

# Software Testing Assignment

## Module-4 Automation Core Testing (Load Runner Up and Selenium IDE)

1) Which components have you used in Load Runner?

- **Load Generator** - It is used to generate the load against the application by running the script.
- **VuGen** - It is used for generating and editing scripts.
- **Controller** - It is used to control, launch, and sequence the instance of a Load Generator.
- **Agent Process** - It is used to manage the connection between the Controller and Load Generator instances.
- **Analysis** - It assembles the logs from different load generators and formats the reports for visualization of results and monitoring data.

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**. Many other advanced options like ramp-up, ramp-down of Vusers are also available in the Controller section.

3) What is Correlation?

- Correlation is used to obtain data which are unique for each run of the script and which are generated by nested queries. Correlation provides the value to avoid errors arising out of duplicate values and also optimizing the code (to avoid nested queries).

What are the 3 types of correlation?

### Types of Correlation

- **Positive Linear Correlation**. There is a positive linear correlation when the variable on the x-axis increases as the variable on the y-axis increases. ...
- **Negative Linear Correlation**. ...
- **Non-linear Correlation** (known as curvilinear correlation) ...
- **No Correlation**.

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

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.

## 5) How Load Runner interacts with the application?

- Load Runner simulates user activity by **generating messages between application components or by simulating interactions with the user interface such as key presses or mouse movements**. The messages and interactions to be generated are stored in scripts.

## 6) How many VUsers are required for load testing?

- This calculator gives a reference or guesstimate of the number of concurrent users required for running a load test. This calculator should not be used to estimate the number of pages that will load within aspecific time interval.

- **Peak Hour Page Views [Expected]**

5000

- **Session Length in Seconds**

[ =Page Load Time + User Think Time]

300

- **Concurrent Users**

416

- **Peak hour page views:**

- The goal of load testing is to determine the volume of page views or transactions your site can accommodate without breaking. You can get peak hour page views from your web analytics team or tools such as Google analytics. Generally, the target number of page views should be based on the application's future peak hour of usage. Let's say you

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run an ecommerce site, and last holiday season your site experienced 10,000 page views during peak hour and you expect the traffic to increase by 25% this year. In this case start with the peak hour page views of 12,500 to better prepare for the upcoming traffic surge.

- Another way to determine page views is by reverse engineering checkouts or conversions. Ex. Your site can handle 1000 checkouts in an hour and you have a 10 step checkout process. So the total number of page views for this process is 10 steps x 1000 transactions = 10,000 page views.
- **Session Length**
- Per Google Analytics support page: A **session** is a group of interactions that take place on your website within a given time frame. For example a single session can contain multiple screen or page views, events, social interactions, and ecommerce transactions. Session length comprises on page load time and user think time.
- **Concurrent Users**
- A **concurrent user** runs through a transaction from start to finish, and then repeats until the test is over. A “**unique user**,” on the other hand, is simply a single execution of a concurrent user or the completion of one transaction (execution of the test script from start to finish). Depending on a number of factors, concurrent users are able to generate the traffic.

## 7) What is the relationship between Response Time and Throughput?

- 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.
- In terms of load/Performance testing. Throughput and Response times are **inversely proportional**. I.e. with increase in response time throughput should decrease. With increase in Throughput response time should decrease.

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8) What is the difference between hits/second and requests/second?

- Hits per second means the number of hits the server receives in one second from the vuser.
- Request per second is the number of request the vuser will request from the server.
- Hits/second are the number of HTTP requests made by VUsers to the Web Server in a scenario or session step run on a per second basis. Requests/second are the number of requests completed during each second of scenario run.

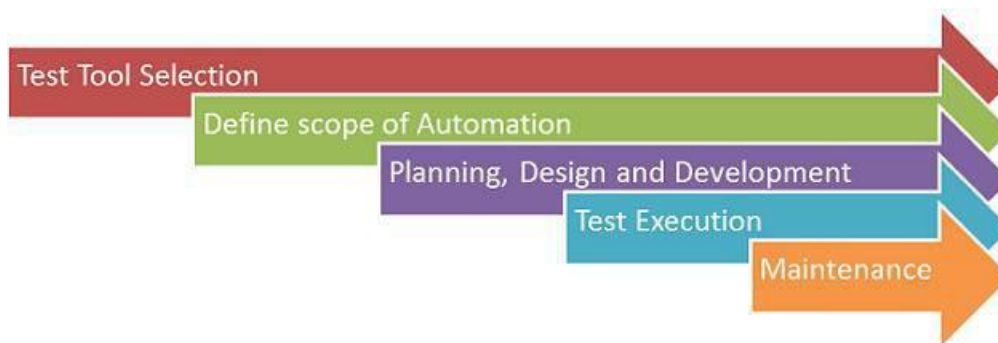
## Selenium IDE):

9) 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.

### **Automation Process:**

- Test Tool Selection
- Define the Scope of Automation
- Planning, Designing and Development
- Test Estimation
- Maintenance



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## 10) Which Are The Browsers Supported By Selenium Ide?

- **Browsers**

<i>Selenium IDE</i>	<i>Selenium RC</i>	<i>WebDriver</i>
Mozilla Firefox	Internet Explorer, Google Chrome, Mozilla Firefox, Safari, Opera, Partial support for other browsers	Internet Explorer, Google Chrome, Mozilla Firefox, Safari, Opera, HtmlUnit, Phantomjs, Android, iOS

- **Operating Systems**

<i>Selenium IDE</i>	<i>Selenium RC</i>	<i>WebDriver</i>
Windows, Mac OS, Linux, Solaris	Windows, Mac OS, Linux, Solaris	Windows, Mac OS, Linux, Solaris

- **Programming Languages**

<i>Selenium IDE</i>	<i>Selenium RC</i>	<i>WebDriver</i>
Can generate custom code	Java, C#, Perl, Python, Ruby, PHP and any language that can make a HTTP call	Java, C#, Perl, Python, Ruby, PHP

- **Testing Frameworks**

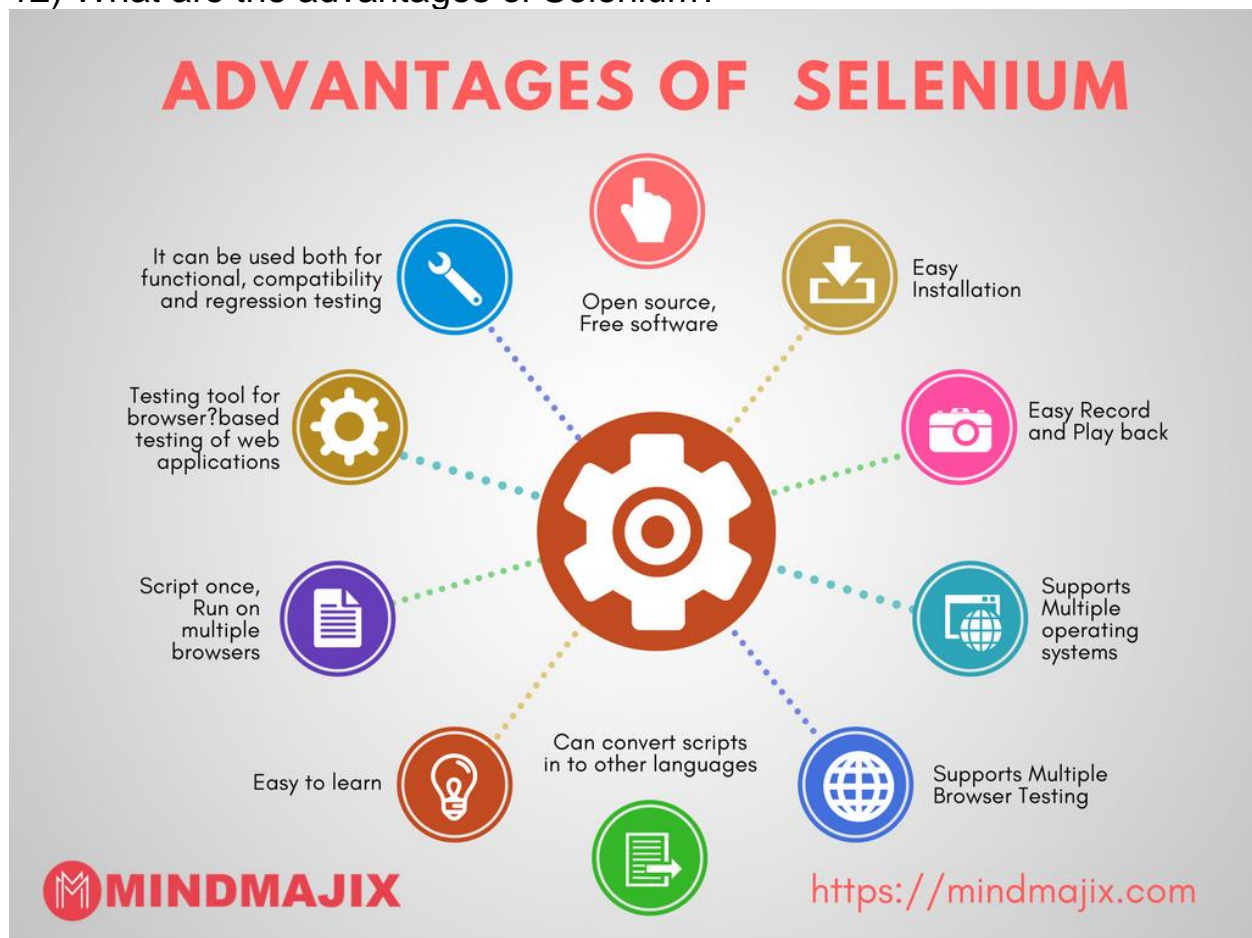
<i>Selenium IDE</i>	<i>Selenium RC</i>	<i>WebDriver</i>
Can generate code	RSpec (Ruby), Test::Unit (Ruby), unittest (Python 2), JUnit 3 (Java), JUnit 4 (Java), TestNG (Java), NUnit (C#)	RSpec (Ruby), Test::Unit (Ruby), unittest (Python 2), JUnit 4 (Java), TestNG (Java), NUnit (C#)

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## 11) 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
- 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

## 12) What are the advantages of Selenium?



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

- With Selenium grid, you have the ability to run as many tests as you want. Further, you can achieve this when you need and in parallel. You will just need a browser so that you can run the test. **With QTP testing tool, there is no resource like selenium grid and hence selenium takes preference here.**