

Abstract

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Automatic Correction of Programming Faults Using Semantic Networks

Software testing & debugging is a vital stage in the software engineering life cycle. It shows how reliable the software is. This paper is concerned about the automatic correction of some logical programming faults. There are researches that solve this problem by using model-based approach, knowledge-based approach, pattern matching, proof-directed debugging, genetic programming, & patches. Improvements in the performance & types of the corrected bugs vary among those techniques. The proposed technique corrects other bug types with improved performance than the knowledge-based & pattern matching techniques. Semantic networks & rule-based systems together are supportive elements for the proposed technique. A detailed description of the proposed technique is illustrated along with a java prototype called Automatic Correction. A comparison is also conducted among the results of the proposed technique & that of two other well known techniques the Precompiled Fault Detection (PFD) & the After Compilation Fault Correction (ALFC) which the proposed technique was built on. This comparison lightens the contributed points & the improvements existed in the proposed technique. It proves the success & effectiveness of the proposed technique.