MODULE 4 - ASSIGNMENT

Que: Which components have you used in Load Runner?

Load Runner consists following components:

1) VuGen(Virtual User Generator): VuGen collects end-user business processes and develops a Vuser script (automated performance testing script) that mimics end-user activities. These Vuser Scripts may also be utilized in other Micro Focus products like LoadRunner Cloud and Business Process Monitor.

2) Controller: This component develops, conducts, maintains, and monitors load tests.

3) Load Generator: This device generates load.

4) Analysis: It is used to evaluate, understand, and compare the load test findings.

Que: How can you set the number of Vusers in Load Runner?

The number of VUsers required is determined by several factors, including the System Under Test (SUT), Hardware Settings, Network Configurations, Memory, Operating System (OS), and Performance Test Objective.

Que: What is Correlation?

Correlation is used in test scripts to cope with changeable variables. The dynamic values may vary based on each user activity (value changes when the same User performs the action again) or for other users (value changes when action is replayed with different users). In all cases, these variables are kept by correlation, guaranteeing that they do not degrade throughout execution.

Que: What is the process for developing a Vuser Script?

The process for developing a Vuser script in LoadRunner typically involves the following steps:

1) Recording: Use the Virtual User Generator (VuGen) to record user interactions with the application under test. This captures the script's initial actions and parameters.

2) Enhancing the script: Modify the recorded script as needed by adding correlation to handle dynamic values, parameterization to simulate different data inputs, and rendezvous points to synchronize user actions.

3) Script validation: Validate the script by replaying it to ensure it accurately represents the user's actions and performs as expected without errors.

4) Data handling: Incorporate data handling techniques, such as data parameterization or data-driven testing, to simulate realistic user scenarios with varying data inputs.

5) Script customization: Customize the script further by adding additional logic, error handling, think time, and transaction timers to enhance realism and accurately simulate user behavior.

By following these steps, the Vuser script can be developed and fine-tuned to create realistic load testing scenarios for evaluating the performance of the application.

Que: How Load Runner interacts with the application?

LoadRunner interacts with applications based on Protocols.

Que: How many VUsers are required for load testing?

This is not a straightforward process. Our suggestion is to start small, with 1 virtual user, in order to validate the test you've created and check that the response codes for the requests made are the one desired ones. Then you can increase the number of Virtual Users gradually to 100, 1000 or 10,000 Virtual Users per second. This will help identify potential bottlenecks in your application.

Que: What is the relationship between Response Time and Throughput?

The Throughput graph shows the amount of data in bytes that the Vusers received from the server in a second. When we compare this with the transaction response time, we will notice that as throughput decreased, the response time also decreased. Similarly, the peak throughput and highest response time would occur approximately at the same time.

Que: To test the Performance testing on "Tops Technologies website" :-

https://www.saucedemo.com/

1. to Record all top level menu

2. to Record minimum 10 Vuser on this website

3. save all (Script, Design, Graph)

Que: Create a normal script of above website with correlate using hp default website.

Que: What is Automation Testing?

Automation testing is the use of software to control the execution of tests, the comparison of actual outcomes to predicted outcomes, the setting up of test preconditions, and other test control and test reporting functions. It is a process of writing a computer program to do testing that would otherwise need to be done manually. Once tests have been automated, they can be run quickly.

Que: Which are the browsers supported by Selenium Ide?

The browsers supported by Selenium Ide are Google Chrome, Mozilla Firefox, and Microsoft Edge.

Que: What are the benefits of Automation Testing?

- Automation testing is 70% faster than the manual testing.

- It has wider test coverage of application features.

- The results received from automation testing are reliable.

- Ensure Consistency.

- Automation testing saves time and cost.

- It improves accuracy in testing.

- At the time of execution human intervention is not required.

- Increases Efficiency.

- Automation has a better speed in executing tests.

- Test scripts are re-usable.

- Automation test can be done Frequently and thoroughly.

- More cycle of execution can be achieved through automation.

- Early time to market.

Que: What are the advantages of Selenium?

The advantages of Selenium are as follows:

1) Open-source:

Selenium is an open-source automation testing framework, which makes it a freeware and portable testing tool. As it is an open-source framework, it doesn't involve any licensing cost, which is a significant advantage over other tools for any organization to save the cost while implementation.

2) Portable Script for Cross Browser Testing:

With Selenium, you can perform cross-browser testing across Firefox, Chrome, Internet Explorer, and Safari and you can do that with only one test script which you can use on almost every platform like Windows, Mac, and Linux. Users can use different devices and platforms to access the web application; selenium allows the testing team to enhance their test coverage with just one test script which can be used over all the devices and platforms.

3) Early Defects:

As a testing team member, you might aware of the importance of early defect detection which leads to cost-effective code rework. Selenium not only helps you to find defects earlier, but also it helps in maintaining the overall velocity of code development while ensuring that the functionality of the website is not compromised.

4) Efficient Testing:

Selenium automation is much faster than other automation testing techniques which make it the most efficient tool for web application testing.

5) Different Programming Language Support:

Selenium support multiple programming languages like Java, Perl, JavaScript, C#, Ruby, Python, and many more, which makes it is easy to integrate with the dev environment. Although it has its own script, it doesn't restrict you to that specific language. Testing teams and developers can use it with any language that they are proficient with.

6) Easy Implementation:

The user-friendly interface of selenium makes it easy for the testing team and developers to execute test cases across different platforms. The open-source features allow testing team members to write the script with their own proficiency so that it becomes easy to develop customized tests. Also, the test run report generation capability of selenium is one of the main reasons to choose it because it helps testers extract test results and take necessary action for improvements.

7) Suite of Tools:

Selenium is not a single entity. It consists of multiple testing tools, and that's why it is referred to as a suite. Each of the selenium testing tools is specifically designed for different testing requirements. For example, selenium has the capability to support Selenium IDE, Selenium Grid, Selenium Webdriver, and Selenium RC.

8) Integration with Other Tools:

Selenium follows its own set of standards which allow it to use with popular software development and testing tools easily. For example, it easily integrates SC compilers such as Maven and ANT, cloud-grids like LambdaTest, CI systems like TeamCity and Jenkins, and many other test management tools.

Que: Why testers should opt for Selenium and not QTP?

The testers should opt for Selenium as selenium tool suite has many advantages over QTP and they are mentioned below -

Selenium	QTP
Open source, free to use, and free of charge.	Commercial.

Highly extensible.	Limited add-ons.
Can run tests across different browsers.	Can only run tests in Firefox , Internet Explorer and Chrome.
Supports various operating systems.	Can only be used in Windows.
Supports mobile devices.	Supports mobile devise using 3rd party Software.
Can execute tests while the browser is Minimized.	Needs to have the application under test to be visible on the desktop.
Can execute tests in parallel.	Can only execute in parallel but using Quality Center which is again a paid product.
Can test both web and desktop applications.	Can only test web applications.
Comes with a built-in object repository.	Has no built-in object repository.
Automates faster than Selenium because it is a fully featured IDE.	Automates at a slower rate because it does not have a native IDE and only third party IDE can be used for development.
Data-driven testing is easier to perform because it has built-in global and local data tables.	Data-driven testing is more cumbersome since you have to rely on the programming language's capabilities for setting values for your test data.

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