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Review of Various Automation Tools for Software Testing

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Abstract

A group of projects or codes make up programming. Programming building is the practise of dealing with the progress, task, and support of programming in a logical, taught, quantified manner. Testing involves comparing the expected yield to the actual yield. Programming testing is a process for evaluating a product's usefulness with the goal of determining whether or not the developed programming met the set requirements and detecting flaws to ensure that the item is free of defects in order to provide a high-quality product.The division of testing into manual and automated testing is vast. Manual testing involves carrying out tests manually (i.e., by a person) without the use of any tools or materials. But with automated testing, test cases are carried out with the aid of tools, materials, and code. Exploratory testing, usability testing, and ad hoc testing are the testing types that manual testing is most suited for. Regression testing, performance testing, and stack testing are the types of testing that automation is most suited for. The study of testing tools is covered in this article, including: Apache JMeter, Selenium IDE, QTP/UFT Quick Test Professional, Bugzilla, Test Finish, Blast Meter, Stack Runner, Test Finish, and WatiN.

Keywords: *- Automation testing, Manual testing, Jmeter, Selenium IDE, QTP/UFT, Bugzilla, Blaze meter, Test complete,Load runner, Test data, Test cases*

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INTRODUCTION

Test Suite ID	Test Case ID	Test Case Summary	Related Requirement	Prerequisites	Test Procedure	Test Data	Expected Result	Actual Result	Status	Remarks	Created By	Date of Creation	Executed	Date of execution	Test environment

Testing is the process of running a system in order to find any flaws, omissions, or gaps from the real requirements. Some information on the above Keywords:

A test case is a collection of circumstances or criteria under which an analyst will determine if the framework being tested is functional or correct. Format chases models.

Information that has been specifically acknowledged for use in testing, often of a computer programme, is referred to as test data. Some test information is used to confirm the expected result, i.e., the expected result should appear when test information is entered, while some test information is used to evaluate how the product behaves based on false information.

A product is physically tested during manual testing, which excludes the use of any computerised equipment or content. In this kind, the analyst takes over the end-task client's and tests the product to identify any unexpected behaviour or defect. Manual testing may be done in a variety of stages, including unit testing, incorporating testing into other tests, framework testing, and client acknowledgment testing.

Testing conducted automatically when a different product is used to create the contents and test the item. A manual process has been mechanised in this process. Mechanization testing is used to repeat the test scenarios that were physically executed quickly and repeatedly. Mechanization testing is used in conjunction to relapse testing to evaluate the application's load, execution, and focus. Compared to manual testing, it increases test inclusion, improves precision, and conserves time and money.

To stack test utilitarian behaviour and gauge performance, Stefano Mazzocchi of the Apache Software Foundation developed the Apache JMeter, a piece of open source Java code. JMeter may be used to examine and evaluate how well a

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web application or a variety of services is performing. Execution testing is putting a web application under heavy demand with several concurrent clients. Initially, JMeter is used to test Web applications or FTP programmes. These days, the database server test uses it as a practical exam [1].

Selenium IDE is a coordinated advancement condition for Selenium contents. It is actualized as a Chrome and Firefox augmentation, and enables you to record, alter, and troubleshoot tests. Selenium IDE isn't just a chronicle device: it is a total IDE. You can utilize its account ability, or you may alter your contents by hand. With auto complete bolster and the capacity to move directions around rapidly, Selenium IDE [3] is the perfect condition for making Selenium tests regardless of what style of tests you incline toward.

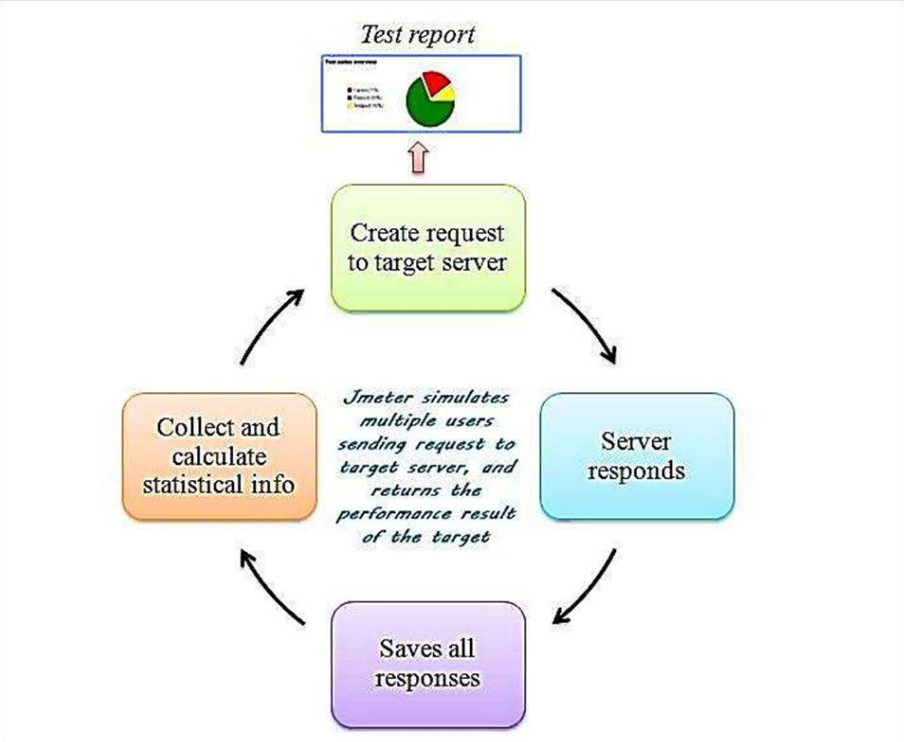


Figure 1: Test Report

Selenium IDE



Figure 2: UFT Unified Functional Testing

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HP UFT/QTP is a mechanized utilitarian Testing instrument that causes analyzers to execute computerized tests so as to distinguish any blunders, deformities or holes in opposition to the normal consequences of the application under test. It was planned by Mercury Interactive and later on procured by HP. Full type of QTP is Quick Test Professional and full type of UFT is Unified Functional Testing [5].

Blaze meter, It is utilized for consistent execution testing for Dev Ops. Burst Meter advertises a business, self-benefit stack testing stage as an administration, which is perfect with open-source Apache Jmeter, the execution testing structure from the Apache Software Foundation. Burst Meter was established in 2011, and was obtained by CA Technologies in 2016.

Bugzilla



Figure 3: Bugzilla

Is deformity/bug following instrument. Deformity following frameworks enables engineers and analyzers to follow all the remarkable imperfections. Bugzilla can be connected to other testing instruments like JIRA, QC or ALM and so on. Bugzilla is produced in Perl and keeps running on MYSQL server. Bugzilla [6] is an open-source issue/bug following framework that enables designers to monitor remarkable issues with their item.

Test Complete



Figure 4: Test Complete

The design, management, and execution of automated tests for desktop, internet, and mobile apps are made simple, quick, and intelligent by Test Complete's open and flexible engineering [9]. To write your own tests, consider using a variety of scripting languages like Python, VBScript, or JavaScript. Consider doing information-driven testing, relapse tests, or parallel tests to increase efforts and boost inclusivity. Use advanced record-and-replay tools to easily create test material without any programming knowledge. Test native and hybrid iOS and Android applications on various gadgets with full access to internal resources.

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EXISTING SYSTEM

Manual Testing

Finding flaws or faults in a product software is done through manual testing. In this approach, the analyst plays the crucial role of the end user and verifies that each and every one of the application's highlights is functioning properly. Without using any mechanical components, the analyzer physically runs test scenarios.

The analyzer generates a test plan archive that shows the itemised and planned approach to handling programming application testing. We want to conduct experiments that essentially cover every product application. Manual testing is time-consuming since it involves finishing test cases.

Win Runner

Win Runner programming was a mechanized useful GUI testing apparatus that enabled a client to record and play back (UI) collaborations as test contents. HP Win Runner robotization device was possessed by Mercury Interactive. At the point when HP gained Mercury Interactive, they halted Win sprinter support and recommended to utilize the HP Functional Testing programming.

LOAD RUNNER

It is utilized to test applications, estimating framework conduct and execution under load. Load Runner is a Performance Testing apparatus which was spearheaded by Mercury in 1999.

Load Runner was later procured by HPE in 2006. In 2016, Load sprinter was obtained by Micro Focus. Load Runner underpins RIA (Rich Internet Applications), Web 2.0 (HTTP/HTML, Ajax, Flex and Silverlight and so forth.), Mobile, SAP, Oracle, MS SQL Server, Citrix, RTE, Mail or more all, Windows Socket. Web 2.0 is old. Currently web 4.0 is accessible .so Load Runner is extremely old apparatus.



Figure 5: Load Runner

Disadvantages of Load Runner Connection is an approach to substitute qualities in powerful information to empower fruitful playback. Programming/ scripting dialect is utilized to speak to the

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caught convention information and control the information for play-back. Experiments tried one by one for precision in programming .it is tedious to look after records.

PROPOSED SYSTEM

Fast: Runs tests altogether quicker than human clients.

Repeatable: Analyzers can test how the site or programming responds after rehashed execution of a similar task.

Reusable: Tests can be re-utilized on various renditions of the product.

Reliable: Tests perform exactly a similar activity each time they are run along these lines disposing of human mistake.

Comprehensive: Analyzers can manufacture test suites of tests that cover each component in programming application.

Programmable: Analyzers can program complex tests that bring shrouded data.



Figure 6: Automation Testing

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Table 1: Comparison

Jmeter	Selenium	HP UFT/QTP	Blaze meter	Bugzilla	Test complete
Apache Jmeter™	It is licensed under Apache License 2.0.	It was designed by Mercury Interactive and later on acquired by HP.	In May 2013, Blaze Meter was named one of the top testing tools by Dr. Dobbs 'Jolt Awards: The Best Testing Tools. The company was acquired by CA Technologies in September 2016	Bugzilla is an open-source tool used for issues and bugs tracking system.	Test Complete has an open and flexible architecture that makes creating, maintaining, and executing automated tests across desktop, web, and mobile applicati ons easy, speedy, and cost effective
Jmeter is an Open Source testing software.	Selenium is an open-source tool that is used for test automation.	HP QTP is an automated functional Testing tool that helps testers to execute automated tests in order to identify any errors, defects or gaps in contrary to the expected results of the application under test.	Load, Performance Testing ,API Testing	It is widely used as a bug-reporting tool for all types of testing functions.	Use robust record- and-replay capabilities to easily create test scripts without programming knowledge.
Samplers, Controllers, Processors, Config Elements and Listeners	*Selenium In tegrated De velopment Environme nt (IDE) is a Firefox plugin that lets testers to record their actions as they follow the workflow that they need to test.*	Both technical, as well as a non-technical tester, can use Micro Focus QTP	Run massively scalable, open source-based tests against all of your apps, from web and mobile apps to micro services and APIs.	Allows developers to keep track of outstanding problems with their product. It is written in Perl and uses MYSQL database	Keyword Testing, Scripted Testing, Test Record and Playback,Integration to Bug Tracking Software,Data Driven Testing,Test Visualizer
It is pure Java application for load and performance testing.	Store Variables, Echo, Alert, Popup handling in Selenium IDE	UFT is one of the most widely used automation testing tools in the market today with over 60% market share. Due to this reason, skilled UFT professionals are always in demand. HP	Blaze Meter has just released the brand new version of its free Chrome extension. In addition to creating Apache Jmeter™-based scenarios, version 4 of the Blaze Meter	It is a server software which is designed to help in managing the software development process.	developed by Smart Bear Software, offers support to a wide range of technologies such as .Net, Delphi, C++Builder, Java, Visual Basic, HTML5, Flash, Flex, Silverlight Desktop, The Web and Mobile systems. Automated UI testing tools for

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		UFT = HP QuickTest Professional + HP Service Test	Chrome Extension also creates Selenium scenarios to simulate your business case		**Artificial Intelligence.**
https://www.guru99.com/hands-on-with-jmeter-gui.html ***https://jmeter.apache.org***	https://www.tutorialspoint.com/selenium/selenium_overview.htm	https://www.softwaretestinghelp.com/hp-uft/hp-uft-unified-functional-testing-tool-features/	https://guide.blazemeter.com	https://www.bugzilla.org/	https://smartbear.com/product/testcomplete/overview/

CONCLUSION

Students will think about, interpret, and utilise automated testing tools for a variety of programmes. Less Human Resources: You don't have to worry with plenty of people. To motorize your tests, you would need a test computerization fashioner rather than several humans performing exhausting manual testing repeatedly. It takes less time.

FUTURE SCOPE

Wekatools for data ware house concept jira for agile methodology. Automation testing tools for internet things machines learning and artificial intelligence

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