



Thesis Title: Guided Test Execution through Analysis of Test Case Dependencies

Description:

Considering the limitation of resources that are allocated for testing activities, e.g., with respect to time and budget, selection of which test cases to execute and their execution order can play an important role in identification of more severe problems in a software product. Various test case characteristics including dependencies that can exist between test cases can help and provide useful information in making optimal decisions on selection and ordering of test cases for execution. The main goal with this thesis is to implement and apply various techniques in order to identify an optimal order for execution of test cases through analysis of their dependencies. The thesis consists of a research part on how an optimal order can be decided from dependency relationships and an implementation part in which a tool is implemented for visualization and analysis of dependencies. The expected outcomes of the thesis are therefore as follows:

- A method for inference and identification of test case dependencies
- A tool for
 - visualization and analysis of dependencies
 - development of the analysis algorithms
 - producing an ordered set of test cases for execution based on the above analysis

This thesis is defined in the scope of the ongoing research projects at SICS Västerås in the area of testing which are performed in collaboration with different industrial partners such as Bombardier Transportation.

This thesis work is suggested and better-suited for two students.

Competence: Programming experience in Java or C# particularly development of GUIs. Familiarity with software testing is a plus. Good spoken and written English skills are required.

Contact Person:

Mehrdad Saadatmand (mehrdad@sics.se), SICS Swedish ICT, Västerås
Sahar Tahvili (sahart@sics.se), SICS Swedish ICT, Västerås

Application:

To apply please send your CV along with the list of courses you have taken and their grades. In your CV provide a short description of previous projects that you have done.

About SICS:

SICS Swedish ICT is a leading research institute for applied information and communication technology in Sweden, founded in 1985. SICS is non-profit and carries out advanced and focused research in strategic areas of computer science, in close collaboration with Swedish and international industry and academia. The research creates cutting-edge technology, invigorating companies beyond their own R&D.