**Modul 4,5**

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

**Load Runner up by HP(LR)**

Some Testing Definitions

* Stress Testing: Stress Testing is done in order to check when the application fails by reducing the system resources such as RAM, HDD etc. and keeping the number of users as constant.
* Load Testing: Load Testing is done in order to check when the application fails by increasing the number of users and keeping the system resources as constant.
* Performance Testing: The term performance can mean measuring response time, throughput resource utilization, or some other system characteristic (or group them) by varying the number of users.
* Benchmark Design

The Benchmark is the representative workload used during the performance test run. It should be representative of the likely real-world operating conditions. Benchmark is provided by the client. In Industry scenario the benchmark is as follows: No. of transactions passed per second >= 8 Response time <= 5 sec.

**Performance Testing Tools**

**What is Correlation?**

**Automation Core Testing**

* Test automation is the use of software to control the execution of tests, the comparison of actual outcomes to predicted outcomes, the setting up of test preconditions, and other test control and test reporting functions.
* Commonly, test automation involves automating a manual process already in place that uses a formalized testing process.
* Although manual tests may find many defects in a software application, it is a laborious and time-consuming process.
* In addition, it may not be effective in finding certain classes of defects.
* Once tests have been automated, they can be run quickly.
* **Fundamental of Automation testing**
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* Test automation is a process of writing a computer program to do testing that would otherwise need to be done manually.
* Once tests have been automated, they can be run quickly.
* This is often the most cost-effective method for software products that have a long maintenance life, because even minor patches over the lifetime of the application can cause features to break which were working at an earlier

point in time.

Approach to Test Automation

* Code-driven testing: The public (usually) interfaces to classes, modules, or libraries are tested with a variety of input arguments to validate that the resulted that are returned are correct.
* Graphical user interface testing: A testing framework generates user interface events such as keystrokes and mouse clicks, and observes the changes that result in the user interface, to validate that the observable behavior of the program is correct.

Factors of Automated Test Tools

* Examine your current testing process and determine where it needs to be adjusted for using automated test tools.
* Be prepared to make changes in the current ways you perform testing.
* Involve people who will be using the tool to help design the automated testing process.
* Create a set of evaluation criteria for functions that you will want to consider when using the automated test tool. These criteria may include the following:

Test repeatability

Criticality/risk of applications

Operational simplicity

Ease of automation

Level of documentation of the function (requirements, etc.)

* Examine your existing set of test cases and test scripts to see which one are most applicable for test automation.
* Train people in basic test-planning skills.

Challenges of Test Automation

* Buying the Wrong Tool
* Inadequate Test Team Organization
* Lack of Management Support
* Incomplete Coverage of Test Types by the selected tool
* Inadequate Tool Training
* Difficulty using the tool
* Lack of a Basic Test Process or Understanding of What to
* Test
* Lack of Configuration Management Processes
* Lack of Tool Compatibility and Interoperability
* Lack of Tool Availability

**Why Automation?**

* Speed – Automation Scripts run very fast when compared to human users
* Reliable – Tests perform precisely the same operations each time they are run, thereby eliminating human error.
* Repeatable – We can test how the application reacts after repeated execution of the same operation
* Comprehensive – We can build a suite of tests that covers every feature in our application
* Reusable – We can reuse tests on different versions of an application, even if the user interface changes.
* Automate your testing procedure when you have lot of regression work.
* Automate your load testing work for creating virtual users to check load capacity of your application.
* Automate your testing work when your GUI is almost frozen but you have lot of frequently functional changes.

**Automation Process**

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

**Automation Framework**

* A test automation framework is a set of assumptions, concepts and tools that provide support for automated software testing.
* The main advantage of such a framework is the low cost for maintenance.
* If there is change to any test case then only the test case file needs to be updated and the Driver Script and Startup script will remain the same.
* Ideally, there is no need to update the scripts in case of changes to the application.
* Choosing the right framework/scripting technique helps in maintaining lower costs.
* The costs associated with test scripting are due to development and maintenance efforts.
* The approach of scripting used during test automation has effect on costs.

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**Performance Testing Tools**

* Segues Silk Performer
* Rational Team Test- Mercury Load Runner
* Empirix e-Load/RSW
* Soft Light Tools Loader

**Advantages of Selenium over QTP**

Otp selenium

1Commercial. 1 Open source, free to use, and

Of charge

2 Limited add-ons 2 Highly extensible

3 Can only run tests in Firefox, Internet 3 Can run tests across differen

Explorer and Chrome browser

4Can only be used in Windows 4 Supports various operating systems

5Supports mobile devise using 3rd party 5 Supports mobile devices

Software

* What is the process for developing a Vuser Script?
* 1 recording the vuser script
* 2 edit the vuser script
* 3 runtimes setting
* 4 run the vuser script in stand-alone mode
* 5 incorporate the vuser script into a load runner scenario
* How Load Runner interacts with the application?