Ants Optimization for Minimal Test Case Selection and Prioritization as to Reduce the Cost of Regression Testing

Abstract

Software testing is the major process in software development life cycle. Regression testing is very costly and inevitable activity that is to be performed in a restricted environment to ensure the validity of modified software. It is inefficient to re-run every test case from test suite when some kind of modification is done in the software. Test case selection and prioritization techniques select and organize the test cases in a test suite based on some criteria such that the faults are covered quickly with minimum execution time. This task can be done on basis of the Ant Colony Optimization technique (ACO) of Swarm Intelligence as it is not deeply studied yet. The main objective of this thesis is to solve the path problem: Means to find the shortest path and Resolve the time problem: Means to minimize the time of finding shortest path. Because of time and cost constraint, it is not possible to perform extensive regression testing. Techniques such as test case selection and prioritization are used to solve the problem of time and cost constraints. In this paper we are modifying the previous technique to get better results in case of execution time and then the Effectiveness of techniques is checked with the help of APFD metric.
References

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Index Terms

Computer Science  Software Testing

Keywords

ACO  Pheromone  Regression Testing  Test Case Selection  Test Case Prioritization.