JMeter

Apache JMeter is a Java-based open source load testing tool that can be used to analyse a system's functional behaviour and measure its performance during a load test. A load test will simulate end-user behaviour that pushes an application's specifications to their limits. To test a system's strength, Apache JMeter can be used to simulate varying or heavy loads on single or multiple servers, networks, or objects.

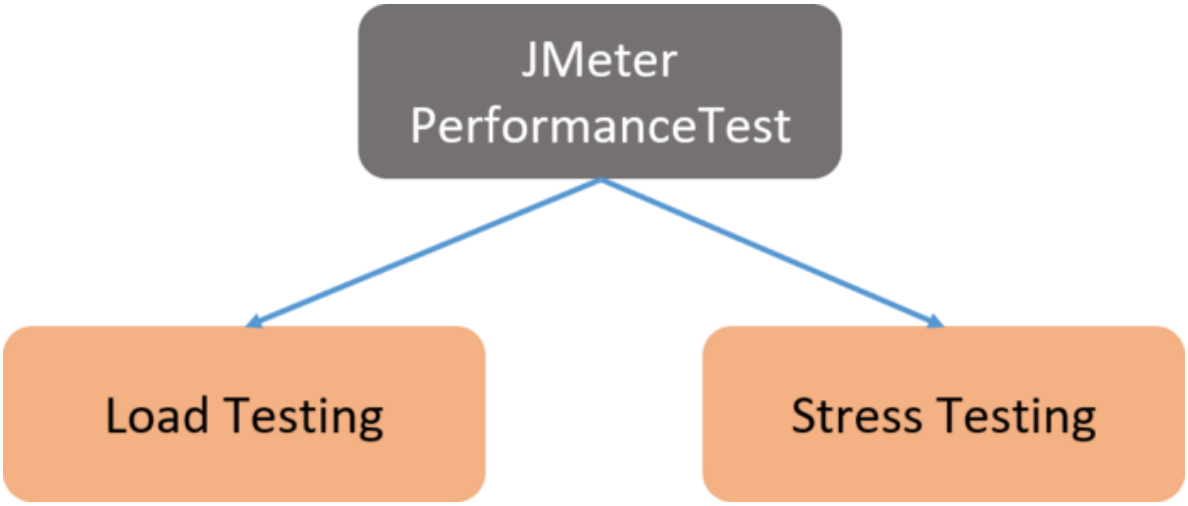
JMeter simulates groups of users sending requests to a server or network, then returns statistics to the user in the form of visual diagrams. Although Apache JMeter's user interface resembles that of a browser, it is unable to render HTML pages or the JavaScript contained within them in the same way that a browser would.

Uses for JMeter

Performance, spike, and unit testing can all be done with Apache JMeter. The process of determining the speed, responsiveness, and stability of a computer, network, software programme, or device under load is known as performance testing. Spike testing is a type of load testing in which the load is rapidly increased and decreased in short bursts before returning to an average load.

Benefits of JMeter

- Offline analysis of test results is supported.
- Test results can be displayed in a variety of ways, including graphs, trees, tables, and log files.
- Graphical user interface that is easy to use (GUI).
- All types of performance testing such as load Testing, stress testing, and stability testing.



Load Testing:

Simulating multiple users accessing Web services at the same time to model expected usage.

Stress Testing:

Every web server has a limit to how much capacity it can handle. When the load exceeds the limit, the web server becomes slower and generates errors. The primary objective of stress testing is to determine the web server's maximum load capacity.

Elements of JMeter

1. Thread Group

- each thread represents 1 user request

2. Samplers

- FTP Request: let's you send an FTP download or upload file request to an FTP server.

- HTTP Request: let's you send an http or https request to a web server.

- JDBC Request lets you execute database performance testing, sends JDBC request to database.

- BSF Sampler allows you to write a sampler using a BSF scripting language

- Access Log Sampler: allows you to read access logs and generate http requests, the log could be image, html, CSS etc.

- SMTP Sampler: used to send email messages using SMPT protocol.

3. Listeners

Shows results of the test execution, they can show results in different format such as a:

Graph: displays server response times on a graph
Table: summary of a test result in table format
Tree: shows user request in basic html format
Log: summary of a test result in the text file