

3.4 Built-in Exceptions

Several exception classes are defined in the standard package `java.lang`. These exceptions are subclasses of the standard type `RuntimeException`.

There are two types of exceptions

1. Unchecked Exceptions
2. Checked Exceptions

1. Unchecked Exceptions

These are the exceptions that are not checked at compile time. In C++, all exceptions are unchecked, so it is not forced by the compiler to either handle or specify the exception. It is up to the programmers to be civilized, and specify or catch the exceptions.

2. Checked Exceptions

These are the exceptions that are checked at compile time. If some code within a method throws a checked exception, then the method must either handle the exception or it must specify the exception using *throws* keyword.

3.4.1 Unchecked Exceptions

Exception	Meaning
<code>ArithmeticException</code>	Arithmetic error, such as divide-by-zero.
<code>ArrayIndexOutOfBoundsException</code>	Array index is out-of-bounds.
<code>ArrayStoreException</code>	Assignment to an array element of an incompatible type.
<code>ClassCastException</code>	Invalid cast.
<code>EnumConstantNotPresentException</code>	An attempt is made to use an undefined enumeration value.
<code>IllegalArgumentException</code>	Illegal argument used to invoke a method.
<code>IllegalMonitorStateException</code>	Illegal monitor operation, such as waiting on an unlocked thread.
<code>IllegalStateException</code>	Environment or application is in incorrect state.
<code>IllegalThreadStateException</code>	Requested operation not compatible with current thread state.
<code>IndexOutOfBoundsException</code>	Some type of index is out-of-bounds.
<code>NegativeArraySizeException</code>	Array created with a negative size.

NullPointerException	Invalid use of a null reference.
NumberFormatException	Invalid conversion of a string to a numeric format.
SecurityException	Attempt to violate security.
StringIndexOutOfBoundsException	Attempt to index outside the bounds of a string.
TypeNotPresentException	Type not found.
UnsupportedOperationException	An unsupported operation was encountered.

Table 3.1 Java Unchecked RuntimeException subclasses

3.4.2 Checked Exceptions

Exception	Meaning
ClassNotFoundException	Class not found.
CloneNotSupportedException	Attempt to clone an object that does not implement the Cloneable interface.
IllegalAccessException	Access to a class is denied.
InstantiationException	Attempt to create an object of an abstract class or interface.
InterruptedException	One thread has been interrupted by another thread.
NoSuchFieldException	A requested field does not exist.
NoSuchMethodException	A requested method does not exist.
ReflectiveOperationException	Superclass of reflection-related exceptions.

Table 3.2 Java checked RuntimeException subclasses