

ABSTRACT

In Software Development Life Cycle, Mutation testing plays an important role to compare and find the fault, during the testing phase. Path testing is one of the methods used in white box testing. In our proposed project, Control Flow Graph technique is used to find the path with the help of Cyclomatic complexity. To find the fault with effectiveness, the three structural graph coverage criteria: Edge Coverage (EC), Edge Pair Coverage (EPC), and Prime Path Coverage (PPC) are used. Mutants are used as proxies for faults. Mutation testing is performed among EC, EPC and PPC. Metrics used to evaluate the path are cost and effectiveness. Cost is analyzed by test requirements. Effectiveness is analyzed using mutation score. Mutation score is calculated with the help of complete set of mutants and minimal set of mutants. Full mutation score has redundant mutants whereas minimal mutation score is the best criterion to compare the effectiveness between graph coverage criteria. In this proposed work, number of Test Requirements (TR) is compared between EC and EPC. Number of TR for EPC is higher than EC. But PPC detects more faults significantly. Thus it leads to higher cost. PPC has a much number of Infeasible TR, which may be an impediment for its practical use.