Null Object in Java

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Instead of using a null reference to convey absence of an object (for instance, a non-existent customer), one uses an object which implements the expected interface, but whose method body is empty. The advantage of this approach over a working default implementation is that a Null Object is very predictable and has no side effects: it does nothing.

For example, a function may retrieve a list of files in a folder and perform some action on each. In the case of an empty folder, one response may be to throw an exception or return a null reference rather than a list. Thus, the code which expects a list must verify that it in fact has one before continuing, which can complicate the design. By returning a null object (i.e. an empty list) instead, there is no need to verify that the return value is in fact a list. The calling function may simply iterate the list as normal, effectively doing nothing. It is, however, still possible to check whether the return value is a null object (e.g. an empty list) and react differently if desired.

The null object pattern can also be used to act as a stub for testing, if a certain feature such as a database is not available for testing.

```
class NullOutputStream extends OutputStream {
    public void write(int b) {
        // Do nothing
    }
}

class NullPrintStream extends PrintStream {
    public NullPrintStream() {
        super(new NullOutputStream());
    }
}

class Application {
    private PrintStream debugOut;
    public Application(PrintStream debugOut) {
        this.debugOut = debugOut;
    }

    public void doSomething() {
        int sum = 0;
        for (int i = 0; i < 10; i++) {
            sum += i;
            debugOut.println("i = " + i);
        }
        System.out.println("sum = " + sum);
    }
}

public class NullObjectDemo {
    public static void main(String[] args) {
        Application app = new Application(new NullPrintStream());
        app.doSomething();
    }
}
```

Output

```
sum = 45
```

Read next

Code examples

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