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Testing Tools and Configuration Management

1. SELENIUM

Selenium is an open-source tool that automates web browsers. Its support extends to numerous programming languages such as Python, Ruby, NodeJS, PHP, Perl, C#, Java, etc. It is used to automate browsers and that in itself gives it a whole set of utilities. Since it directly interacts with the browser, it can be used to mine dynamic websites for data, automate web application testing which boosts agile development of web applications.
LINK: https://www.selenium.dev

REASON FOR CHOOSING SELENIUM FOR TESTING:

- Selenium provides APIs in many languages so most developers can use it in the language they are comfortable with.
- Selenium is open source, which means it is not only free to use, but the functionality of it is also evolving rapidly to cater to the needs of the generation of tech.
- Selenium's web driver supports most of the major web browsers such as Chrome, Firefox, Safari, etc.
- It can use used on various Operating systems such as Windows, Linux, macOS, UNIX, etc.
- One of the stray benefits of having its implementation across many different languages is that it is easy to implement too for two reasons: 1) actual framework built easy to understand. 2) User familiarity with the language it is being used on.
- Selenium automation test suites are reusable and can be tested across multiple browsers and operating systems.
- Since it works on the browser itself, it can be used on middleware-protected websites and can also take advantage of the add-ons supported by that particular web browser.
- Selenium is easy to learn and use and learning material is readily available about it.
- Selenium receives consistent and deliberate updates which makes it a useful tool to learn for future aspects of projects as well.
- Version selection of selenium gives us the choice to decide which version best suits our work case.

2. APPIUM

Appium is another open-source automation testing tool for mobile phones. Developed by Sauce Labs, it is used to automate native and hybrid mobile apps. It can be run on numerous platforms as well and multiple devices can be easily tested by Appium in parallel.

LINK: https://appium.io/

Advantages

- Appium is open-source which means the code is publicly available hence it is free to use and gets constant updates.
- It allows automated testing of hybrid native and web applications on mobile phones.
- It recently became capable of being able to test desktop web applications on windows.
- No additional agents are required to test an application with Appium. It directly interacts with the application in question.

3. JMeter

JMeter is an open-source java-based application with a graphical user interface. It is used to measure the performance and load functional behavior of web applications. Originally written and developed by Stefano Mazzocchi, it was originally used to test the Apache Tomcat project which is also a successful java-based application framework.

LINK: https://jmeter.apache.org/

Advantages

- It is open-source which implies it is free to use.
- It is user-friendly due to its simple and interactive GUI.
- It is platform-independent just like Java because it runs on a JVM.
- It supports various server types and database types.
- It supports multithreading enabling efficient and faster testing.
- It provides test result visualization for a better understanding of the test results.

4. POSTMAN

Postman is one of the most famous API testing tools for any developer. It makes it very simple for developers to create, test, share and document APIs. Postman is a standalone testing API platform to build, test, design, modify and document APIs.

LINK: https://www.postman.com/

Advantages

- Developers can access Postman from anywhere after installing it into their device and logging in.
- It can create multiple sets based on requests to organize test suites.
- It can be automated to test API calls in repetition.
- Its console helps to debug any errors caused by certain API calls.
- It supports continuous integration.

5. SoapUI

SoapUI is an open-source testing tool, used to automate testing environments of web services and web APIs of SOAP and REST interfaces. It supports most major networking protocols used by web applications that exchange data in a structured manner such as XML, JSON, etc. Also, it is language-independent.
LINK: https://www.soapui.org/

Advantages

- It is open-source which means it is free to use.
- It provides a simple and interactive GUI to assess its outputs.
- Cross-platform desktop-based application.
- It is a fast and organized framework that can test a lot of web services.
- It facilitates tester and developer teams to work together.

6. JIRA

JIRA is one of the most widely used testing tools used for manual testing. Developed by Australian Company Atlassian, it is used to track bugs and report the generated issues for the developers to fix. JIRA is based on Agile methodology and is used to report defects in a piece of software through manual testing.
LINK: https://www.atlassian.com/software/jira

Advantages

- JIRA is used to track and report bugs mainly used to track, organize and prioritize the ratings of bugs.
- It enables software developers to track issues and improvements.
- Manual testing can be used to check corner cases that either require hard-coding the case as a test case explicitly or difficult to track scanners during automation.
- It maintains the records and bug reports it collects, so these reports can be used to organize the list of bug fixes and features to be implemented in subsequent versions of the software being tested.

7. SonarQube

SonarQube is an open-source security testing tool developed by Sonar Source. It is usually used to test and report the quality of code written by identifying bugs and security vulnerabilities. Its support spans over numerous languages such as Java, C#, C/C++, JavaScript, etc. SonarQube is written in JAVA programming language and uses APIs for cross-platform support across different languages it supports.
LINK: https://www.sonarqube.org/

Advantages

- It can integrate with multiple development environments such as Visual Studio, Eclipse, etc through plug-ins.
- It helps to identify complex security issues.
- It helps to provide application security.
- It has its support extended across many languages such as Java, C#, C/C++, JavaScript, TypeScript, Python, GoLang, Swift, COBOL, Apex, PHP, Kotlin, Roby, Scala, ABAP, Flex, Objective-C, PL/I, PL/SQL, RPG, T-SQL, VB, VB6.

8. Ranorex Studio

Ranorex Studio is one of the most widely used GUI Test Automation tool, which is developed by Ranorex GmbH, and it is used to test mobile, desktop, and web-based applications. It supports the development of the automated test modules, which are written in VB.NET and C# programming languages. It will provide cross-browser testing for multiple browsers like Safari, Chrome, Firefox, Internet Explorer, and Microsoft Edge.

LINK: https://www.ranorex.com/

Advantages

- It supports various web technologies like JavaScript, HTML, Flash, Ajax, HTML5, and Silverlight, and so on.
- Ranorex Studio will support native Android and iOS mobile applications.
- It can execute on the Windows Server and Microsoft Windows.
- It will produce the customized test reports with the video reporting of the test execution.
- It will generate the reusable code modules, shareable object repository, and also reduce the maintenance cost.
- It will provide consistent object identification.

9. TESSY

TESSY is an essential tool for integration testing that is used to execute the integration and unit testing for the embedded software. It will take care of the whole test organization along with the requirements, traceability, test management, and coverage measurement.

TESSY helps us to find the code coverage of an application. With the help of CTE (classification of tree editor), we can design the test cases. And we can edit the test data by using TDE (test data Editor).

LINK: https://www.razorcat.com/en/product-tessy.html

Advantages

- TESSY supports C++ and C programming languages.
- It is used to analyze the interface of the function and defines the variable used by that function.
- It has floating license application rights.
- The three primary functions of TESSY are TIE (Test interface Editor), TDE (Test Data Editor), and workspace.
- For the test execution results, it creates the test report.

10. WebLOAD

WebLOAD testing tool is used to test the test application with the help of load testing, performance testing, and stress testing. For the authentication of web and

mobile applications, the WebLOAD tool combines performance, scalability, and integrity as a single process. It will support multi-protocols such as HTTPS, XML, HTTP, and so on, which helps us to control the load of the large number of users. LINK: https://www.radview.com/

Advantages

- It will provide a flexible test scenario creation.
- Customer support can be easily approachable.
- This tool detects the bottleneck automatically.
- It can evaluate the performance test results from any browser or mobile device.
- It will generate the load from the cloud.