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Comparative Study on Automation Testing Tools

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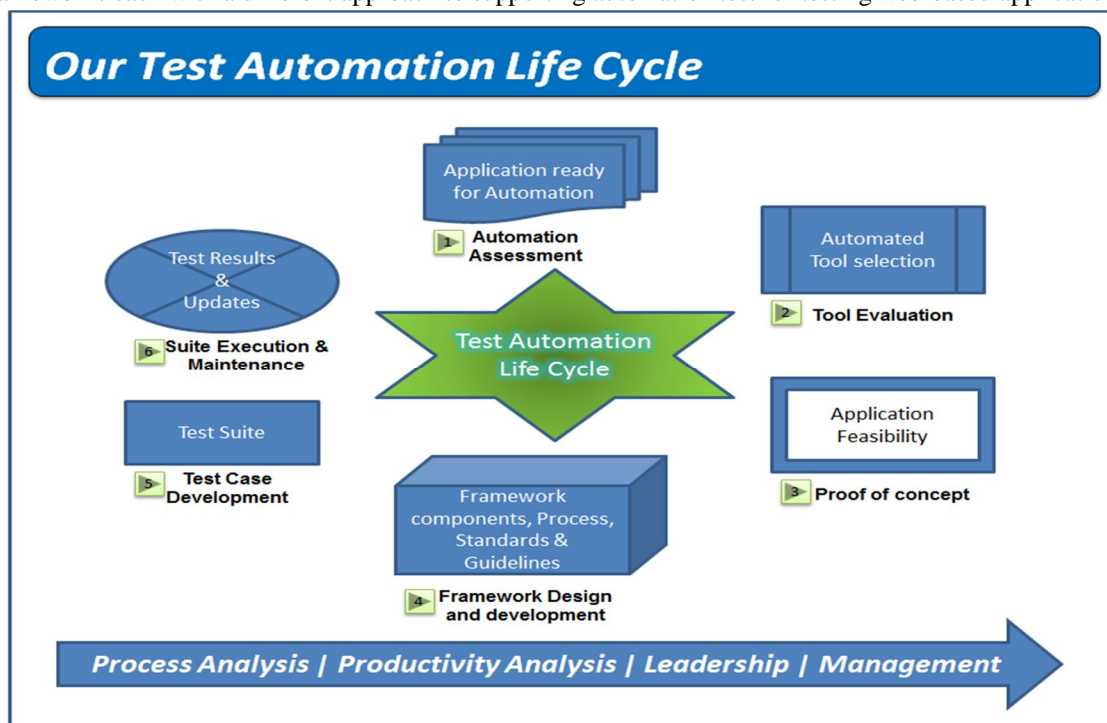
Abstraction: Automation testing, where the software testers doing their testing manually, manual efforts are needed for executing test cases and test suites. Manual testing does not include any automation tools.
So the drawback of manual testing is like 100% manual intervention, Manual testing requires many skill sets, it takes long time to execute test case (time consuming), and sometimes the tester feels bored when executing same test cases repetitively. So to reduce the man power and the save the time we use the automation tools. Automation behaves faster and effecter, Nowadays more than the manual testing, automation tools are used everywhere to complete the work very quickly.

I. INTRODUCTION

Testing is a most important activity in Software development process. It is to identify and analyse the source code. Testing can be done by manual or automation. The Objective of this paper is to perform Automation Testing using Software Testing Tool "Selenium". With this web testing tool, test cases are automatically recorded in background while tester is entering the data in a web application screen. Testing automation tools enable developers and testers to easily automate the entire process of testing in software development.

Selenium is a set of powerful different software tools working with many browsers, operating systems, programming languages, and testing frameworks each with a different approach to supporting automation test for testing web-based applications.
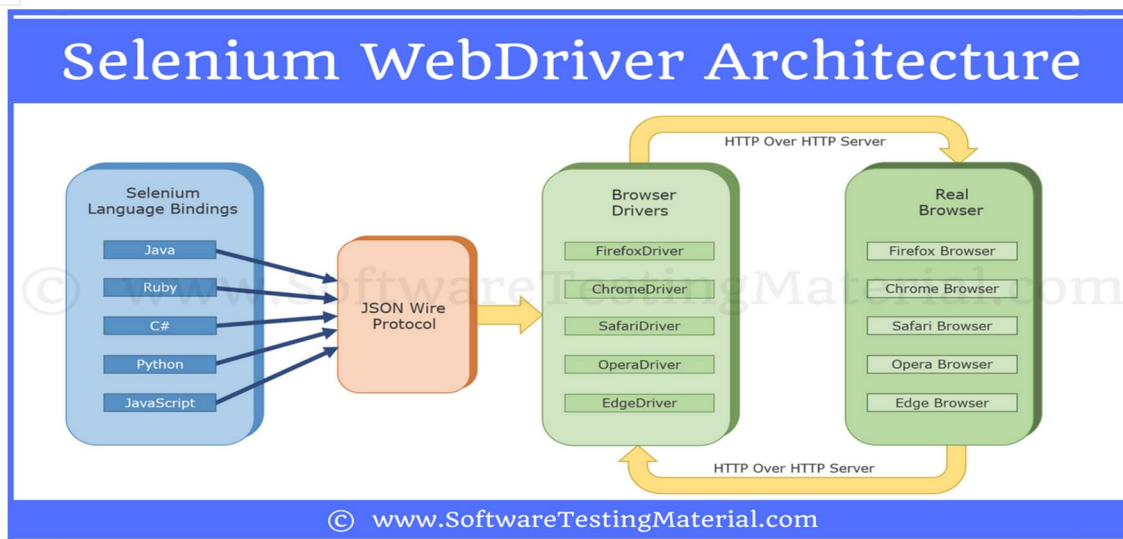

Here comes Automation testing, automation testing uses some tools to execute our test case and test suites. Using automation tools, we can able to save time, cost and man power. And we can able to execute are test cases repetitively using the automation tools.

II. TOOLS TO AUTOMATE MANUAL TESTING

A. Selenium

Selenium has the assist of a number of the most important browser providers who've taken (or are taking) steps to make selenium a local a part of their browser. It's also the core era in countless different browser automation equipment, apis and frameworks. Selenium is the open source web based automation tool and used for automate web based application.
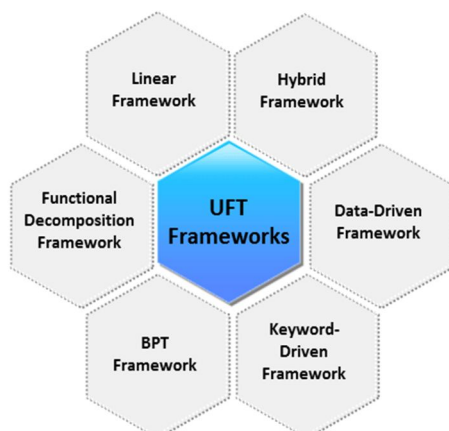
1) *Components of Selenium,*
a) Selenium Remote control: Used to execute scripts
b) Selenium IDE: Recording and playback scripts
c) Selenium Web driver: Used for cross browser testing
d) Selenium Grid: Cross platform testing

2) *Advantage*
a) It is basics of document object mode(DOM) level testing, used for continuous integration with Jenkins.
b) Selenium supports multiple browsers like FireFox, Internet Explorer, Safari, Opera, Chrome.
c) It supports various operating systems such as Windows, Mac OS and Linux.
d) Selenium provides wide range of IDE's like Eclipse, NetBeans, Visual studio.
e) It Supports object oriented language like Java, .net, Perl, PHP, etc.
f) For Source code compilation, it can be integrated with Maven or ANT framework.
g) Selenium can be integrated with TestNG framework for generating reports.
h) Selenium can be used for Andriod , iPhone , Blackberry application based testing .
i) It consumes very less RAM and CPU utilization for scripts execution.

B. *QTP: HP UFT (Unified Functional Testing)*
QTP (Quick Test Professional), given by Hewlett Packard(HP). It is a software application used for automation testing. Its interface is called as Integrated Development Environment.

1) *Advantages of QTP*
a) It is the combination of GUI (Graphical User Interface) and API (Application Programming Interface).
b) It supports both Functional and Regression Testing.
c) HP UFT integrates with test management tool like HP Quality Center.
d) It Supports all types of Dialog Box.
e) It supports various environments such as SAP, Oracle, .Net but the user needs to buy a license to use it.
f) It offers good technical supports.
g) HP QTP is user friendly and easy to develop the scripts.
h) It is used for both web based applications and Desktop applications.

C. Jmeter

Apache Jmeter is used to perform both on Static and dynamic resource, web dynamic applications.

It simulates heavy load on a server, organization of servers & community or object to check its electricity or examine average performance underneath one-of-a-kind load kinds.

1) *Features:* Ability to perform and load test many different Server/ protocol/ application types: LDAP, Web – HTTP, HTTPS (Java, NodeJS, PHP, ASP.NET,), Message –Oriented middleware (MOM) via JMS, TCP, java Objects.

Complete featured test ide that lets in speedy test plan recording (from browsers or native programs), constructing and debugging. Command-line mode (non gui / headless mode) to load check from any java likeminded os (linux, home windows, mac osx, …). A complete and prepared to offer dynamic html record. Clean correlation via ability to extract statistics from most popular response formats, html, json , xml or any textual format. Complete portability and a hundred% java purity. Complete multi-threading framework lets in concurrent sampling with the aid of many threads and simultaneous sampling of various functions via separate thread companies. Caching and offline analysis/replaying of test effects.

Distinctly extensible middle: Pluggable samplers permit unlimited testing skills. Scriptable samplers (jsr223-well suited languages like groovy and beanshell). Numerous load statistics can be selected with pluggable timers. Statistics evaluation and visualization plugins allow excellent extensibility as well as personalization. Capabilities may be used to offer dynamic enter to a test or provide records manipulation. Clean continuous integration via 3rd birthday celebration open source libraries for maven, graddle and jenkins

III. COMPARISON OF SELENIUM AND HP UFT

Hp brief take a look at pro, also called hp unified useful testing, is currently a well-known pressure within the internet-based trying out market, however selenium is fast gaining mindshare and advocates as an extra successful, open-source competitor. There are numerous clear-cut differences among each check device that ought to make deciding on one or the opposite a trustworthy decision in most instances.

1) *Cost:* The main difference between selenium and QTP, Selenium is a open source web based tool and QTP is commercial tool. User needs to purchase a licence for QTP. So that, Automation testing is more expensive than selenium.

2) *Supported Language:* HP QTP supports only VBScript but selenium supports object oriented languages such as JAVA and supports .NET, Ruby, PERL, PHP.

3) *IDE:* QTP developed and used only in QTP IDE whereas selenium supports various IDE's such as Eclipse, NetBeans, Visual studio.

4) *Parallel execution:* Parallel testing is possible with both tools, selenium Grid is used for executing the test cases in various machines, but QTP is capable with HP Quality center only.

5) *Speed:* Selenium test Scripts runs Windows, Mac OS and Linux where as QTP runs only in windows Environments.

6) *Number of Users:* QTP can be used in smaller organization and Selenium can be used in more number of users.

7) *Multi-threading:* Selenium supports multi-threading concepts, multiple.

IV. CONCLUSION

In the above Tools, Selenium is an open source software and also a web application testing tool for automation testing. Selenium supports more number of languages rather than All the tools. Selenium testing tools provides a rich set of testing functions specifically designed to fulfil needs of testing of a web based application Parallel execution is possible in selenium using grid. Selenium supports all the Operating systems. QTP used in less members and selenium used for many organizations because of free of cost.

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