

Web Automation Testing

Pathan Bilkish Asma Aslam

PG Student, Computer Science and Engineering, Everest College of Engineering & Technology, Aurangabad.

Abstract— Automated software testing is the best way to increase the effectiveness, efficiency and coverage of software testing. Automation testing requires considerable amount of investment for buying the software & compatible hardware resources. Automation testing does what manual testing does not. Automation testing improves the accuracy & it saves the time of the tester & organization’s money. Automation testing is best suited in the environment where the requirements are frequently changing & huge amount of regression testing is required to be performed. Selenium IDE is an integrated development environment for Selenium scripts. It is implemented as a Firefox extension, and allows you to record, edit, and debug tests. It was previously known as Selenium Recorder. Selenium IDE is not only recording tool: it is a complete IDE.

Keywords: *Automated Test Lifecycle Methodology (ATLM), Automated Software Testing (AST), Manual Testing (MT)*

I INTRODUCTION

The goal of software development is to produce high quality software. Superior quality software has characteristics like low cost, reliable and user satisfactory. Testing is the process of executing a program with the intention of finding errors. This is a crucial & essential activity to discover all the errors early software development process. Emphatic & fruitful testing reduces the system cost. Software development houses recruit testing & quality assurance personnel for performing testing activity. The Necessity of testing is to maintain the quality of software by making it bug free and to achieve the user requirements properly. Automation Testing is running test cases where manual intervention is not required to run each one. It uses special software to write & execute test cases to compare the actual outcome with the predicted outcome. Once tests have been automated, they can be run quickly and repeatedly. Automation testing is best suited in the environment where there are critical test cases that are to be executed repeatedly. It increases the quality of testing structure & reduces the future maintenance cost.

Introduction to Selenium

Selenium is a portable software testing used for Automation testing It is a framework comprises of many tools used for testing web applications. Selenium provides a record/playback tool for authoring tests without learning a test scripting language (Selenium IDE).It has a test domain-specific language (Selenese) to write test cases in a number of popular programming languages, including C#, Java, Groovy, Perl, PHP, Python and Ruby. Selenium can run on any operating system platforms like Windows, Linux, and Macintosh etc. It is open source software that can be downloaded from the website of selenium.

II LITERATURE SURVEY

Software testing is expensive, labour intensive and consumes lot of time in a software development life cycle. There was always a need in software testing to decrease the testing time. This also resulted to focus on Automated Software Testing (AST), because using automated testing, with specific tools, this effort can be dramatically reduced and the costs related with testing can decrease Manual Testing (MT) requires lot of effort and hard work, if we measure in terms of person per month. Objectives: The main aims of this is to

- 1) To systematically classify contributions within AST.
- 2) To identify the different benefits and challenges of AST.
- 3) To identify the whether the reported benefits and challenges found in the literature are prevalent in industry.

- **Methods:** To fulfil our aims and objectives, we used Systematic mapping research methodology to systematically classify contributions within AST. We also used SLR to identify the different benefits and challenges of AST. Finally, we performed web based survey to validate the finding of SLR.

- **Results:** After performing Systematic mapping, the main aspects within AST include purpose of automation, levels of testing, Technology used, different types of research types used and frequency of AST studies over the time.[1]

TESTING TYPES

White Box Testing: White Box Testing is also known as structural testing or glass-box testing. In White Box Testing the software engineer derives test cases using the knowledge concerning the internal structure of the software.

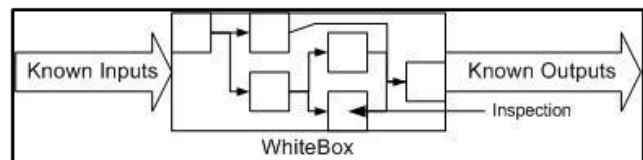


Figure No 1 View of White Box Testing

Black Box Testing: In Black Box Testing the software engineer views the external part(specification/interface) of software instead internal part. It is usually based on the specification of the program interface, such as procedure and function headers. It also needs to specify the program input and the expected program output.[8]

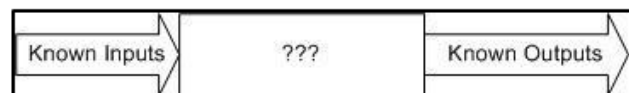


Figure No. 2 View of Black Box Testing

TESTING LEVELS

Traditionally, the most common types of testing include unit testing, Integration testing, System testing and Acceptance testing.

- a) **Unit Testing:** Unit testing is the basic level testing in order to find the errors in the software program. In Unit testing the software is divided into small units to find the errors in the software program.
- b) **Integration testing:** The objective of integration testing is to determine that the software modules interact together in a correct and stable manner.
- c) **System testing:** During this phase, developers test the system's functionality and stability as well as non-functional requirements such as performance and reliability.[1],[2]

What is an automation framework?

A test automation framework is a set of concepts, and practices that provide support for **automated software testing**. It is a methodology built to successfully carry out test automation. If we do not have any frameworks, then it is difficult to get proper reports, handle checkpoints, or exception handling.

Which Automation framework to choose?

Now either you may choose from any of the frameworks available like JUnit & TestNG or you can design our own framework. Junit is a unit testing framework or the Java programming language. TestNG is specially designed to cover all types testing categories like Unit, Functional testing, Integration testing, End-to-end etc. Here we have used the selenium IDE on the website to test the website UI the Selenium is a portable software testing used for Automation testing It is a framework comprises of many tools used for testing web applications. Selenium provides a record/playback tool for authoring tests without learning a test scripting language (Selenium IDE).It has a test domain-specific language (Selenese) to write test cases in a number of popular programming languages, including C#, Java, Groovy, Perl, PHP, Python and Ruby. Selenium can run on any operating system platforms like Windows, Linux, and Macintosh etc. It is open source software that can be downloaded from the website of selenium.

The Below is the figure of the working of the selenium tool.

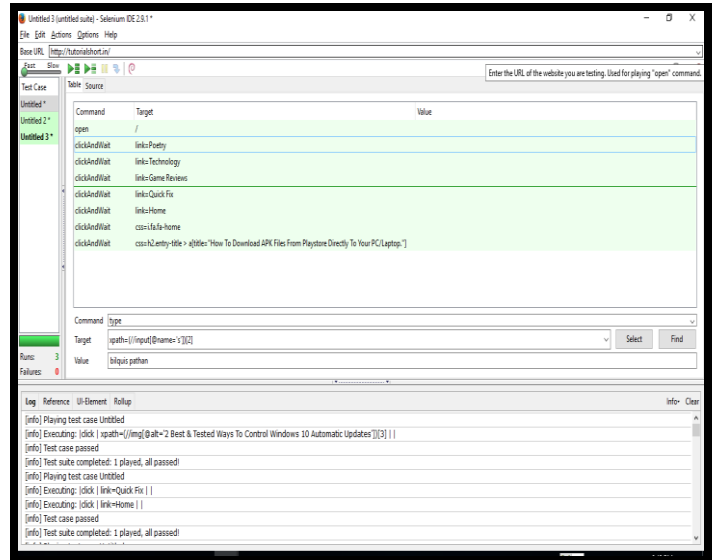


Figure No 4 : Selenium IDE recorded window

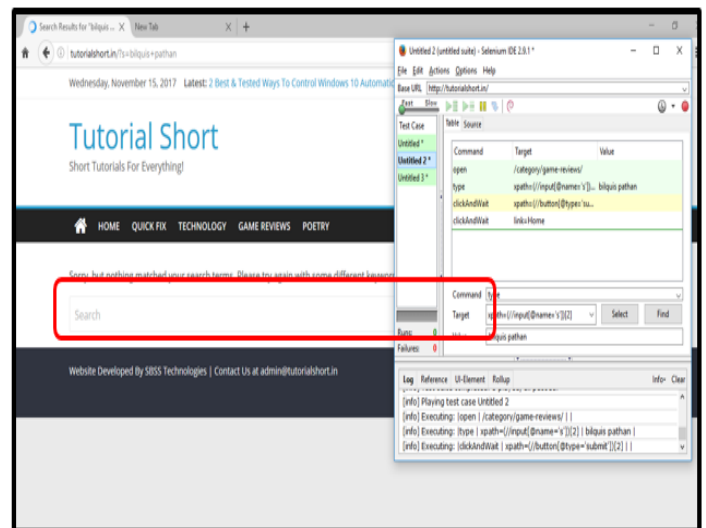


Figure No 5: Screen for entering the value for corresponding record in selenium.

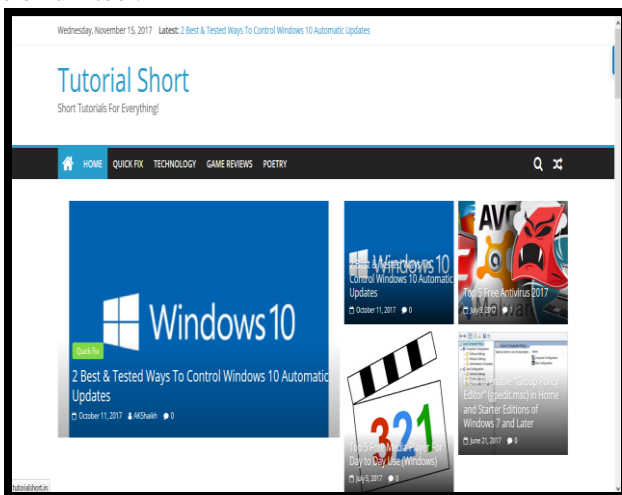


Figure No 3: Website for testing

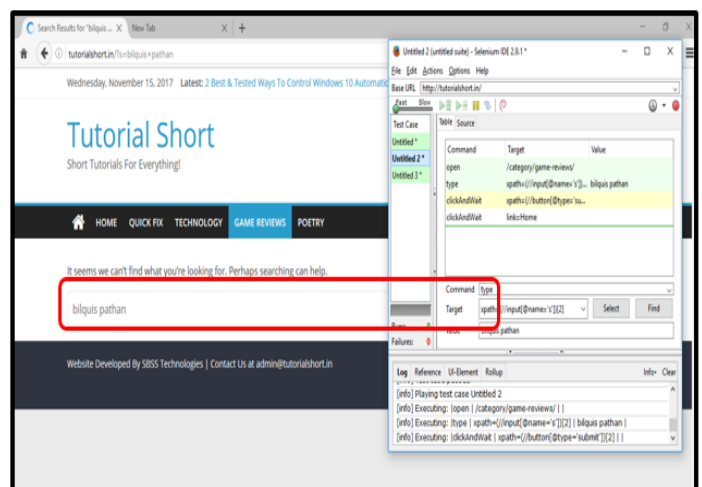


Figure No 6: Entering the value for corresponding recorded test case 2 search name as "bilquis pathan" in selenium.

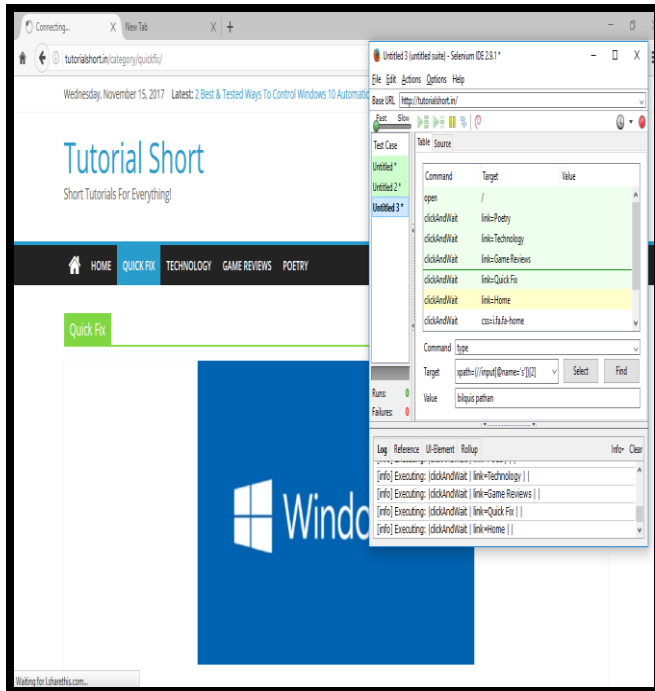


Figure No 7: Screen for entering the value for corresponding record tests case 3 in selenium.

[8] Khaled M. Mustafa et.al, —Classification of Software Testing Tools Based on the Software Testing Methods||, second International Conference on Computer and Electrical Engineering, Al-Zaytoonah University of Jordan, 2009.

[9] <http://seleniumhq.org>

[10] <http://code.google.com/p/selenium/>

[11] <http://www.guru99.com/automation-testing.html>

[12] http://en.wikipedia.org/wiki/Manual_testing

III CONCLUSION

We can conclude that we have tested the website UI with selenium and it greatly helps in the optimization of the UI and the optimization of the website overall.

The automation tools helps us to understand the basic problems that the end user will face and it show us the problems and probable behavior of our website under stressed conditions.

ACKNOWLEDGMENTS

I am highly indebted to Prof. B.K. Patil for their guidance and motivation, I would also like to thank everyone who supported me throughout the testing as well as to all the references which are not included below for completion of this report.

REFERENCES

[1] Automated Software Testing A Study Of State Of Practice Dudekula Mohammad Rafi Katam -Reddy Kiran Moses.pdf

[2] Study And Analysis Of Automation Testing Techniques Vishawjyoti* And Sachin Sharma Deptt Of Computer Applications, Manav Rachna International University.pdf

[3] Burnstein, Practical Software Testing: process oriented approach, Springer Professional Computing, 2003.

[4] Evaluation criteria to consider when selecting a test automation tool.ppt

[5] Data-Driven and Keyword-Driven Test Automation Frameworks by Pekka Laukkanen

[6] M. Fewster and D. Graham, Software Test Automation: Effective Use of Test Execution Tools, ACM Press/Addison-Wesley Publishing Co., 1999.

[7] Edward Miller, —Advanced methods in Automated software test||, Software Maintenance, 1990.