**What Is Non-functional Testing? - way software works** and **how well it works**

* Non-functional testing solely **focuses on the good quality** of the software especially the non-functional aspects such as **response time**, **security scalability, performance** etc.
* Is just as important as [functional testing.](https://www.perforce.com/blog/alm/what-functional-testing)Both ensure that your product is working as it should.
* But non-functional testing **checks things** that **aren’t covered** in **functional tests**.

Types of Non-Functional Testing**:**

There are several different **types** of **non-functional tests**. The most common ones are:

**Performance Tests:**

* Performance testing **checks response time aligns** with **desired time**.
* Performance testing is **carried out** as a part of **integration testing**. These tests find issues in software design and architecture performance.

This is typically done by:

* Measuring response times.
* Identifying bottlenecks.
* Locating failure points.

**Load Tests:**

* Load testing **checks** whether the system can **sustain** the **pressure/load** of **many users accessing** the **application at a time**.
* We can do load tests by running multiple applications simultaneously, subjecting a server to a lot of traffic, or downloading a large quantity of files.

**Stress Tests:**

* Stress testing is conducted to **push** the **application beyond** its **capabilities** to **observe how it reacts**.
* Contrary to load testing where maximum of load is generated, stress testing is **conducted** where the **load** which is **generated** is **more than** the **application** can **manage**.
* This determines the **limit at which the software will break**.
* Stress tests are used to **analyse what happens when a system fails**. This **ensures** that **software** is **recoverable, stable, and reliable**.

**Volume Tests:**

* Volume testing is carried out to **check** the **storage requirements** and **capabilities of the application**.
* At times, when the **database** is **very large** in **size**, **performance of the application** and **its ability to exchange data** and **information** are tested with volume testing implementation works when the system

**Security Tests:**

* Security testing checks **software** to **find flaws** that **may compromise data**. The goal of security testing is to prove that an attack won’t happen.

Common security tests include:

* Vulnerability scans
* Security scans
* Penetration testing
* Risk assessment
* Security audits
* Posture assessment
* Ethical hacking

Running these tests is important to developing a safe, stable system.

**Upgrade and Installation Tests:**

* Upgrade testing and installation testing verify that **software will work properly on everyone’s machines**. So, **upgrade** testing is **done for existing users**.
* And **installation** testing is **done for new users.**

Both of these types of functional tests are important for user satisfaction.

**Recovery Tests:**

* Recovery tests **determine how quickly software** can **rebound after a crash or failure**. This **is done by forcing the system to fail**.

This type of testing is done to see what happens:

* To the software if you unplug the hardware.
* If you disconnect from the network during a data transfer.
* When you restart the system unexpectedly.
* Recovery tests are important to improving software performance.