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خلاصه مقاله:

Regression testing reduction is an essential phase in software testing. In this step, the redundant and unnecessary cases are eliminated, whereas software accuracy and performance are not degraded. So far, various researches have been proposed in regression testing reduction field. The main challenge in this area is to provide a method that maintain fault-detection capability while reducing test suites. In this paper, a new test suite reduction technique is proposed based on data mining. In this method, in addition to test suite reduction, its fault-detection capability is preserved using both clustering and classification. In this approach, regression test cases are reduced using a bi-criteria data mining-based method in two levels. In each level, the different and useful coverage criteria and clustering algorithms are used to establish a better compromise between test suite size and the ability of reduced test suite fault detection. The results of the proposed method have been compared to the effects of five other methods based on PSTR and PFDL. The experiments show the efficiency of the proposed method in the test suite reduction in maintaining its capability in fault detection.

کلمات کلیدی:

Test suite reduction, Software, data mining, Coverage criteria, Clustering

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