

## Tools description

**PMD** is an open source static source code analyzer that reports on issues found within application code. PMD includes built-in rule sets and supports the ability to write custom rules. PMD does not report compilation errors, as it only can process well-formed source files. Issues reported by PMD are rather inefficient code, or bad programming habits, which can reduce the performance and maintainability of the program if they accumulate. It can analyze files written in Java, JavaScript, Apex and Visualforce, PLSQL, Apache Velocity, XML, and XSL.

### Features

PMD is able to detect flaws or possible flaws in source code, like:

- *Possible bugs*—Empty try/catch/finally/switch blocks.
- *Dead code*—Unused local variables, parameters and private methods.
- Empty if/while statements.
- *Overcomplicated expressions*—Unnecessary if statements, for loops that could be while loops.
- *Suboptimal code*—Wasteful String/StringBuffer usage.
- Classes with high Cyclomatic Complexity measurements.
- *Duplicate code*—Copied/pasted code can mean copied/pasted bugs, and decreases maintainability.

## Find Bugs

This is the web page for FindBugs, a program which uses static analysis to look for bugs in Java code. It is free software, distributed under the terms of the Lesser GNU Public License. The name FindBugs and the FindBugs logo are trademarked by The University of Maryland. FindBugs has been downloaded more than a million times.

--->The current version of FindBugs is 3.0.1.

---->FindBugs requires JRE (or JDK) 1.7.0 or later to run.

However, it can analyze programs compiled for any version of Java, from 1.0 to 1.8.