

What is performance testing

Performance testing is a **non-functional software testing technique** that determines how the stability, speed, scalability, and responsiveness of an application holds up under a given workload

Why?

Performance Testing is **done to provide stakeholders with information about their application regarding speed, stability, and scalability**. More importantly, Performance Testing uncovers what needs to be improved before the product goes to market.

Performance testing helps to check the behaviour of an application across various situations. A system can work effectively with a particular number of concurrent users, but might get dysfunctional with additional thousands during peak traffic. Performance tests help establish speed, scalability, and stability of the software application. There are varied types of Performance tests that simulate various possible user scenarios and understand the behaviour of the applications.

Load Testing

Load testing is sort of the simplest form of performance testing. You induce a normal or expected workload to a system under test and observe it. You can use load tests to determine general system behavior, latency and throughput. In general load tests are used to verify your quality criteria.

Stress Testing

Stress testing is basically a load test, but we are applying a higher-than-expected workload and see how the system behaves under serious stress and when exceeding the design limits. You want to learn when your system breaks and how it starts to fail when being in a serious traffic situation.

Soak Testing

Soak testing, again, is basically a load test where you hold the load over longer periods of time to look for long term effects, like memory leaks, disk space filling up, etc. The duration of a soak test depends on your situation. Usually a soak test runs for several hours.

Volume testing:

Volume testing is non-functional testing which refers to testing a software application with a large amount of data to be processed to check the efficiency of the application. The main goal of this testing is to monitor the performance of application under varying database volumes.

When to do performance testing?

The earlier you start performance testing, the cheaper it will be. The matter is that system capacities depend on database, web servers, and network. If you detect any issues with hardware configuration at the stage of software deploy, then their fixing will be very expensive. So I recommend to test a server even before the software development to avoid double work. If you are developing a website and several pages are ready, you can also start performance testing

What does bottleneck mean?

A bottleneck is **a point of congestion in a production system** (such as an assembly line or a computer network) that occurs when workloads arrive too quickly for the production process to handle. ... A bottleneck affects the level of production capacity that a firm can achieve each month.

How do you measure bottleneck performance?

Identifying Performance Bottlenecks lists **hardware classes according to relative access speed**, implying that slow access points, such as disks,

are more likely to be the source of bottlenecks. However, processors that are underpowered to handle large loads are also likely sources of bottlenecks.

Name some of the common Performance Testing Tools.

The market is full of a number of tools for test management, performance testing, GUI testing, functional testing, etc. I would suggest you opt for a tool which is on-demand, easy to learn as per your skills, generic and effective for the required type of testing. Some of the common [Performance Testing tools](#) are:

- LoadView
- Apache JMeter
- LoadUI Pro
- WebLoad
- NeoLoad

What is throughput in Performance Testing?

Throughput is referred to the amount of data transported to the server in responds to the client request at a given period of time. It is calculated in terms of requests per second, calls per day, reports per year, hits per second, etc. Performance of application depends on throughput value, higher the value of throughput -higher the performance of the application.

What are the entering & exiting criteria for Performance Testing?

The starting of the performance testing is done at the design level only. After the testing is done, results are collected and later they are analyzed in order to make improvements regarding the performance. During the whole process of life cycle development, performance tuning is done and the factors on which it is based are scalability and reliability during the presence of the load, application release time and tolerance criteria of performance and stress.

What are the activities involved in Performance Testing?

The activities involved in Performance Testing are:

- Requirement gathering
- Tool selection
- Performance test plan
- Performance test development
- Performance test modeling
- Test Execution
- Analysis
- Report