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E-mail ID: ijraset@gmail.com

Automated Testing for Web Applications

Prof Ajit singh¹, Madhu Pahal²

Department Of Computer Science & Engineering And Information Technology,

Faculty Of Engineering & Technology,

Bhagat Phool Singh Mahila Vishwavidyalaya, khanpur kalan, Sonipat, Haryana, India

Abstract: *This paper introduces the need of automated testing on web applications. The main goal of this paper is to introduce about importance of automated testing and also tools that we can use for automated testing. This also explains all the problems that we face during testing. As manual testing is complex task so here I am introducing automated testing that too on web based applications.*

Keywords: *automated testing, web, applications, testing tools, manual testing*

I. INTRODUCTION

A recent report stated that, \$150 million spent by customers on online shopping & 75% of these shopping websites suffered from some kinds of failures. These failures were available on web documents, some on static pages while others on dynamic pages and the failures may have economic impacts too. Suppose that failures were not available on such large amount then customers would have spent more than \$150 million on same day. Defects & failures exist not only in private sector web applications but also available on other sectors web pages. According to this report, it stated that either the existing testing tools were not able to test properly or developers have not the time invested in testing. Therefore, there must be some effective and efficient web applications testing tools which can be sort out the problems which were faced due to lack of testing.

Basically, web testing refers to the software testing that focuses on web applications. If testing is done properly before going live to the public then problems related to this will be removed & consumers will not face errors through testing.

II. WEB APPLICATION PROBLEMS

The first problem of web application is broken static link problem. Suppose web page provides a link which gives other static pages that have been removed then users will get an error. The second problem that user can get broken dynamic link problem when a dynamic link is used, this link is possibly written in VB Script, Java script to perform task. The third problem is form link problem. This is the most common type of problem. An example of this is online purchasing. This is a complex problem than dynamic link situation. The fourth problem is the creation of dynamic page. It involves database

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state. The fifth problem is a transaction problem of uncontrolled flow. Such type of issue may cause an inconsistent web page.

III. TEST AUTOMATION

Unit test cases are created by developers in the form of small programs. It can be run whenever user desired without any manual instruction. A system test, is an end to end test for an application, is not same. Here application means a web application that is available on a server & is accessed through a web browser. System tests are written by testers, not by developers of applications. System testing starts by identifying test scenarios that are identified from requirements of user and use cases & creation of manual test cases from those cases. A manual test case is defined as a sequence of test steps written in natural language. A manual test case is intended to be used by humans. They do not have benefit of repeatable test execution. Test Automation is the task of creation of mechanically representation of a manual test case. Such a representation is a general purpose programming.

IV. WEB TESTING TOOLS

There are so many web testing tools available based on different features that a user needs to test web applications mainly scripting requirements, compatibility of browser etc. Some of the tools are as follows:

- a) Imacros:- It supports Firefox Browser only & it is scriptable as well & in scripting it uses Imacro script.
- b) Qf-Test:- It supports Internet Explorer, Firefox Browser & while scripting, it uses visual scripting, Jython, Groovy etc. languages.

- c) Ranorex Studio :- It supports Chrome, Firefox, Safari, I.E. web browser. It uses C#, VB Net scripting language.
- d) Selenium:- It also supports web browser & uses Ruby, Java, PHP, Perl, Python, C#, Groovy etc scripting language.
- e) SOAtest:- it supports web browsers and uses Python, java Script, Java etc as a scripting language.
- f) TestComplete :- It supports Internet explorer, firefox, chrome and use Vbscript, Jscript, c++ script, c# script, DelphiScript as scripting language.
- g) Watin :- It supports web browser and use C# calls as scripting language.
- h) Watir :- it supports Internet explorer, firefox and use ruby only as scripting language.

V. MY APPROACH

I will use Selenium Tool and mercury framework for automated testing for web applications. Basically, Selenium is a portable software testing framework. It provides a record & playback tool for tests & there is no need to learn scripting language. It provides a test domain specific language which helps in writing tests in different popular programming language such as Java, C#, PHP, Ruby, Python, Perl, Groovy. It works on different platforms such as Linux, Windows, Macintosh etc.

Selenium IDE :- It is an integrated development environment for selenium tests. It is implemented as a Firefox Add-On & it also allows recording, editing, debugging tests. Previously it was known as Selenium

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Recorder. It was created by Shinya Kasatoni & donated to the Selenium project in 2006.

Mercury framework is developed to perform the proper testing of the application. As its name itself specifies that it is the only source of water in the desert. So our Mercury framework does the same thing for the successful delivery of the product. It will be used for the proper testing of the application. Broadly there are two categories of the software testing; either we can do it manually or by using the automation tool. The Mercury framework is not only the testing tool but it is the automated testing tool which will run the test cases automatically for the tester. It removes the manual testing of the tester. Tester just need to make the test cases which he wants to execute and he can directly give those test cases to the framework and rest the framework will handle.

VI CONCLUSIONS

- Automated Software Testing saves time & money.
- It improves Accuracy.
- It increases Test Coverage.
- It does that functions also which manual testing cannot do.

- It improves team morale.
- It is affordable automated software testing tool.
- Test complete is powerful.

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