MODULE 4 AUTOMATION CORE TESTING

1)Which components have you used in Load Runner?

- Load Runner has 4 Components: Virtual Generator, Analyzer, Controller and Load Generator.

2) How can you set the number of Vusers in Load Runner?

- You can set the number of Vusers in the controller section while creating your scenarios.

LoadRunner Controller is used to create the virtual users who replace the human users to test the performance of the application. By default, it creates 10 virtual users who will access the application simultaneously and tests the load on the application. It is also possible to increase the number of virtual users. Let us now create virtual users for the web-based application for which we have already generated the test script using the LoadRunner Virtual User Generator.

Steps:
1- Open vuser generator
2- Click on new file
3- Enter name of file
4- Enter chrome path
5- Enter link of hp website
6- Click on recording
7- Check options & close recording
8- After recording click on corelate
9- When your recording is passed then click on tool
10- Click on create controller scenario & then create vuser

3)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.
- Or if the execution of script depends upon a value returned by the server, it means you need to find a mechanism where you can "catch" the server response and attach to those requests which server expects. This is typically called Correlation in LoadRunner.

In simple words, the solution by using Correlation is:
Capture output value from a step
Use above captured value to serve as input to all subsequent steps
Correlation is classified into 2 categories in VUGen/LoadRunner:

Automatic correlation
Manual correlation

4) What is the process for developing a Vuser Script?

- vuser script may be created in four steps.

Step 1- Record the Vuser Script.
Step 2- Playback and improve the recorded vuser script.
Step 3- Define and test the different run-time parameters.
Step 4- Use the script in a LoadRunner scenario.

5) How Load Runner interacts with the application?

- Load Runner interacts with the application in the following ways:

Recording: Load Runner records the user actions on the application to create a script. The script captures the HTTP/HTTPS requests and responses exchanged between the client and server.

Parameterization: Load Runner replaces the hard-coded values in the script with dynamic values to simulate real-world scenarios. For example, it can replace a user ID with a parameter that takes input from a data file.

Correlation: Load Runner identifies dynamic values that need to be correlated and replaces them with unique values during playback. For example, it can correlate session IDs or transaction IDs.

Scripting: Load Runner allows users to manually script complex scenarios that cannot be recorded, such as multiple user sessions or complex business workflows.

Playback: Load Runner simulates multiple virtual users that interact with the application simultaneously. It measures the response time of each transaction and captures errors and exceptions.

Analysis: Load Runner provides detailed reports and graphs that help identify performance bottlenecks and areas for improvement. It also provides recommendations for optimizing the application's performance.

6) How many VUsers are required for load testing ?

- The number of VUsers required for load testing depends on various factors such as the application's complexity, expected user load, and the performance goals. It is recommended to start with a small number of VUsers and gradually increase them until the desired load is achieved. It is also important to consider the hardware and network resources available for conducting the load test. A load testing expert can help determine the appropriate number of VUsers for a specific application.

- For example, if you run a load test with 10,000 virtual users, each making a request every 20 seconds (3 requests per minute), then you're making 30,000 requests per minute, which equals 500 requests per second.

7) What isthe 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.

SELENIUM (IDE)

1) What is Automation Testing?

- 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.

  Successive development cycles will require execution of same test suite repeatedly. Using a test automation tool, it's possible to record this test suite and re-play it as required. Once the test suite is automated, no human intervention is required. This improved ROI of Test Automation. The goal of Automation is to reduce the number of test cases to be run manually and not to eliminate Manual Testing altogether.

2) Which Are The Browsers Supported By Selenium Ide?

- only for Google Chrome, Mozilla Firefox, and Microsoft Edge.

3) What are the benefits of Automation Testing?

- Saves time
- Productivity improvement
- Accuracy improvement
- Test suite reusability
- Ability to test on various platforms
- Running tests 24/7
- Early bug detection
- Less human resources
- Reduce the expenses
- Scalability of test cases
- Consistency
- Fast development and delivery
- Easily execution of lengthy and complicated test cases

4) What are the advantages of Selenium?
- Open Source
- Multi-Language Support
- Multi-Browser Support
- Platform Support
- Framework Availability
- Flexibility
- Reusability
- Integrations
- Easy to Learn and Use

5) Why testers should opt for Selenium and not QTP?

- Selenium, however, supports a wide range of programming languages. QTP/UFT test scripts run only on the Windows environment. They cannot be run across all browsers. On the other hand, Selenium is OS independent and allows test scripts to run across all browsers.

Cost: Selenium is a free and open-source tool, while QTP is a commercial tool that requires a license. This makes Selenium a more cost-effective option for small businesses or individual testers.

Language Support: Selenium supports multiple programming languages such as Java, Python, C#, etc., while QTP only supports VBScript. This provides more flexibility to the testers in terms of language preference.

Platform Support: Selenium supports multiple platforms such as Windows, Mac, and Linux, while QTP only supports Windows. This limits the testing capabilities of QTP.

Community Support: Selenium has a large and active community of developers and testers who contribute to its development and provide support. QTP does not have such a large community.

Integration: Selenium can easily integrate with other tools such as Jenkins, Maven, and Docker, while QTP has limited integration capabilities.