

Instanceof and getClass()

Java has two ways to determine what class an object is: operator `instanceof` and function `getClass()`.

1. instanceof operator

The instanceof operation has the syntax:

`<object> instanceof <class-name>`

Its evaluation yields true if the object has a partition named `<class-name>` and false otherwise. Identifier `instanceof` is a keyword of Java and cannot be use as a variable name.

Here are examples, using variable `s` and the object to which it points shown at the bottom of this page.

| | | | |
|----------------------------------|---------|----------------------------------|----------|
| <code>s instanceof Object</code> | is true | <code>s instanceof JFrame</code> | is false |
| <code>s instanceof C</code> | is true | <code>s instanceof Time</code> | is false |
| <code>s instanceof S</code> | is true | | |

Checking the specific class with getClass()

Sometimes, you need to check whether an object was created using `new C(...)` —whether the name on its bottom partition is `C`. We explain how to do this.

Java has a class `java.lang.Class` each instance of which contains information about a class. You can't create an instance of class `Class`; Java does that automatically. For example,

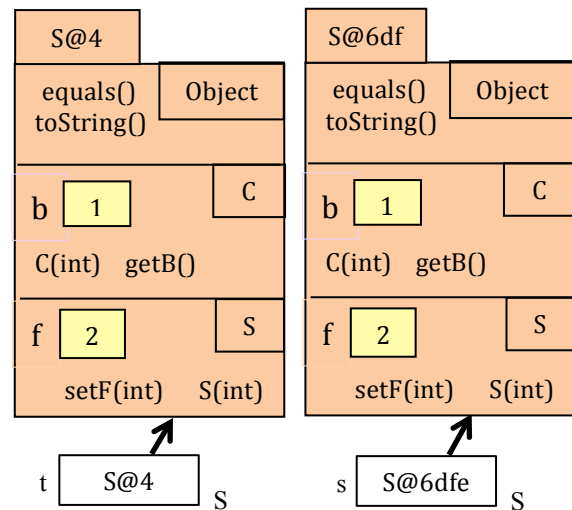
For any class `C`, static field `C.class` is an object of class `Class` that describes `C`. For example, object `JFrame.class` describes class `JFrame`.

You can use the object to find out things about the class. For example, the call `JFrame.class.getFields()` gives you an array that describes all the fields declared in class `JFrame`!¹ For our purposes here, we need only function `getClass`:

For an object `ob`, function `ob.getClass()` returns an object of class `Class` that describes the class of `ob` —the class whose name is on its bottom partition.

We provide some examples using variable `s` that appears at the bottom of this page.

| | |
|---|----------|
| <code>s.getClass() == Object.class</code> | is false |
| <code>s.getClass() == C.class</code> | is false |
| <code>s.getClass() == JFrame.class</code> | is false |
| <code>s.getClass() == S.class</code> | is true |
| <code>s.getClass() == t.getClass()</code> | is true |



¹ Class `Class` is part of Java's *reflection* mechanism, which allows you, within a program, to get all sorts of information about the classes in the program. A full explanation is beyond the scope of this JavaHyperText. Look at JavaHyperText entry "Reflection" for a brief intro and a program that illustrates the use of *reflection*.