

Module – 4 Automation core testing

(load Runner UP and Selenium IDE)

- **Which components have you used in Load Runner?**

- Load Runner has 4 Components: Virtual Generator, Analyzer, Controller and Load Generator.
- Load runner having three main components, those are shown in below,
 1. VuGen(Virtual User Generator)
 2. load runner controller
 3. load runner analyzer
- VuGen (Virtual User Generator): By using these we can record the script and enhancement the script those are do the parametization and correlation.
- Load runner controller: Where we can configure and do load test scenarios using the recorded script from VuGen.
- Load runner analyzer: These can be used for analysis and generating the reports at the controller after test execution.
- Remaining having two components, those are load generator and agent processor
- Load generator: Load generator which is generates the load from controller and having between the servers and agent processor.
- Agent processor: Which is between load controller and load generator, by using these we can generate the load.

- **How can you set the number of Vusers in Load Runner?**

- In load runner set the number of Vusers in the controller section while creating your scenarios. Many other advanced options like ramp-up, ramp-down of Vusers are also available in the Controller section.

- **What is corelation?**

- Correlation is a process of capturing and storing the dynamic response from the server and passing it in the subsequent requests.

- **What is the process for developing a Vuser Script?**

- A 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 Load Runner scenario.
- **How Load Runner interacts with the application?**
 - Load runner is simulates user activity by generating message between application components or by simulating the interactions with the user interfaces such as key presses or mouse movements. The message and interactions to be generated are stored in one script.
 - **How many V Users are required for load testing?**
 - The goal of load testing is to find problems before they impact users. The more realistic your simulation, the more likely you'll catch bottlenecks that lead to a bad user experience.
 - While many variables affect accuracy, the number of concurrent virtual users is one of the most important. Ideally, you could test with as many virtual users as you need. In practice, this may be too expensive because load testing software is priced on the number of concurrent virtual users.
 - **What is the relationship between Response Time and Throughput?**
 - **Response time:** This is the time difference between submission of a request until the response begins to be received. The response time should be as low as possible so that a large number of interactive users receive an acceptable response time.
 - **Throughput:** The number of processes that are completed per unit time is called the throughput.

An Example to further clarity difference between response time and throughput:

- Take an example of performance, a common measure of disk performance is the response time. This measures the elapsed time from when a command is issued to the disk drive to when data transfer is completed and the disk drive signals completion of the command. Response time is basically a measure of how fast a drive is in servicing a request.
- **What is the difference between hits/second and requests/second?**
 - Hits per second represent the number of requests sent to the server in one second (the load which the server is being hit). Hits per second are the total load set by the concurrent virtual users on the server, no matter if they are executed successfully or not on the server side.

- **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.
- **Test Automation** is the best way to increase the effectiveness, test coverage, and execution speed in software testing. Automated software testing is important due to the following reasons:
 - Manual Testing of all workflows, all fields, all negative scenarios is time and money consuming
 - It is difficult to test for multilingual sites manually

- **Which Test Cases to Automate?**

- Test cases to be automated can be selected using the following criterion to increase the automation ROI
 - High Risk – Business Critical test cases
 - Test cases that are repeatedly executed
 - Test Cases that are very tedious or difficult to perform manually
 - Test Cases which are time-consuming

The following category of test cases is not suitable for automation:

- Test Cases that are newly designed and not executed manually at least once
- Test Cases for which the requirements are frequently changing
- Test cases which are executed on an ad-hoc basis.

Automated Testing Process:

Following steps are followed in an Automation Process

Step 1) Test Tool Selection

Step 2) Define scope of Automation

Step 3) Planning, Design and Development

Step 4) Test Execution

Step 5) Maintenance

- **What are the benefits of Automation Testing?**

- 70% faster than the manual testing
- Wider test coverage of application features
- Reliable in results
- Ensure Consistency
- Saves Time and Cost
- Improves accuracy
- 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

- **Which Are The Browsers Supported By Selenium IDE?**

- Selenium IDE has add-ons for Firefox and Chrome browsers. Selenium IDE comes with a rich set of commands that are powered by Selenese, and it allows you to record and test different interactions of a web application with the browser.
- Selenium Integrated Development Environment (IDE) is the simplest framework in the Selenium suite and is the easiest one to learn.
- It is a Firefox plugin that you can install as easily as you can with other plugins. However, because of its simplicity, Selenium IDE should only be used as a prototyping tool.
- If you want to create more advanced test cases, you will need to use either Selenium RC or WebDriver.

- **What are the advantages of Selenium?**

- Selenium is an open-source automation testing tool and it is free of cost to use.
- Selenium provides high tester flexibility to write advanced and complex test cases.
- Supports test scripts written in any user-preferred languages such as C#, Java, Perl, PHP, Python, and Ruby
- Supports test case execution on multiple operations systems such as Windows, Linux, Android, Mac, and iOS.

- Supports testing on different web browsers such as Chrome, Firefox, Internet Explorer (IE), Opera, and Safari.
- Test cases can be executed while the browser window is minimized.
- Selenium supports parallel test execution.
- Selenium can be integrated with Jenkins, Docker, and Maven to attain continuous testing.

- **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.
- QTP/UFT only supports the VBScript programming language. Test scripts cannot be written in any other language. 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.
- QTP/UFT does not support different IDEs. It works only on QTP/UFT developed IDEs.
- QTP/UFT has its own in-built object repository that helps in organize application data. Selenium does not provide this feature.
- The speed of automation when using QTP/UFT is faster compared to that of Selenium.