

Prioritization of Mutation Test Generation with Centrality Measure

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Abstract : Mutation testing can be applied for the quality assessment of test cases. Prioritization of mutation test generation has been a critical element of the industry practice that would contribute to the evaluation of test cases. The industry generally delivers the product under the condition of time to the market and thus, inevitably sacrifices software testing tasks, even though many test cases are required for software verification. This paper presents an approach of applying a social network centrality measure, PageRank, to prioritize mutation test generation. The source code with the highest values of PageRank will be focused first when developing their test cases as these modules are vulnerable to defects or anomalies which may cause the consequent defects in many other associated modules. Moreover, the approach would help identify the reducible test cases in the test suite, still maintaining the same criteria as the original number of test cases.

Keywords : software testing, mutation test, network centrality measure, test case prioritization

Conference Title : ICSTS 2022 : International Conference on Software Testing Strategies

Conference Location : Amsterdam, Netherlands

Conference Dates : August 08-09, 2022