Predicting the Behaviour of Open Source Software using Object Oriented Metrics

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Abstract

The aim of this thesis is to study the relationship between maintainability and metrics like lines of code, cyclomatic complexity of open source software. The behavior of open source software can be predicted by calculating maintainability index and reliability index. Prediction of maintainability index will help in better management and maintenance of object oriented software thus reducing the cost of maintenance. The main objective of this thesis is to calculate different metrics like Lines of Code, Cyclomatic Complexity, and Maintainability Index. The study also includes the comparison of these metrics plotted over various open source software. This report summaries the theory about maintainability of different software’s and the impact of these metrics on its maintainability. Open Source Software used for study in this thesis is SweetHome3D, FindBugs, Jacob and Jfree. Analyst4J tool is used to calculate values of metrics used for studying the maintainability of SweetHome3D, FindBugs, Jacob and Jfree. The case study has shown that applying software metrics that would measure the different aspects of software would be useful in analyzing, studying and improving the maintainability of software.
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Index Terms

Computer Science Information Sciences

Keywords

Software Metrics, Object-Oriented Software, OSS, SweetHome3D, FindBugs, JFree and JACOB.