Abstract

There is an enormous amount of research going on to minimize the effect of coupling between the software modules and to reduce the defects present in them. In this paper, an algorithmic approach is proposed that gives a probability, such that the highly dependent modules in system must be analyzed by the development team for fault proneness and defects. The higher the coupling, interdependency between the modules is increased and it is alarming issue in software engineering tasks. There is an enormous amount of research done on direct and indirect coupling, but this paper approaches on the effect of coupling to predict defects and how they are propagating between the modules. Every software product is tested for defects and bugs before it is given to acceptance testing to users. The paper focuses on testing the defect propagation percentage of every module in a dependent system (dependent modules). The greater the percentage of defect propagation factor between two dependent module, implies that the coupling between them is higher and the probability of the module to be fault prone increases. Taking this into consideration, the testing team saves the time by considering more on the modules for which the percentage defect propagation factor is higher. It ensures time, cost and efficiency which are the main factors of a software industry.
An Algorithmic Approach to Predict Fault Propagation and Defects in Dependent Modules based on Coupling

References

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Index Terms

Computer Science
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Keywords
Coupling  Fault detection  Fault Prediction using Coupling  Module Dependency  Testing Strategies  Fault Localization  Defects  Debugging