

Installing Checkstyle on an IDE is a straightforward process. For **Eclipse**, the process begins by accessing the **Eclipse Marketplace**, a platform where you can find various software development plugins and tools. Within the marketplace, search for ‘Checkstyle’ in the search bar. Once located, click on ‘Install’ to install the plugin which is followed by agreeing to the terms and conditions before the plugin is accessible in the eclipse environment. After installing, the next step consists of configuring the plugin by aligning the settings to the desired coding convention. For our project, the coding convention that was tested against is, Google checks.

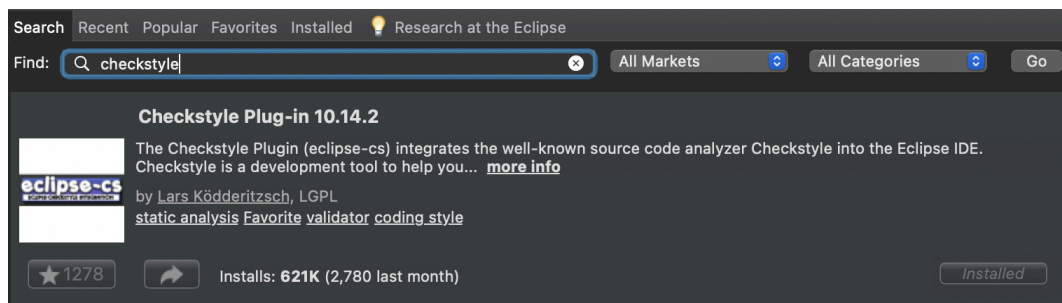


Figure 1: Checkstyle installation process screenshot

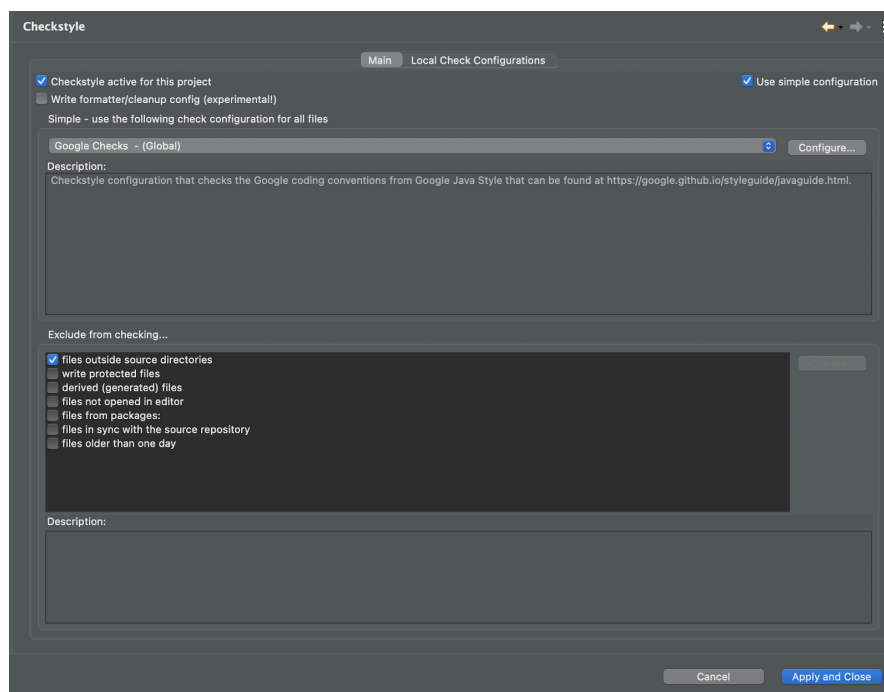


Figure 2: Checkstyle configuration screenshot

Once the settings have been configured, the activation process is quite simple, right click on the project and click on ‘Activate Checkstyle’. Upon activation, Checkstyle is integrated to the project and begins analyzing the java code in real time. The results of

the analysis are presented at the bottom of the ide on a tab called ‘Checkstyle Violations’ where the plugin provides the ‘Violation Type’, the occurrences and where the violation occurs.

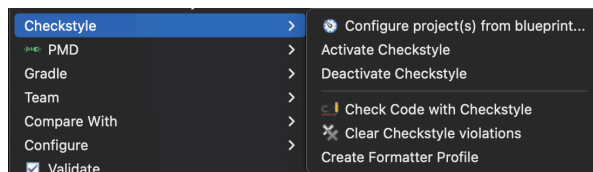


Figure 3: Checkstyle execution screenshot

Overview of Checkstyle violations - 43698 markers in 49 categories (filter matched 43698 of 43698 items)

| Checkstyle violation type | Occurrences |
|--|-------------|
| Wrong lexicographical order for 'X' import. Should be before 'X'. | 609 |
| Using the '*' form of import should be avoided - X. | 78 |
| Unused X tag for 'X'. | 76 |
| Summary javadoc is missing. | 855 |
| Name 'X' must match pattern 'X'. | 115 |
| Missing a Javadoc comment. | 185 |
| Line is longer than X characters (found X). | 1943 |
| Line continuation have incorrect indentation level, expected level should be | 2 |
| Line contains a tab character. | 14179 |
| Javadoc tag 'X' should be preceded with an empty line. | 598 |
| Javadoc comment is placed in the wrong location. | 60 |
| Javadoc comment at column X has parse error. Missed HTML close tag 'X'. | 196 |
| Javadoc comment at column X has parse error. Details: X while parsing X | 28 |
| Import statement for 'X' is in the wrong order. Should be in the 'X' group, ex | 14 |
| GenericWhitespace '>' should be followed by whitespace. | 1 |
| GenericWhitespace '>' is followed by whitespace. | 1 |
| GenericWhitespace '<' is preceded with whitespace. | 6 |
| First sentence of Javadoc is missing an ending period. | 675 |
| Extra separation in import group before 'X' | 262 |
| Empty line should be followed by <p> tag on the next line. | 731 |
| Empty catch block. | 6 |
| Each variable declaration must be in its own statement. | 5 |
| Distance between variable 'X' declaration and its first usage is X, but allowe | 256 |
| Comment has incorrect indentation level X, expected is X, indentation shoul | 45 |
| Block comment has incorrect indentation level X, expected is X, indentation | 47 |
| At-clause should have a non-empty description. | 871 |
| Array brackets at illegal position. | 1 |
| Annotation 'X' have incorrect indentation level X, expected level should be > | 44 |
| All overloaded methods should be placed next to each other. Placing non-o | 4 |
| Abbreviation in name 'X' must contain no more than 'X' consecutive capital | 195 |
| 'X' should be separated from previous line. | 438 |

Figure 4: Checkstyle violations bugs results