



Software Engineering Seminar

Test Case Selection

Description

The recognition of a bug is the first step on the road to fixing it. As, generally, there does not exist a formal specification for the software system under consideration, a *test suite* is being used to help ensure the correctness of the system. When executing a test suite, a failing test case is an indication of an error that resides in the system.

In large software projects, there can be a considerably large amount of test cases which – with no optimizations – will be executed every time the project is compiled or at least in specific time intervals, e.g. daily. The test suite can be this large that it may not even be possible to execute every test case every time, such that a subset of the test cases has to be selected in a sophisticated manner. The goal of this topic is to obtain an overview over existing techniques for test case selection and to evaluate the different criteria that are applied.

References

- [1] Sebastian Elbaum, Alexey G. Malishevsky, and Gregg Rothermel. Prioritizing Test Cases For Regression Testing. *International Symposium on Software Testing and Analysis*, pages 102–112, 2000.
- [2] Gregg Rothermel and Mary Jean Harrold. A Safe , Efficient Regression Test Selection Technique. *ACM Transactions on Software Engineering and Methodology*, 6(2):173–210, 1997.
- [3] Shin Yoo and Mark Harman. Pareto efficient multi-objective test case selection. *Proceedings of the 2007 international symposium on Software testing and analysis - ISSTA '07*, pages 140–150, 2007.

Contacts

Simon Heiden (heiden@informatik.hu-berlin.de)
Software Engineering Group
Institut für Informatik
Humboldt-Universität zu Berlin