Regression testing involves re-run of all test suite or selective run of a sub-set of existing test cases on the modified version of program to reveal the regression faults due to changes in code and use of these non obsolete test cases from pre-existing test suite to explore and eradicate regression faults. This paper addresses the fundamental limitations of conventional regression testing approach and presents a spectrum-based fault localization strategy by which the stated limitations are resolved in effective manner. Spectrum-based fault localization strategy utilizes various program spectra to identify the behavioral differences between old and new version of the program under test. This comparison is also useful in pinpointing the cause of failures or errors and presence of difference in program spectra may indicate those test cases for which the construction of expected output or oracle or specification is not needed. The present approach can identify and localize the faults effectively and also identify those test cases from pre-existing test suite available for existing program that exercise the changed behavior of the modified code. Further the developer can easily identify whether the differences recorded in modified version of code is due to regression faults or due to changes made in the code.
Regression Testing: A Spectrum-based Approach

References

- M. -C. Gaudel, Testing can be formal, too, Proceedings of the Sixth International Joint CAAP/FASE Conference on Theory and Practice of Software Development
Regression Testing: A Spectrum-based Approach

- Sample programs are taken for experiments from Software Infrastructures Repository (SIR) http://sir. unl. edu/content/sir. php.

Index Terms

Computer Science
Software Engineering
Keywords