Manual Testing

It means the software is tested manually.Tester identify any un-expected behaviour or bug without using any automated tool. There are different stages for manual testing like unit testing, Integration testing, System testing and User Acceptance testing. Testers use test plan, test cases or test scenarios to test the Software to ensure the completeness of testing

Testing

Testing is the process of verifying and validating that a software or application is bug free, meets the technical requirements as guided by its design and development and meets the user requirements effectively and efficiently with handling all the exceptional and boundary cases.

Debugging:

Debugging is the process of fixing a bug in the software. It can defined as the identifying, analysing and removing errors.

Requirement Traceability Matrix

A requirements traceability matrix is a document that demonstrates the relationship between requirements and other artifacts. It's used to prove that requirements have been fulfilled. And it typically documents requirements, tests, test results, and issues

Test Plan

A test plan is a detailed document which describes software testing areas and activities. It outlines the test strategy, objectives, test schedule, required resources (human resources, software, and hardware), test estimation and test deliverables.

Test scenario

A **Test Scenario** is defined as any functionality that can be tested. It is also called Test Condition or Test Possibility. As a tester, you should put yourself in the end user’s shoes and figure out the real-world scenarios and use cases of the Application Under Test.

Test cases

A test case is exactly what it sounds like: a test scenario measuring functionality across a set of actions or conditions to verify the expected result.

Test Script

Test Scripts are a line-by-line description containing the information about the system transactions that should be performed to validate the application or system under test. Test script should list out each step that should be taken with the expected results.

Test data

**Test Data in Software Testing** is the input given to a software program during test execution. It represents data that affects or affected by software execution while testing. Test data is used for both positive testing to verify that functions produce expected results for given inputs and for negative testing to test software ability to handle unusual, exceptional or unexpected inputs.

Test strategy

A test strategy is a guideline to be followed to achieve the test objective and execution of test types mentioned in the testing plan

Different types of testing

1. Black box testing:

Technique of testing without having any knowledge of how the software works inside. Tester will interact with the system’s user interface by providing inputs and examining outputs without knowing how and where the inputs are worked upon.

2.White box testing

This testing method involves the knowledge of how the software works internally.

3.Unit testing

performed by the developers before the setup is handed over to the testing team to formally execute the test cases. The goal of unit testing is to isolate each part of the program and show that individual parts are correct in terms of requirements and functionality.

4. Integration Testing

The testing of combined parts of an application to determine if they function correctly together.

5. Regression Testing

Ensure that a change, such as a bug fix did not result in another fault being uncovered in the application.

6.Smoke Testing

It verifies the critical functionality of the system. Verifies the entire system from end to end.

7.Acceptance Testing

The main aim of this testing is to determine the working process of the system by satisfying the required specification and it is acceptable for delivery. This type of testing is conducted by the QA team

Functional and non-functional testing

Functional:

Functional testing is a type of testing which verifies that each **function** of the software application operates in conformance with the requirement specification. This testing mainly involves black box testing, and it is not concerned about the source code of the application.

Non-functional:

Non-functional testing is a type of testing to check non-functional aspects (performance, usability, reliability, etc.) of a software application

STLC-Software Testing Life Cycle

The Software Testing Life Cycle (STLC) is a sequence of specific actions performed during the testing process to ensure that the software quality objectives are met. The STLC includes both verification and validation. It consists of a series of methodological activities to help certify your software product.

The STLC is as follows

Requirement is confirmed-> Test planning->RTM->Test strategy->Test plan- >Test scenario->Test case->Test execution->go/ no go(defect fixing by developers)

Software development models

Waterfall model:

* Linear sequential life cycle model
* Testing comes after the build phase
* Changing the requirements once the project development starts is not possible

Agile Model

* Continuous iteration of development & Testing
* Testing occurs concurrently with development
* Changing is possible at any time

Risk analysis

* The probability of any unwanted incident is defined as Risk
* Risk analysis in software testing is an approach to software testing where software risk is analyzed and measured.
* helps businesses identify, quantify and prioritize potential risks that could negatively affect the organization’s operations

Quality Analyst

* One who ensures/maintains the quality of a product by executing on Code Science's quality procedures.
* Focus on testing for defects
* Goal-Defect identification

Quality Engineer

* One who automates quality procedures to minimize manual testing efforts.
* Focus on building in quality
* Goal-Defect prevention

Difference between bug and defect

Bug:

An Error found in the development environment before the product is shipped to the customer.

Defect:

Difference between expected and actual result in the context of testing. Defect is the deviation of the customer requirement.

Defect life cycle

Defect Life Cycle in software testing is the specific set of states that defect or bug goes through in its entire life.

Life cycle starts as soon as a bug is reported by a tester and ends when test assures that issue is fixed.

Steps involved:

New > Assign> open > test > retest > verified > closed

Verification and Validation

Verification

* Static analysis technique
* Testing is done without executing the code
* inspection, reviews

Validation

* Dynamic analysis technique
* Done by executing code
* functional and non-functional testing