**Software testing:**

Checking the performance and quality of the software, Aim of software testing was providing error free software to the customer and fulfill all the requirements given by the customer. Software testing is not only finding the mistakes in the software at the same time improving the efficiency of the software.

Software testing is the process of evaluating and verifying that a software product or application does what it’s supposed to do. The benefits of good testing include preventing bugs and improving performance.

Software errors can make time loss, financial loss and human loss too so testing the software was very important. When we think about quality, Organizations have to focus on testing applications and fix the bugs that testing reveals before releasing the product. When the team resolves issues before the product reaches the customer, the quality of the deliverable increases.

Software testers use a combination of manual testing with automated tools. After conducting tests, the testers report the results to the development team. The end goal is to deliver a quality product to the customer, which is why software testing is so important.

**Types of Software Testing:**

Two different approaches for software testing: manual testing & automation testing. Each approach carries its own set of advantages and disadvantages

**Manual Testing:** Testing software manually by humans without any automation tool or script.They play the end-user role and try to find as many bugs in the application as quickly as possible.

Test plan creation

Requirement analysis

Test case creation

Defect fix & Reverification

Test case execution

Defect logging

**Automation Testing:** Testing software using tools or scripts that automatically interact with the software. The human tester only needs to execute the script and let it do the rest of the testing.

Automation test script development + execution

Analysis + generation of test report

Setting up the test environment

Determining the scope of test automation

Test plan + test design + test strategy

Select the right tool for automation

**Automated testing Vs Manual testing**

**Speed and efficiency:**

Automated testing is typically faster than manual testing.

Increases productivity and reduces testing time for most apps/websites.

**Cost considerations:**

Higher initial setup costs due to purchasing automation tools, training, and preparing tutorials.

Offers long-term cost savings despite the initial investment.

Regular script maintenance can be costly, especially for frequently changing apps/websites.

**Suitability for different tasks:**

Ideal for repetitive tasks, reducing manual inefficiency and human error.

Not suitable for all testing types - user interface, documentation, installation, compatibility, and recovery tests may be better conducted manually.

Even with automation, some manual testing is usually necessary.

**Testing approaches**

**White Box testing**

Focuses on the internal structure and logic of the code

**Black Box testing**

Evaluates the software's functionality without looking at the internal code structure

**Grey Box testing**

Combines white and black box testing elements, offering a more comprehensive approach

**Software Testing Process:**

* Planning
* Preparation
* Execution
* Reporting

**Relevant of software testing:**

* Errors can be found initially
* It’s save time
* Saves money
* Improves the quality of software
* Fulfill customer needs & provide customer satisfaction
* It helps to maintain reputation of the company
* Improve Security
* Detect Compatibility with Different Devices and Platforms