



Source Code Analysis for Checking Java Access Modifiers

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The access modifiers for Java are a mechanism for information hiding and therefore especially important for large projects. An access modifier that is too restrictive is reported as a compilation error. An access modifier that could be more restrictive is however not reported at all. On the long run, changes to a project lead to less restrictive modifiers, if the programmer does not actively work against it. This project is about building a Java source code analysis tool for checking the access modifiers and giving a report to the programmer, where his access modifiers could be more restrictive. The tool should be implemented as a NetBeans plugin and use the NetBeans refactoring APIs.

Features of the source analysis tool include:

- scanning a directory for class files and processing all of them as one unit
- analysis of class modifiers, method modifiers and field modifiers
- the tool needs to analyse the source and search for method calls and field accesses
- HTML report about the results of the analysis
- introduction of Java annotations to guide the analysis (e.g. mark a method as API method that should be visible to the outside)
- report when a method should be declared as static
- report when a method should be declared in a different class
- automatic refactoring that changes the Java source code to restrict the access modifiers

The tool should be tested on several large Java open source programs. Statistics about the results should be included in the thesis.

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