Multidimensional approach for visualizing bug distribution in large software projects

Tibor Brunner, Norbert Pataki, Zoltán Porkoláb

Faculty of Informatics, Eötvös Loránd University

{bruntib, patakino, gsd}@caesar.elte.hu

Successful software systems are under continuous evolution. Maintenance efforts, new features modify or add additional code to the existing code base. Under these activities we must be aware of software quality, avoid its degradation and alert when refactoring seems to be inevitable. For this purpose we continuously collect quality related data from the software: static analysis results, software metrics and other statistics. However, data have to be analysed and presented in a way that the architects and designers could comprehend the information in various context: e.g. related to the number of changes on the code, with the relative distribution of the issues and in connection with the complexity of the given module.

In this paper we show how to collect some of these key quality indicators and how to present them in a clear manner so architects and developers can overview the quality factors organized by nested components of the program in a multidimensional way. This method allows programmers to reason about correctness of the architecture, identify critical components and decide about necessary actions, like refactoring the architecture.