Abstract

Specification mining is a dynamic analysis process aimed at automatically inferring suggested specifications of a program from its execution traces. In software development it would be preferable if all programs and software projects are developed with clear, precise and documented specifications. But due to hard deadlines and 'short-time-to-market' requirement, software products often come with project oriented, incomplete and even without any documented specifications. This situation is further motivated by a phenomenon termed as software evolution. As software evolves the documented specification is often not updated. This might render the original documented specification of little use after several cycles of program evolution. The above factors have contributed to high software maintenance costs. In this paper
a novel technique to efficiently mine software specifications, called TM_TraceMiner is proposed which mines software specifications from program execution traces. To address the limitations of Apriori-like methods and FP-growth methods, a mining paradigm has been proposed, which uses Transaction Mapping algorithm.

Reference

Software Specifications Mining using Transaction Mapping Algorithm

Index Terms

Computer Science

Mining

Key words

Algorithms

Apriori

FP-growth

mining

specifications

program execution traces

transaction mapping