User Session based Test Cases Prioritization for Web Applications Testing

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Abstract

Nowadays, web application is crucial for most daily activities that rely on the web services. To improve the quality of reliable web services, web application testing has been used in finding faults under test. User session based testing is one approach to create test cases with real user data that are collected from daily user logs. The main considerable problem is how to reduce the cost of web application testing in time without service interruption. However, real user data is reduced as the test cases, all the reduced test cases cannot be executed completely under time constraints in practice. In this paper, the test cases prioritization criterion is proposed to schedule the test cases in order to improve the rate of fault detection. This criterion is based on two factors, frequency of sequences and dependent count of web pages. Most current techniques use a random method to prioritize test cases when they have the same priority. The proposed prioritization method considers this fact that there are multiple test cases with thesame priority.

Keywords: user session based testing, test cases prioritization, web application testing

1. Introduction

Web application testing is not only an expensive process in terms of time and money but also crucial part for web application. There are several reasons why it is important. First,daily web application services must be available 24/7. Second, the nature of web applications are frequently changed and upgraded due to security attacks and maintenance changes. Furthermore, web application testing must be performed completely in time without service interruption. Testers can detect faults early in the test execution life cycle because failures in this domain cause in losses of web based business or organization.

For web application system, field data has the additional advantage because the usage data is independent of the underlying implementation and server technologies [1]. User session based testing is an automated approach to enhance an initial test suite with real user data. A user session based test case is a sequence of base requests and parameter name value pairs. The advantages of user session based testing are less dependent on heterogeneous system and can generate test cases that reflect actual user behavior. But, there is a considerable issue that is collecting, analyzing and replaying the large amount of test cases generated from user session data [2]. Many researchers presented various reduction and prioritization techniques to solve these issues.

There have been several strategies to prioritize test cases for web applications. We expand on previous work to propose prioritization criteria for web application testing. Entropy bases test cases reduction approach is previously proposed for user session based testing. Even the reduced test suites can be large to execute in some commercial system. Therefore, test cases prioritization method is proposed based on multiple sequences of base requests. The purpose of test cases prioritization lies in ordering test cases based on a particular technique [3]. In this system, multiple base request sequences (sequences of size 2) are ordered with proposed criteria to determine which reduced test cases run at first. We consider frequency of user access requests and dependency of web links by structural analysis. There are two main parts in proposed system: (1) criterion to prioritize user session based test cases and (2) evaluate proposed criterion by using fault detected rate.

Section 2 presents related works concern with user session based test cases reduction and prioritization approaches. In section 3, backgroun theory in user session based testing and test case prioritization. Section 4 describes our proposed syste and evaluation of proposed system in. The conclusio of proposed system is described in section 5.

2. Related Works

S. Roongruangsuwan and J. Daengdej [4 proposed two new efficient prioritization methods t address the problem of failing multiple test case prioritization and same priority cases. This stud