Abstract

Software evolution is an ongoing process carried out by software maintainer's in order to meet the increasing demand, pressure and requirements for extending base applications for adding new functionalities, for fixing bugs or for adapting software to the changing environments. As a result, it establishes the need for estimating and determining the impact of changes on the overall software system. Impact Analysis is a way to estimate the impact of such changes either before or after the change is made. In the last few decades many such techniques and tools (both static and dynamic) have been proposed. In this paper we propose a new online dynamic impact analysis technique called Definition Usage-Regression Test Selection (DU-Regs), which collects impact traces completely online i.e. during execution. It works at statement level rather than on method level to capture more precise impact sets and at the same time, provides the support for impact visualization for regression testing.

**Index Terms**

Computer Science  
Software Management

**Key words**

Dynamic impact analysis  
regression testing  
software maintenance