Master Thesis – Intelligent Test Selection Strategy

Description
In agile software development, small and frequent changes are a preferred way of working. This result in specific requirements on the build and test environment. Currently in one of Ericsson’s development projects, verification is done on several promotion levels. A promotion level can be seen as a larger test suite, and different promotion levels covers different complexity and different test aspects (e.g. smoke tests, feature tests, performance tests). The target resources (were the tests are executed) is one resource limit. However, the test execution time is perhaps the biggest issue; to be really productive, the turnaround time is key!

We would like to investigate the possibility of having a more selective number of test cases depending on what changes that has taken place in the code. Is there a golden set of test cases? Or must we always run all test cases to guarantee quality?

The objective of this thesis is to derive new methods and algorithms to dynamically create subsets of tests that significantly improve execution time and resource utilization. The work will be a combination of theory and practical studies on real product code were the student shall:

• evaluate the efficiency of different test case selections,
• derive efficiency metrics for evaluating different selections, and
• propose an algorithm

Time period
2014Q1-Q2

Qualifications
This project aims at Mater of Science (civilingenjör) students, preferably having a background in Mjukvaruteknik or Datateknik (computer science related). Applicants with less than 4.0 in average grade will not be considered.

Contact person:
JOHAN MOE PhD, Ericsson AB, Linköping
Phone +46 10 7114894
johan.moe@ericsson.com