**Module-4**

**Automation Core Testing**

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

* **Load Generator** generates the load against the application by following scripts
* **VuGen** (Virtual User Generator) for generating and editing scripts
* **Controller** controls, launches and sequences instances of Load Generator - specifying which script to use, for how long etc. During runs the Controller receives real-time monitoring data and displays status.
* **Agent process** manages connection between Controller and Load Generator instances.
* **Analysis** assembles logs from various load generators and formats reports for visualization of run result data and monitoring data.

1. **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.

1. **What is Correlation?**

Correlation in JMeter is the process of capturing and storing the dynamic response from the server and passing it on to subsequent requests.**In JMeter, correlation is very important.** That's because dynamic sites require correlation during performance load test scripting. If it isn't handled correctly, the script is useless.

1. **What is the process 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 Load Runner interacts with the application?**

Load Testing is done to check when the application fails by increasing the number of users and keeping the system resources constant.

1. **How many VUsers are required for load testing?**

The peak load will be 500 VUsers. Suppose there is no data available on TPS and Response Time, and you are aware of any one of the following combinations, you can use this online calculator. It is vitally important to simulate the input data in load/stress testing.

1. **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. Conversely, you can maintain overall throughput by restricting the database’s resources to a large query.

The trade-off between throughput and response time becomes evident when you try to balance the ongoing need for high transaction throughput with an immediate need to perform a large decision-support query. The more resources that you apply to the query, the fewer you have available to process transactions, and the larger the impact your query can have on transaction throughput. Conversely, the fewer resources you allow the query, the longer the query takes.

1. **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 whion ch the server is being hit).

Hits per second is 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.

The number of requests executed successfully by the server per unit of time is called **throughput**. Learn about [**what is throughput in performance testing**](https://loadfocus.com/blog/2013/07/what-is-throughput-in-performance-testing/)**.**

**Selenium IDE**

1. **What is Automation Testing?**

Automated testing is **a process that validates if software is functioning appropriately and meeting requirements before it is released into production**. This software testing method uses scripted sequences that are executed by testing tools.

1. **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.

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

**1. Saves Time and Money:**Testing applications is a continuous process. Every time a code is modified, you must test it across various configurations, operating systems, and different user journeys. Testing all the possibilities manually means enormous testing effort and associated higher costs. The cost and effort only grow exponentially, owing to the expanding applications. With test automation, you can run tests repeatedly at no additional costs.  It is also faster. Unlike 8 hours/day in manual testing, you can run automated tests 24/7, which means executing tests for an extra 16 hours a day. This translates to faster delivery of functionalities and a shorter time to market. Usually, when teams consider automation, the first thing that seems like a concern is the high initial setup and implementation cost.

**2**. Increases Test Coverage:  
Complex enterprise application requires a larger team and a significant amount of time to carry out end-to-end testing. With test automation, especially no-code, you can test applications of any size, end-to-end, with a few clicks of the buttons in a few minutes or hours. This enables you to test more features across heterogeneous applications and configurations: the result – is enhanced coverage and higher quality. Expansive test coverage also increases the probability of identifying the bugs early in the development phase, decreasing production issues and unsatisfactory user experience.

**3. Improves Accuracy:** The exposure and expertise of a manual tester determine how thoroughly your applications get tested.  Test automation, when implemented accurately, removes your dependency on these parameters, delivering  expected results every time. Yet another aspect that impacts quality is manual errors. Irrespective of how meticulous a quality engineer  is, there is always a possibility of missing a few steps, entering the wrong data, or any trivial manual error  – leading to poor application quality.

**4. Enables Reusability :** Manual testing, especially regression testing, can seem extremely tedious as you need to test ange. Writing scripts, running them over and over again is nothing short of a nightmare.  With no-code test automation, you need not write test cases or execute them manually when the  codebase changes.

5.**Promises Information Security :**The quality of your test data broadly defines how effective your testing will be. Unfortunately, manually creating quality test data takes time, testing on copies of live databases. With test automation solutions, you can create and protect your test database and use it when required.

**6. Easy Reporting Makes Life Easier :**Reporting in manual testing is cumbersome. It involves constantly updating the number of test scripts written and the number of bugs fixed – creating a dependency on each other. With test automation, reporting is seamless. In a test automation solution like Avo Assure, you get screenshots and videos of the execution of each step, which makes it easier to identify the error and fix it.

**7. Offers Scalability :**

While manual testing is relatively scalable, the investment and time required to scale can impact the delivery timelines. It simply means scaling in manual testing indicates adding more hands to the project.  Getting them on board and training them needs time. Test automation, on the other hand, can scale in a  matter of minutes. It simply means adding more test executors to the test automation solution.

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

* It is simple, easy to install and use.
* No prior programming knowledge is needed, though basic knowledge of DOM and HTML is required.
* Test cases can be exported to usable formats in Selenium WebDriver and RC.
* Extensions are supported.
* Built-in test results reporting and help modules
* Supports appropriate scripting, reporting and debugging besides recording and replaying.
* Can export recorded tests in different programming languages like Java, Python, Ruby etc.

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

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| Selenium | OTP |
| 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 have the minimized to be visible on the desktop | Needs to have the application under test |
| Can execute tests in parallel. | Can only execute in parallel but using Quality Center which is again a paid product. |