

Quality and Coverage Assessment in Software Integration Based On Mutation Testing

Authors : Iyad Alazzam, Kenneth Magel, Izzat Alsmadi

Abstract : The different activities and approaches in software testing try to find the most possible number of errors or failures with the least amount of possible effort. Mutation is a testing approach that is used to discover possible errors in tested applications. This is accomplished through changing one aspect of the software from its original and writes test cases to detect such change or mutation. In this paper, we present a mutation approach for testing software components integration aspects. Several mutation operations related to components integration are described and evaluated. A test case study of several open source code projects is collected. Proposed mutation operators are applied and evaluated. Results showed some insights and information that can help testing activities in detecting errors and improving coverage.

Keywords : software testing, integration testing, mutation, coverage, software design

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020