Q1 Which components have you used in Load Runner?

ANS: Load Runner is a performance Testing Tool used to test application under load. Here are the component of Load Runner.

- Virtual User Generator
- Controller
- Load Generators

Q2 How can you set the number of Vusers in Load Runner?

ANS: To set the number of Virtual Users (Vusers) in LoadRunner, follow these steps:

1. **Open the Controller**:

   - Launch LoadRunner Controller from the LoadRunner main menu.

2. **Create a New Scenario**:

   - Create a new scenario by selecting "File" > "New Scenario" or opening an existing one.

3. **Add Vuser Scripts**:

   - Add the required Vuser scripts by selecting "Scenario" > "Add Scripts" and choosing the scripts created in VuGen.

4. **Configure the Number of Vusers**:

   - In the Scenario Groups pane, click on the script name to highlight it.

   - Set the number of Vusers by editing the "Vusers" column for the script or by right-clicking the script name and selecting "Details". Enter the desired number of Vusers in the "Quantity" field.

5. **Define Load Distribution**:

   - Optionally, distribute Vusers across multiple Load Generators if needed by configuring the "Load Distribution".

6. **Schedule the Scenario**:

   - Go to the "Design" tab and then "Scenario Schedule".

   - Configure how the Vusers will ramp up and down. For example, you can specify the start time, ramp-up rate (e.g., 10 users every minute), and the duration of the test.

7. **Save the Scenario**:

   - Save the scenario settings by selecting "File" > "Save" or "Save As".

8. **Run the Scenario**:

   - Start the scenario by clicking the "Start Scenario" button in the Controller.

Q3 What is Correlation?

ANS: Correlation is the process of capturing and using dynamic data that is generated by the server during test execution. This dynamic data, which often includes session IDs, tokens, and other unique values, needs to be handled correctly to simulate realistic user interactions and avoid errors in the script.

Q4 What is the process for developing a Vuser Script?

ANS: Developing a Vuser (Virtual User) script in LoadRunner involves several key steps. Here's a Detailed Process for creating and refining a Vuser Script:

- **Planning**: Define objectives, identify key processes, and set up the test environment.
- **Recording**: Use VuGen to record user actions in the application.
- **Enhancing**: Parameterize inputs, handle dynamic values with correlation, add checkpoints, and implement error handling.
- **Debugging**: Run the script in VuGen, check logs, and fix issues.
- **Load Testing**: Create a scenario in the Controller, configure Vusers, distribute load generators, and execute the test.
- **Analyzing**: Use LoadRunner Analysis to review metrics, identify bottlenecks, and generate reports.

- **Iterating**: Refine the script and re-test to optimize performance.

Q5 How Load Runner interacts with the application?

ANS: Load Runner interacts with the application under test through the following mechanisms:

- **Recording**: Captures user interactions with the application through VuGen, recording HTTP/S requests and actions.
- **Parameterization**: Allows for the variation of user inputs (e.g., usernames, passwords) to simulate diverse user behaviors.
- **Correlation**: Handles dynamic data (e.g., session IDs, tokens) by automatically correlating and managing these values during script execution.
- **Execution**: Scripts are executed by virtual users (Vusers) in the Controller, simulating concurrent user activity on the application.
- **Monitoring**: Monitors application performance in real-time, capturing metrics such as response times, throughput, and resource usage.
- **Analysis**: Analyzes test results using LoadRunner Analysis to identify performance bottlenecks and generate comprehensive reports.

Q6 How many VUsers are required for load testing?

ANS: The number of Virtual Users (Vusers) Required for load testing depends on several factors specific to your application and Testing goals.

- **Application Complexity**: Simple applications may require fewer VUsers, while complex applications (e.g., ERP systems, e-commerce platforms) typically need more.
- **Expected User Load**: Determine the anticipated number of concurrent users or transactions your application needs to handle. This often involves consulting with stakeholders or using analytics to estimate peak traffic.
- **Scalability Requirements**: Consider if your application needs to scale up rapidly during peak usage periods or events.
- **Performance Goals**: Define performance metrics such as response time, throughput, and error rates to ensure they meet acceptable thresholds under load.
- **Infrastructure Constraints**: Assess the resources available for load testing, including the number of load generators and their capabilities.
- **Budget and Time Constraints**: Balancing the required number of VUsers with available resources and project timelines.

Q7 What is the relationship between Response Time and Throughput?

ANS: The Relationship between Response Time and Throughput is performance testing is crucial for understanding and optimizing application performance.

- **Definition**: Response Time is the total time from request initiation to response completion.
- **Measurement**: It's typically measured in milliseconds (ms).
- **Throughput**: Represents the number of transactions processed per unit of time (e.g., requests per second).
- **Inverse Relationship**: Generally, as Throughput increases, Response Time tends to increase as well.
- **Resource Impact**: Higher Throughput may strain resources (CPU, memory), leading to longer Response Times.
- **Optimization Goal**: Performance testing aims to balance Throughput and Response Time for optimal system efficiency.
- **Analysis**: Evaluating these metrics helps identify performance bottlenecks and optimize resource allocation.

Q8 To test the Performance testing on "Tops Technologies website":- https://www.saucedemo.com/

1. To Record all top level menu.

2. To Record minimum 10 Vuser on this website.

3. Save all (Script, Design, and Graph).

4. Create a normal script of above website with correlate using hp default website.

ANS: [mihirpatel03200/Assignment-4 (github.com)](github.com)

Q9 What is Automation Testing?

ANS: Automation Testing user tools and scripts to perform software test, ensuring functionality and efficiency. It automates repetitive and complex scenarios, enhancing speed, consistency and coverage. Common tools include Selenium, QTP, and LoadRunner. Benefits include

Q10 Which Are The Browsers Supported By Selenium Ide?

ANS: Selenium IDE supports following Browser:

- Google Chrome.
- Firefox.
- Internet Explorer (7 onwards).
- Safari.
- Opera.

Q11 What are the benefits of Automation Testing?

ANS: Here 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.

Q12 What are the advantages of Selenium?

ANS: Here are the advantages of Selenium:

- Very easy to use and install.
- No programming experience is required through knowledge of HTML and DOM are needed.
- Can export tests to formats usable in Selenium RC and WebDriver.

- Has built-in help and test result reporting module.
- Provides supports for extensions.

Q13 Why testers should opt for Selenium and not QTP?

ANS:

Selenium	OTP
Open sources, 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 device using 3rd party software.
Can execute tests while the browser is 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.

Q14 To validate the tops technologies website Contact us page and enter your friend detail at last "Login and sidemenu" https://www.saucedemo.com/.

ANS: mihirpatel03200/Assignment-4 (github.com)