

## The Effect of Program Type on Mutation Testing: Comparative Study

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**Abstract :** Due to its high computational cost, mutation testing has been neglected by researchers. Recently, many cost and mutants reduction techniques have been developed, improved, and experimented, but few of them has relied the possibility of reducing the cost of mutation testing on the program type of the application under test. This paper is a comparative study between four operators selection techniques (mutants sampling, class level operators, method level operators, and all operators selection) based on the program code type of each application under test. It aims at finding an alternative approach to reveal the effect of code type on mutation testing score. The result of our experiment shows that the program code type can affect the mutation score and that the programs using polymorphism are best suited to be tested with mutation testing.

**Keywords :** equivalent mutant, killed mutant, mutation score, mutation testing, program code type, software testing

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