Abstract

Regression testing is an expensive testing procedure utilized to validate modified software. Tester struggles to selectively run the relevant tests for pre-testing defects in software. Standard set of tests identified based on features may not include all the impacted tests for pretesting a fix made at different layers. Also, it is inefficient to execute all the tests for a small change in code. Thus to reduce the cost of testing and to improve the effectiveness, there is a need of identifying, selecting and executing impacted tests based on changes in the code. Existing test selection techniques select non-modification revealing and redundant tests. Our system identifies changes made in the code and then selects modification revealing tests using proposed ‘Hybrid’ technique. ‘Hybrid’ technique selects optimal and relevant number of tests that would provide maximum test coverage with minimal number of tests. Proposed technique uses a combination of ‘By Line’ and ‘By Function’ to increase precision. Redundant tests are further reduced with clustering. The idea is to create a database to map the functional tests and C++ code files by collecting coverage data and then grouping tests based on multiple techniques. Finally, integrating this utility into existing testing process for selecting tests based
on changes in the code.

References


Index Terms

Computer Science Information Sciences
Keywords

Regression Test Selection, Clustering.