Implementation and Analysis of the Bee Colony Optimization algorithm for Fault based Regression Test Suite Prioritization

Abstract

Regression Testing is an important maintenance phase testing activity. The importance of this activity lies in the fact that it imparts confidence and accuracy in the modified code, as well as keeps a check on the unmodified parts, if they are affected or not. But there is a severe requirement to reorder the development testing test suite because of the constrained software development budget, time and effort. So techniques have to be developed to prioritize test cases to reduce budget, time and effort constraints effectively. In this paper implementation and analysis of an existing fault based regression test suite has been done. The prioritization algorithm is based on the nature inspired algorithm called Bee Colony Optimization (BCO) algorithm. The algorithm is a two step procedure which maps the food foraging behavior of scout bee and forager bee one after the other to reach to the solution. The analysis of the examples using the code developed indicates that the two step BCO algorithm is able to produce results which are comparable to optimal results.

References


Index Terms

Computer Science Software Engineering

Keywords

Fault Based Test Suite Prioritization Bee Colony Optimization (bco)