result. The instanceof operator evaluates to true if and only if the runtime type of the object is assignment compatible with the class or interface.

[**int**](https://en.wikipedia.org/wiki/Integer_(computer_science))

The int keyword is used to declare a variable that can hold a 32-bit signed two's complement integer.[[7]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-primitive-7)[[8]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200522-8) This keyword is also used to declare that a method returns a value of the primitive type int.[[9]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-return-9)[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**interface**](https://en.wikipedia.org/wiki/Interface_(Java))

Used to declare a special type of class that only contains abstract methods, constant (static final) fields andstatic interfaces. It can later be implemented by classes that declare the interface with the implements keyword.

[**long**](https://en.wikipedia.org/wiki/Long_integer)

The long keyword is used to declare a variable that can hold a 64-bit signed two's complement integer.[[7]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-primitive-7)[[8]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200522-8) This keyword is also used to declare that a method returns a value of the primitive type long.[[9]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-return-9)[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**native**](https://en.wikipedia.org/wiki/Java_Native_Interface)

Used in method declarations to specify that the method is not implemented in the same Java source file, but rather in another language.[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**new**](https://en.wikipedia.org/wiki/Object_lifetime#Java)

Used to create an instance of a class or array object. Using keyword for this end is not completely necessary (as exemplified by [Scala](https://en.wikipedia.org/wiki/Scala_(programming_language))), though it serves two purposes: it enables the existence of different namespace for methods and class names, it defines statically and locally that a fresh object is indeed created, and of what runtime type it is (arguably introducing dependency into the code).

[**package**](https://en.wikipedia.org/wiki/Java_package)

A group of types. Packages are declared with the package keyword.

[**private**](https://en.wikibooks.org/wiki/Java_Programming/Classes,_Objects_and_Types)

The private keyword is used in the declaration of a method, field, or inner class; private members can only be accessed by other members of their own class.[[15]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-access-15)

[**protected**](https://en.wikibooks.org/wiki/Java_Programming/Classes,_Objects_and_Types)

The protected keyword is used in the declaration of a method, field, or inner class; protected members can only be accessed by members of their own class, that class's [subclasses](https://en.wikipedia.org/wiki/Inheritance_(object-oriented_programming)) or classes from the same [package](https://en.wikipedia.org/wiki/Java_package).[[15]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-access-15)

[**public**](https://en.wikibooks.org/wiki/Java_Programming/Classes,_Objects_and_Types)

The public keyword is used in the declaration of a class, method, or field; public classes, methods, and fields can be accessed by the members of any class.[[15]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-access-15)

[**return**](https://en.wikipedia.org/wiki/Method_(computer_science))

Used to finish the execution of a method. It can be followed by a value required by the method definition that is returned to the caller.

[**short**](https://en.wikipedia.org/wiki/Short_integer)

The short keyword is used to declare a field that can hold a 16-bit signed two's complement integer.[[7]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-primitive-7)[[8]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200522-8) This keyword is also used to declare that a method returns a value of the primitive type short.[[9]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-return-9)[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**static**](https://en.wikipedia.org/wiki/Static_variable)

Used to declare a field, method, or inner class as a class field. Classes maintain one copy of class fields regardless of how many instances exist of that class. static also is used to define a method as a class method. Class methods are[bound](https://en.wikipedia.org/wiki/Name_binding) to the class instead of to a specific instance, and can only operate on class fields. (Classes and interfaces declared as static members of another class or interface are actually top-level classes and are *not* inner classes.)

[**strictfp**](https://en.wikipedia.org/wiki/Strictfp)**(as of**[**J2SE 1.2**](https://en.wikipedia.org/wiki/Java_version_history#J2SE_1.2_.28December_8.2C_1998.29)**)**

A Java keyword used to restrict the precision and rounding of floating point calculations to ensure portability.[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10)

[**super**](https://en.wikipedia.org/wiki/Inheritance_(object-oriented_programming))

Used to access members of a class inherited by the class in which it appears. Allows a subclass to access [overridden](https://en.wikipedia.org/wiki/Method_overriding_(programming)" \o "Method overriding (programming))methods and hidden members of its superclass. The super keyword is also used to forward a call from a constructor to a constructor in the superclass.

Also used to specify a lower bound on a type parameter in Generics.

[**switch**](https://en.wikipedia.org/wiki/Switch_statement)

The switch keyword is used in conjunction with [case](https://en.wikipedia.org/wiki/List_of_Java_keywords#case) and [default](https://en.wikipedia.org/wiki/List_of_Java_keywords#default) to create a [switch statement](https://en.wikipedia.org/wiki/Switch_statement), which evaluates a variable, matches its value to a specific case, and executes the block of statements associated with that case. If nocase matches the value, the optional block labelled by default is executed, if included.[[3]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-switch-3)[[4]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200546-48-4)

[**synchronized**](https://en.wikipedia.org/wiki/Mutual_exclusion)

Used in the declaration of a method or code block to acquire the [mutex](https://en.wikipedia.org/wiki/Mutex" \o "Mutex) lock for an object while the current [thread](https://en.wikipedia.org/wiki/Thread_(computer_science)" \o "Thread (computer science))executes the code.[[10]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200566-67-10) For static methods, the object locked is the class's Class. Guarantees that at most one thread at a time operating on the same object executes that code. The mutex lock is automatically released when execution exits the synchronized code. Fields, classes and interfaces cannot be declared as *synchronized*.

[**this**](https://en.wikipedia.org/wiki/This_(Java))

Used to represent an instance of the class in which it appears. this can be used to access class members and as a reference to the current instance. The this keyword is also used to forward a call from one constructor in a class to another constructor in the same class.

[**throw**](https://en.wikipedia.org/wiki/Exception_handling_syntax#Java)

Causes the declared exception instance to be thrown. This causes execution to continue with the first enclosing exception handler declared by the catch keyword to handle an assignment compatible exception type. If no such exception handler is found in the current method, then the method returns and the process is repeated in the calling method. If no exception handler is found in any method call on the stack, then the exception is passed to the thread's uncaught exception handler.

[**throws**](https://en.wikipedia.org/wiki/Exception_handling_syntax#Java)

Used in method declarations to specify which exceptions are not handled within the method but rather passed to the next higher level of the program. All uncaught exceptions in a method that are not instances of RuntimeExceptionmust be declared using the throws keyword.

[**transient**](https://en.wikipedia.org/wiki/Transient_(computer_programming))

Declares that an instance field is not part of the default [serialized](https://en.wikipedia.org/wiki/Serialization) form of an object. When an object is serialized, only the values of its non-transient instance fields are included in the default serial representation. When an object is deserialized, transient fields are initialized only to their default value. If the default form is not used, e.g. when a*serialPersistentFields* table is declared in the class hierarchy, all transient keywords are ignored.[[16]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-serialSpec-16)[[17]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-transient1-17)

**[try](https://en.wikipedia.org/wiki/Exception_handling_syntax" \l "Java" \o "Exception handling syntax)**

Defines a block of statements that have exception handling. If an exception is thrown inside the try block, an optionalcatch block can handle declared exception types. Also, an optional finally block can be declared that will be executed when execution exits the try block and catch clauses, regardless of whether an exception is thrown or not. A try block must have at least one catch clause or a finally block.

[**void**](https://en.wikipedia.org/wiki/Void_return_type)

The void keyword is used to declare that a method does not return any value.[[9]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-return-9)

[**volatile**](https://en.wikipedia.org/wiki/Volatile_variable)

Used in field declarations to specify that the variable is modified [asynchronously](https://en.wikipedia.org/wiki/Concurrent_computing) by concurrently running threads. Methods, classes and interfaces thus cannot be declared *volatile*, nor can local variables or parameters.

[**while**](https://en.wikipedia.org/wiki/Do_while_loop)

The while keyword is used to create a [while loop](https://en.wikipedia.org/wiki/While_loop), which tests a [boolean expression](https://en.wikipedia.org/wiki/Boolean_expression" \o "Boolean expression) and executes the block of statements associated with the loop if the expression evaluates to true; this continues until the expression evaluates to false. This keyword can also be used to create a [do-while loop](https://en.wikipedia.org/wiki/Do-while_loop); see [*do*](https://en.wikipedia.org/wiki/List_of_Java_keywords#do).[[5]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-do-while-5)[[6]](https://en.wikipedia.org/wiki/List_of_Java_keywords#cite_note-FOOTNOTEFlanagan200548-49-6)

Reserved words for literal values[[edit](https://en.wikipedia.org/w/index.php?title=List_of_Java_keywords&action=edit&section=2" \o "Edit section: Reserved words for literal values)]

[**false**](https://en.wikipedia.org/wiki/Truth_value)

A boolean literal value.

[**null**](https://en.wikipedia.org/wiki/Null_pointer)

A reference literal value.

[**true**](https://en.wikipedia.org/wiki/Truth_value)

A boolean literal value.

**Annotations applied to Java code:**

* @Override - Checks that the method is an override. Causes a compile error if the method is not found in one of the parent classes or implemented interfaces.
* @Deprecated - Marks the method as obsolete. Causes a compile warning if the method is used.
* @SuppressWarnings - Instructs the compiler to suppress the [compile time](https://en.wikipedia.org/wiki/Compile_time) warnings specified in the annotation parameters.
* @SafeVarargs - Suppress warnings for all callers of a method or constructor with a generics varargs parameter, since Java 7.
* @FunctionalInterface - Specifies that the type declaration is intended to be a [functional interface](https://en.wikipedia.org/wiki/Anonymous_function), since Java 8.

**Annotations applied to other annotations (also known as "Meta Annotations"):**

* @Retention - Specifies how the marked annotation is stored—Whether in code only, compiled into the class, or available at runtime through reflection.
* @Documented - Marks another annotation for inclusion in the documentation.
* @Target - Marks another annotation to restrict what kind of Java elements the annotation may be applied to.
* @Inherited - Marks another annotation to be inherited to subclasses of annotated class (by default annotations are not inherited to subclasses).
* @Repeatable - Specifies that the annotation can be applied more than once to the same declaration, since Java 8.