***ASSIGNMENT 4 : AUTOMATION TESTING***

1. **Which components have you used in Load Runner ?**

**Ans :**

**Virtual User Generator :** It is used to record user actions and generate scripts that simulate user behaviour during performance tests.

**Controller:** The Controller component is responsible for managing and controlling the load test scenarios.

**Load Generators:** Load Generators, also known as load injectors, are machines or servers where virtual users are executed to generate the desired load on the application under test.

**Analysis**: The Analysis component provides tools for analysing and reporting the performance test results.

**Monitoring Agents**: Monitoring Agents are used to collect performance metrics from servers, databases, and other components of the application infrastructure.

**Protocol-specific Add-ins:** Load Runner supports various protocols, and for each protocol, there are specific add-ins available**.**

1. **How can you set the number of users in Load runner ?**

**Ans :**

* **Open the Load Runner Controller:** Launch the Load Runner Controller, which is the component used to design and execute load testing scenarios.
* **Create a New Scenario**: In the Controller, create a new scenario or open an existing one.
* **Define Your Script:** Specify the script or scripts that you want to use for the load test. A script contains the instructions that virtual users will follow during the test, such as logging in, browsing pages, submitting forms, etc. You can either record a script using the Load Runner Virtual User Generator or import an existing script.
* **Set the Number of Users**: In the scenario settings, you can specify the number of virtual users you want to simulate. This setting determines how many users will concurrently execute the script during the load test.

1. **What is correlation ?**

**Ans :** correlation refers to the relationship between two or more variables or factors that are measured or observed during the testing process. It is used to determine whether there is a statistical association or dependence between these variables.

Correlation analysis helps testers understand how changes in one variable may affect another variable. It is commonly used to measure the relationship between two sets of data, such as input and output variables, or performance metrics and system resources. By examining the correlation, testers can identify patterns, trends, or dependencies that can be useful in understanding the behaviour of the software under test.

1. **How Load Runner interacts with the application?**

**Ans : Developing a Vuser script involves several steps to create a performance testing script using Load Runner, a popular performance testing tool. Here's an overview of the process**

**• Identify the Test Scenario**: Define the purpose of the performance test, determine the business processes or user actions you want to simulate, and identify the key transactions or workflows to include in your test script.

**• Record the Script**: Use Load Runner's Virtual User Generator (VuGen) to record the user interactions with the application under test

**• Enhance the Script**: After recording, you may need to enhance the script to make it more realistic and robust

**Insert Checkpoints**: Checkpoints help verify the server response and ensure the expected functionality is working correctly

**• Add Transactions and Timers**: Transactions group related steps together, allowing you to measure the response time for specific business processes

**• Parameterize Test Data:** If your script requires different sets of data for each iteration, you can parameterize the test data.

**• Perform Debugging and Validation**: Once the script is enhanced and parameterized, it's important to validate its functionality**.**

**• Run the Script in Load Testing**: After validating the script, you can execute it in a load testing scenario

**• Analyse Results**: After the load test completes, you can analyse the results using Load Runner's analysis tools

1. **What is process for developing Vuser script ? Ans** : There are 5 steps for developing a vuser script.

* recording the vuser script .
* edit the vuser script.
* runtime setting .
* run the vuser script in stand-alone mode.
* incorporate the vuser script into a load runner scenario

1. **How many VUsers are required for load testing? Ans :** The number of virtual users (VUsers) required for load testing depends on several factors, including the specific requirements of the application or system being tested, the expected user load, and the desired level of performance. There is no fixed number that can be universally applied to all scenarios. However, I can provide you with a general approach to determining the number of VUsers for load testing.
2. **What is the relationship between Response Time and Throughput? Ans :** Response time and throughput are related. The response time for an average transaction tends to decrease as you increase overall throughput. However, you can decrease the response time for a specific query, at the expense of overall throughput, by allocating a disproportionate amount of resources to that query. 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.
3. **What is Automation Testing? Ans** : Automation Testing is a software testing technique that performs using special automated testing software tools to execute a test case suite. On the contrary, Manual Testing is performed by a human sitting in front of a computer carefully executing the test steps. The automation testing software can also enter test data into the System Under Test, compare expected and actual results and generate detailed test reports. Software Test Automation demands considerable investments of money and resources.
4. **Which Are The Browsers Supported By Selenium Ide?**

**Ans :** Selenium is not just a single tool, but a package of software tools, each providing services to different testing needs of an organization. 3 components of selenium are Selenium Web Driver, Selenium IDE, Selenium RC. Browsers supported by selenium are,  Google chrome, Internet explorer 7 onwards, Safari, Opera, Firefox.

1. **What are the benefits of Automation Testing? Ans :**

* 70% faster than the manual testing
* Wider test coverage of application features
* Reliable in results
* Ensure Consistency
* Saves Time and Cost
* Improves accuracy
* Human Intervention is not required while execution
* Increases Efficiency
* Better speed in executing tests
* Re-usable test scripts
* Test Frequently and thoroughly
* More cycle of execution can be achieved through automation
* Early time to market

1. **What are the advantages of Selenium?**

**Ans :** Language and Framework Support Open Source Availability Multi-Browser Support  Support Across Various Operating Systems Easy Of Implementation Reusability and Integrations Flexibility  Easy to Learn and Use Less Hardware Usage

1. **Why testers should opt for Selenium and not QTP?**

**Ans :**  Selenium is basically used to automate the testing across various web browsers. It supports various browsers like Chrome, Mozilla, Firefox, Safari, and IE, and you can very easily automate browser testing across these browsers using Selenium Web Driver.

### Selenium is an open source testing tool whereas QTP is paid for to use. Selenium supports multiple languages whereas QTP is mostly a VB scripting environment.

### Selenium supports multiple languages whereas QTP is mostly a VB scripting environment. Selenium offers software testers more scalability QTP doesn’t support several browsers.

* Based on the above five factors, Selenium will always be preferred over QTP and therefore the reason why it is more common.