Analysis of Test Case Prioritization in Regression Testing using Genetic Algorithm

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Abstract

Testing is an accepted technique for improving the quality of developed software with the increase in size and complexity of modern software products, the importance of testing is rapidly growing. Regression testing plays a vital role for software maintenance when software is modified. The main purpose of regression testing is to ensure the bugs are fixed and the new functionality that are incorporated in a new version of a software do not unfavorably affect the correct functionality of the previous version. So to revalidate the modified software, regression testing is the right testing process. Though it is an expensive process which requires executing maintenance process frequently but it becomes necessary for subsequent version of test suites. To evaluate the quality of test cases which are used to test a program. Testing requires execution of a program. In this paper it is proposed a new test case prioritization technique using genetic algorithm. The proposed technique separate the test case detected as severe by customer and among the rest test case prioritizes subsequences of the original test suite so that the new suite, which is to run within a time-constrained execution environment. It will have a superior rate of fault detection when compared to rates of randomly prioritized test suites. This experiment analyzes the genetic algorithm with regard to effectiveness and time overhead by utilizing structurally-based criterion to prioritize test cases.
References

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1977.
- Wei-Tek Tsai, Xiaoying Bai, Ray Paul, Lian Yu. Scenario-Based Functional Regression Testing, COMPSAC 2001
- G. Rothermel and M. J. Harrold, Analyzing Regression Test Selection Techniques,


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