A Survey on Automized Regression Code Based Test Case Generation for Web Application

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ABSTRACT

Regression testing is an important source to ensure such factors for each new released version. It makes a regression testing is a key factor in success. However, regression testing is the most reliable and it has been widely used to gain confidence by providing information about the quality of an application. This paper focussed on different approaches and then its use for web applications. Then, we structure a code based techniques.

Keywords : Regression Testing, Automation Testing, Code Based Approach

I. INTRODUCTION

Software testing is an essential phase of software development life cycle which evaluates the software's quality and efficiency. The main objective of testing is to ensure that the developed software product is free of bugs and errors. When modifications are performed to the current software functionality or there is a defect presenting software then regression testing is done. Automation tools is used in regression testing but in today, regression testing tool is not equipped to handle database application [1]. Few Examples are Regression tester, Selenium, UTP and QTP (Quick Test Professional).

Web applications are playing important roles in various fields like business, researches, medicals, surgery etc. With the change in technology, websites are getting more and more complex day by day in order to satisfy the daily requirement of user. As a result, they introduce some bugs and errors which causes loss of consumer beliefs and organization's potential profit.

There are two methods followed by software testing: manual testing and automated testing. Manual testing suffers the limitations such as: time consuming, costly, need experience, less efficiency etc. Automated testing overcomes these limitations of manual testing. Existing testing tools are not completely automated. This can be possible by making use of automated regression testing of websites with the help of automatically adjusting the logged information according to the modifications done in website[2]. This method involves the use of session data which is a set of actions executed by user. The information is in the form of sequence of URLs with their associated fields. The information can be recorded by making small changes to website code.

When the system goes online, all hidden errors which are not captured during testing time are identified and captured [3]. These errors are reported either by making consumer complaints or on the server logs. This is the main advantage of using session data in automated regression testing. Regression testing has applied different approaches such as

a) Scenerio based approaches- Scenario testing is done to make sure that the software is working fine, or all the business process flows of the software are working fine [4].

b) Speacification based approaches- It provides an effective approach for testing correctness of software in general. The importance of using specifications in software testing was realized at least three decades ago, and approaches based on specifications are widely used today [5].

c) Uml based approaches- These are the approaches defined for specifying, visualizing, constructing and then documenting the software system .[6]

d) Code based approaches- It corresponds to the testing that is carried out on code development, code inspection, unit testing in software development process [7].

II. LITERATURE SURVEY

Pranali & D.M.Thakore et al. [8] presented a survey on automatic test data generation tools and techniques for object oriented code. The aim is to give an overview of test data generation tools and techniques. It focuses on the problem of how to choose the most appropriate tool that will fulfil developer requirement. There detailed approaches is to develop new effective and efficient tool by merging properties that can find more errors and it improve the code coverage. Ritu & Sukaldip Singh et al. [9] can review the paper on test cases selection in regression testing. Its focus is to select and prioritize test case for performing regression testing. In future approach, we will analyze the proposed algorithm on large programs.

Hussain & Touseef Ikram et al. [10] presented the review on formalizing use cases and scenarios: scenario based testing. The paper is focuses to help the researchers to make interested in the field of software testing using artefacts in the requirement and design specification of software application. There approaches are based on evaluation by using some parameters i.e. support for inter scenario dependency, consistency check, and the target the formalization by each approach. Maheshwari & Prasanna et al. [11] conducted by generation of test cases using automation in software system. The main objective of this paper is to review the literature about automatic test case generation. These papers represent the existing testing approaches and were used to additionally check the critical based testing. Monier & EI-mahdy et al. [12] presented by evaluation of automated web testing tools. The paper provide feasibility study for commercial and open source web testing tools helping developers. Its future work will be based on different features to build a user based requirements. Ali Shah et al. [13] is proposed by a review of class based test case generation techniques. The paper is discussed is all about software development in recent years. They are focussed on planning to develop an automated tool for

generating test cases through class diagram in order to minimize the issues.

Shahid & Ibrahim et al.[14] is presented by a new code based test case prioritization technique. In this paper ,it introduce a new algorithm for test cases prioritization that is based on the code coverage of the test cases. It approaches shows in future that this algorithm can be applied on large systems to verify its correctness. It can also increases effectiveness of testing. Pahwa & Solanki et al. [15] is presented to review by UML based test cases generation methods. In this paper, it only focuses different techniques used for generating test cases that can decreases minimize the number of test cases. In future, they can plan to design new techniques for generating test cases from UML.

Beena & Sarala et al. [16] is shows in code coverage based test case selection and prioritization. In this the researchers focuses to present an innovative approach for the effective selective and prioritization of test cases which in return may procure a maximum code coverage. In future, the regression testing techniques may be combined with optimization algorithm to contribute more evaluated results. Kaur et al. [17] is survey of software test case generation testing. This paper survey is all about the study of different techniques used in test cases eg. Test case generation using GA,RBT,MBT etc. Its approaches defects in the design model can be detected during the analysis of the model itself. So, the defects can be removing as early as possible.

Martin Glinz et al. [18] it is discussed about scenario based approach to validating and testing software system using state charts. In this paper, we present a procedure to create scenario in the analysis phase and use those scenario in system test to systematically determine test case. The main goal of this method, namely to supply test developers with a practical and systematically way to derive test cases, has been reached. Tahbildar & Kalita et al. [19] is presented that the automated software test data generation in the direction of research. Its overview based on automatic test data generation and its approaches in future on the area of an automatic testing future in-improvement of code coverage, loops handling in path oriented testing. Shay Artzi et al. [20] is conducted by an automatic generation of unit regression tests and it also introduces a technique to automatically create class specific regression test from a program run. Its focused in

augmenting its input specific oracles with dynamically inferred may lead to better oracles, and is a topic of future work.

Shin & Harman et al. [21] is presented for regression testing minimization, selection and prioritisation. This paper survey should focus each area of minimization, selection and prioritization technique and discuss open problems. It may guide the direction of future research 1) Orchestrating regression testing technique with test data generation. 2) Multi- objective regression testing. Mingsong & Xuandong et al. [22] its presented by automated test case generation for UML activity diagram. In this paper, we use UML activity diagram as design speacification and present an automatic test case generation approach. The paper should have support more different automatic test case generation according to some case test adequacy criterion.

III. CONCLUSION AND FUTURE WORK

In this paper, we have discussed their problems and existing techniques implemented by researchers. We compared existing techniques in literature survey on the basis of performance and features. On the basis of our survey , code based techniques performs better than other existing techniques. We hope that review on an "automized regression test case generation for web applications" performed by us will help various researchers to concern and focus this problem so that new techniques will be implemented to solve this problem.

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