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Java by Comparison

Become a Java Craftsman in 70 Examples

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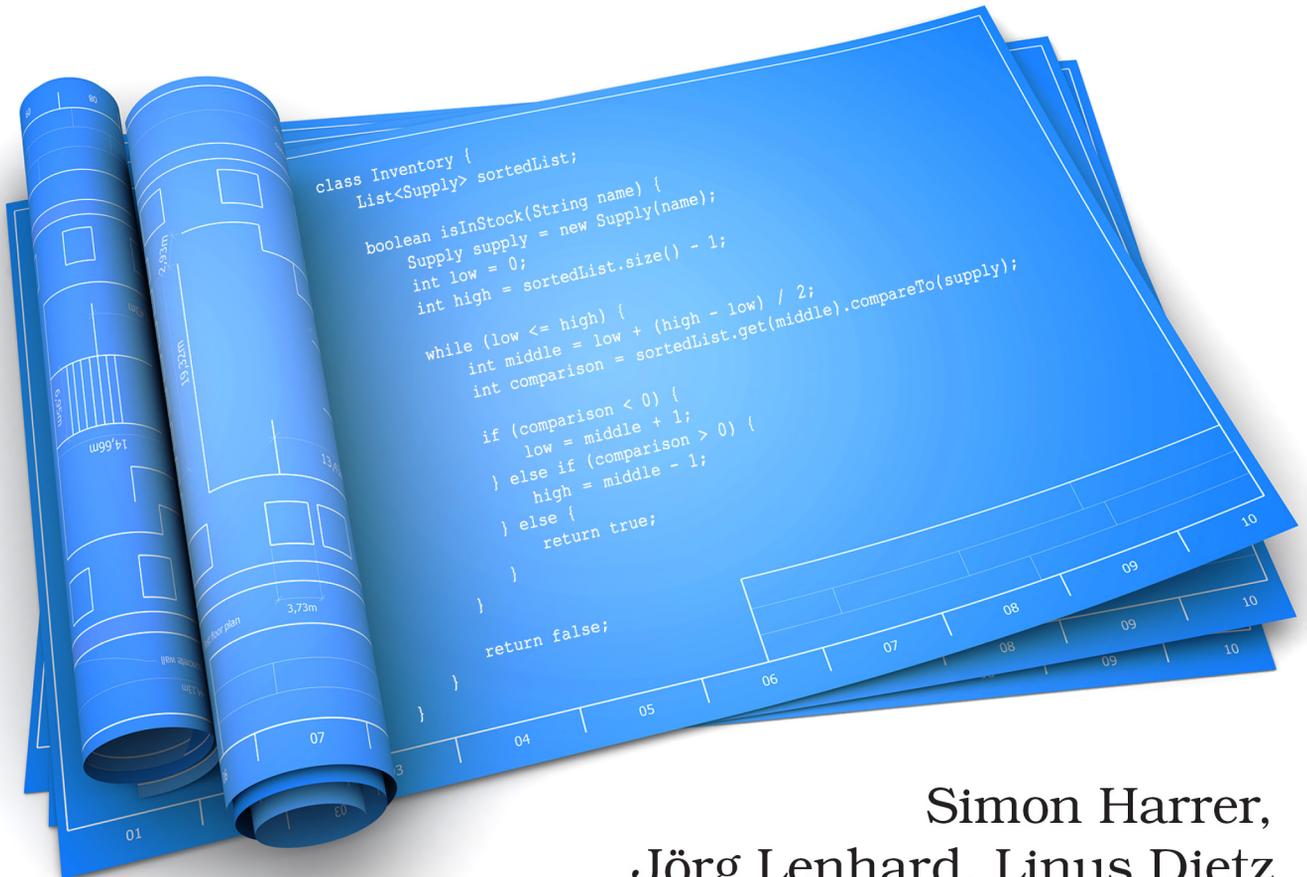
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Become a Java Craftsman
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Split Method with Boolean Parameters

```
class Logbook {  
    static final Path CAPTAIN_LOG = Paths.get("/var/log/captain.log");  
    static final Path CREW_LOG = Paths.get("/var/log/crew.log");  
    void log(String message, boolean classified) throws IOException {  
        if (classified) {  
            writeMessage(message, CAPTAIN_LOG);  
        } else {  
            writeMessage(message, CREW_LOG);  
        }  
    }  
    void writeMessage(String message, Path location) throws IOException {  
        String entry = LocalDate.now() + " " + message;  
        Files.write(location, Collections.singleton(entry),  
            StandardCharsets.UTF_8, StandardOpenOption.APPEND);  
    }  
}
```

In general, a method should specialize on a single task only. Boolean method parameters show that a method does at least two things.

In this example, we're revisiting a refined version of the Logbook class. We separate messages into classified and non-classified messages via a boolean parameter of the log() method. Here's a usage example:

```
logbook.log("Aliens sighted!", true);  
logbook.log("Toilet broken.", false);
```

This code doesn't contain a bug, but it's less readable and structured than it should be. Everybody who reads it will have to figure out what purpose that boolean parameter serves. If people can figure out the purpose, there's still a risk that they'll interpret it the wrong way and write a classified message in the crew log.

Using a boolean value as a method parameter helps you loudly to proclaim that the method does more than one thing. This is sometimes okay, but it generally makes your code less understandable because it's hard to see on the calling side what the boolean parameter actually achieves. Furthermore, the two logs are coupled. If you want to make a change in the logic of the captain's log, you risk that the changes affect the crew log, since they are handled in the same method. That's nothing you want to have, right?

Check out how we can improve this:

```
class Logbook {
    static final Path CAPTAIN_LOG = Paths.get("/var/log/captain.log");
    static final Path CREW_LOG = Paths.get("/var/log/crew.log");
    > void writeToCaptainLog(String message) throws IOException {
        writeMessage(message, CAPTAIN_LOG);
    }
    > void writeToCrewLog(String message) throws IOException {
        writeMessage(message, CREW_LOG);
    }
    void writeMessage(String message, Path location) throws IOException {
        String entry = LocalDate.now() + " " + message;
        Files.write(location, Collections.singleton(entry),
            StandardCharsets.UTF_8, StandardOpenOption.APPEND);
    }
}
```

Whenever you see a method that uses a boolean input parameter, chances are that you can improve the code by separating it into multiple methods.

To do so, you remove the boolean method parameter and add a new method for each control-flow path that the parameter was distinguishing between. You can even give the new methods expressive and meaningful names and further enhance the readability of the code!

This is also what we've done in the code above: we've added the two new methods `writeToCaptainLog()` and `writeToCrewLog()`. Consider the new usage now:

```
logbook.writeToCaptainLog("Aliens sighted!");
logbook.writeToCrewLog("Toilet broken. Again..");
```

As you can see, this is much more readable than the previous version. The method names make it clear which log a message belongs to, and you can tell from the calling code what the method is intended to achieve.

Remember: Good Design Is Difficult

Hardly anybody gets it right on their first try. In the end, this is good news because it means that your skills will be in high demand when you master object-oriented design. But be aware that it's harder to tell good from bad design than it is to spot a botched line of code. Good design is less clear-cut, and it requires you to have an intuition and a "feeling" for it. The only real way to get this intuition is to do a lot of coding, to try out different designs, and to see what fails and what feels just right.