A Proposed Code Inspection Model using Program Slicing Technique

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Abstract

A code review is a manual assessment of the source code to evaluate the code's quality to be integrated into the main project codebase. The code review process is divided into two main categories: formal code reviews (could be called code inspection or heavyweight code) and lightweight code reviews. Both categories have their characteristics that differ their mechanism.

Code inspection is the way to ensure the quality of a software by detecting, correcting or reducing defects. Nowadays, several methods of code inspection developed, most of them consist processing, preparation, analysis, meetings, and reform. However, each code inspection method may face problems in; number of developers, meetings and session, long review time, budget, and defects coverage. Moreover, some programs' users do not tolerate errors during implementation.

In this thesis, a new code inspection model has been proposed that is based on the developer only, without the need for reviews team or sessions and meetings. The new model main idea is to integrate the decomposition program slicing technique into the code inspection process. This will analyze the code by clarifying its details, discover all the defects, and know how to fix them. In addition, it creates reports that facilitate the implementation of the code review process that reduce time, cost and team size. The Decomposition Slicing for Code Inspection Technique (DSCIT) model supposed to be more accurate in detection and resolution of existing defects, because it does not rely entirely on manual work, but most of it is automatic.

Keywords: Code Review, Code Inspection, Slicing Technique, Program Analysis.