



Developer Tools

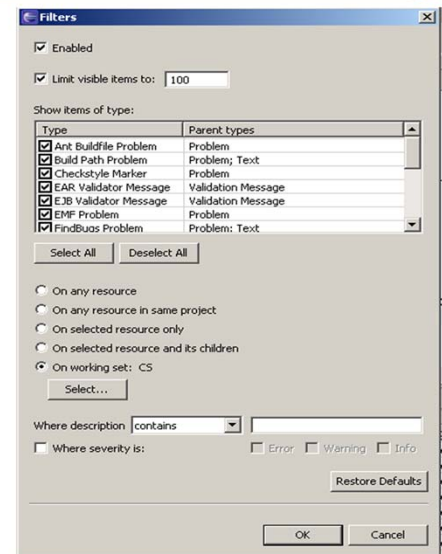
- PMD, Checkstyle and Findbugs are the widely used static code analysis tools in Java development
 - PMD: looks for potential problems, possible bugs, unused and sub-optimal code and over-complicated expressions in the Java source code
 - Checkstyle: scans source code and looks for coding standards, e.g. Sun Code Conventions, JavaDoc
 - Findbug: finds bugs in Java byte code

Configuring tools in Eclipse

- Eclipse code review
- Right click project ->Properties -> Java compiler ->Error/Warning
- Check “Enable project specific settings” and select the appropriate severity level
- PMD
 - Pre Configured
- Find Bugs
 - Pre Configured
- Check Style
 - Pre Configured

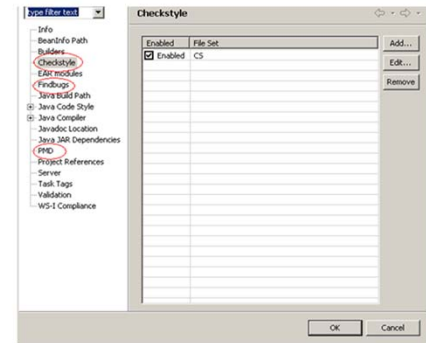
Tools Selection

- Eclipse can be configured to run a particular or all code review tools
 - In the “Problem” panel, click Filter
 - Tools can be selected / de-selected from “Show Items of Type” section
 - Select PMD, Find Bugs or Check style accordingly



Configuring tools in Eclipse

- Rules can be configured according to the specific needs of a project
 - Select the project and right click-> go to properties-> go to Window -> Preference
 - Select the tool that needs to be configured



Configuring tools in Eclipse

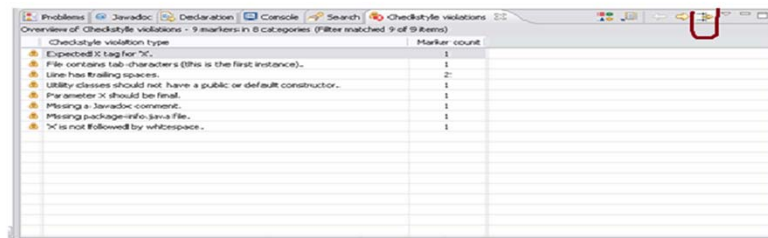
- How to run Eclipse code review tool ?
 - As and when code is typed, the rules will be applied on the fly
- How to view the report ?
 - Issues generated, will be shown on the screen
 - For an error a red color dot will be shown on the LHS of the screen
 - For a warning a yellow color dot will be shown on the LHS

Checkstyle

- Checkstyle tool helps in ensuring that the Java code adheres to a set of coding standards
- Help programmers write Java code that adheres to a coding standard
- Automates the process of checking Java code
- Highly configurable tool
- **URL:** <http://checkstyle.sourceforge.net/>

Configuring Checkstyle tool in Eclipse

- Steps to run Check Style code review tool
 - Select the project, right click -> Properties -> Check Style, and click Add
 - Provide a "File set name" and select "Sun Checks" in Check configuration
 - Click OK
- Steps to view the report
 - Click "Filters" icon in the View panel, and Check "Checkstyle Marker" and click OK



Checkstyle violation type	Marker count
Expected <X> tag for "<X>".	1
File contains tab-character(s) (this is the first instance)...	1
Line has trailing spaces.	2
Utility classes should not have a public or default constructor.	1
Parameter <X> should be final.	1
Missing a Javadoc comment.	1
Missing package-info.java file.	1
<X> is not followed by whitespace.	1

Find Bugs

- Find Bugs uses static analysis of the Java bytecode to identify potential software bugs
- It provides early feedback about potential errors in the code
- This helps the developer to access these problems early in the development phase
- URL: <http://findbugs.sourceforge.net>

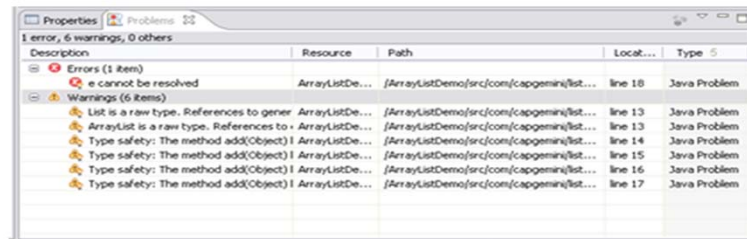


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Appendix B. Code Examples

Configuring Find Bugs tool in Eclipse

- Steps to run the FindBugs review tool
 - Select the Project->Right click and select Find Bugs -> Find Bugs
- Steps to view the report
 - Go to Window ->Show View -> Problems, and Click OK
 - Error report is generated, under "Problem" View



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