BLACK BOX TESTING AND WHITE BOX TESTING

Black Box testing

It is a way of software testing in which the internal structure or the program or the code is hidden and nothing is known about it.

It is mostly done by software testers.

No knowledge of implementation is needed.

It is functional test of the software.

No knowledge of programming is required.

It is also called closed testing.

Types of Testing
? Functional
? Non Functional
? Regression Testing

White box testing

It is a way of testing the software in which the tester has knowledge about the internal structure r the code or the program of the software.

It is mostly done by software developers.

Knowledge of implementation is required.

It is structural test of the software.

It is mandatory to have knowledge of programming

It is also called as clear box testing.

Types of White Box testing
? Unit Testing
? Integration Testing

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BLACK BOX TESTING

It is defined as a testing technique without looking at the internal code structure, implementation details and knowledge of internal paths of the software.

This type of testing is based entirely on software requirements and specifications.

In BlackBox Testing focus on inputs and output of the software system without bothering about internal knowledge of the software program.

It is also know as behavioral, opaque-box, closed-box or eye-to-eye testing.

BLACK BOX TESTING TECHNIQUES

Black Box Testing Techniques

It is necessary to design test cases. Testers can create test cases from the requirement specification document using the following Black Box Testing techniques.

? Equivalence Partitioning

? Boundary Value Analysis

? Decision Table Testing

? State Transition Testing

? Error Guessing

FUNCTIONAL TESTING

Few major types of Functional Testing are:

? Smoke Testing
? Sanity Testing
? Integration Testing
? System Testing
? Regression Testing
? User Acceptance Testing

SMOKE TESTING

Smoke testing:

Testing the critical functionalities of an application

Ensures that all critical functionalities are working correctly or not.

It is also called as build verification testing.

Smoke testing finds the major severity defects.

SAMPLE SMOKE TEST CASE

Sample Smoke Test Cases Example

T.ID	TEST SCENARIOS	DESCRIPTION	TEST STEP	EXPECTED RESULT	ACTUAL RESULT	STATUS
1	Valid login credentials	Test the login functionality of the web application to ensure that a registered user is allowed to login with username and password	1.Launch the application 2.Navigate the login page 3.Enter valid username 4.Enter valid password 5.Click on login button	Login should be success	as expected	Pass
2	Adding item functionality	Able to add item to the cart	1.Select categories list 2.Add the item to cart	Item should get added to the cart	Item is not getting added to the cart	Fail
3	Sign out functionality	Check sign out functionality	1. select sign out button	The user should be able to sign out.	User is not able to sign out	Fail

SANITY TESTING

Sanity Testing is a subset of regression testing

Example of Sanity Testing: In an e-commerce project,

? Checking all main modules are login page, home page, user profile page, user registration etc. are smoke testing.

? There is a defect in the login page when the password field accepts less than four alpha numeric characters and the requirement mentions that this password field should not be below eight characters.

? Hence, the defect is reported by the testing team to the development team to resolve it. Then the development team fixes the reported defect and sends it to the testing team for clearance. Then the testing team checks whether the changes done are working fine or not. It is also determined if it does have an impact on other related functionalities.

? Now there is a new functionality to update the password in the user profile page. As part of the sanity testing, login page is validated as well as the profile page to ensure that the checks are working fine at both the places.

DIFFERENCE BETWEEN SMOKE AND SANITY TESTING

Smoke Testing	Sanity Testing
Smoke testing ascertains that core functionalities of the program are working fine absolutely.	Sanity Testing is done to check either new functionalities or bugs have been fixed properly.
Smoke testing is performed either by developers or testers.	Sanity testing is performed by testers only.
Smoke testing is a subset of acceptance testing.	Sanity testing is a subset of regression testing.
Smoke testing focuses on the entire system from end to end.	Sanity testing focused on selected components of a system.
Smoke Testing is like a General health check-up.	Sanity testing is like a special health check -up.

DIFFERENCE BETWEEN REGRESSION AND RETESTING

Regression Testing

Testing is carried out to confirm whether a recent program or code change has not adversely affected existing features

The purpose of Regression Testing is that new code changes should not have any side effects to existing functionalities.

Defect verification is not the part of Regression Testing.

Regression testing is known as a generic testing

Regression testing is done for passed test cases

Regression testing checks for unexpected side-effects

Re-Testing

Re-testing is carried out to confirm the failed test case execution are passing after the defects are fixed.

Re-testing is done on the basis of the Defect fixes.

Defect verification is the part of re-testing.

Re-testing is a planned testing.

Retesting is done only for failed test cases.

Re-testing makes sure that the original fault has been corrected

INTEGRATION TESTING

It is defined as a type of testing where software modules are integrated logically and tested as a group.

A typical software project consists of multiple software modules, coded by different programmers.

The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated

Integration Testing focuses on checking data communication amongst these modules.

Hence it is also termed as 'I & T' (Integration and Testing), 'String Testing' and sometimes 'Thread Testing'.

EXAMPLE FOR INTEGRATION TESTING

Sample Integration Test Cases for the following scenario: Application has 3 modules say 'Login Page', 'Mailbox' and 'Delete emails' and each of them is integrated logically.

Similarly Mail Box: Check its integration to the Delete Mails Module.

Similarly Mail Box: Check its integration to the Delete Mails Module.

Test Case ID	Test Case Objective	Test Case Description	Expected Result
1	Check the interface link between the Login and Mailbox module	Enter login credentials and click on the Login button	To be directed to the Mail Box
2	Check the interface link between the Mailbox and Delete Mails Module	From Mailbox select the email and click a delete button	Selected email should appear in the Deleted/Trash folder

SYSTEM TESTING

SYSTEM TESTING is a level of testing that validates the complete and fully integrated software product. The purpose of a system test is to evaluate the end-to-end system specifications.

System testing done by a professional testers on the completed software product before it is deleivered to the market

Testing the fully integrated applications including external peripherals in order to check how components interact with one another and with the system as a whole. This is also called End to End testing scenario.

USER ACCEPTANCE TESTING

Acceptance Testing is a method of software testing where a system is tested for acceptability. The major aim of this test is to evaluate the the system with the business requirements and assess whether it is acceptable for delivery or not.

Acceptance Testing is the last phase of software testing performed after System Testing and before making the system available for actual use.

Main two types of Accpetance Testing

? Alpha testing - Testing carried out with other team members inside the company

? Beta Testing - Testing carried out in the customer environment

NON FUNCTIONAL TESTING

Few major types of Non-Functional Testing include:

? Performance

? Load Testing

? Compatibility Testing

? Stress Testing

? Security Testing

? Exploratory Testing

PERFORMANCE TESTING AND ITS TYPES

Performance Testing is a type of software testing that ensures that the software applications will perform well under their expected workload.

Attributes of Performance Testing:
?Speed
?Scalability
?Stability
?reliability

It mainly focuses on certain factors of a Software Program such as:
?Speed – It identifies whether the response of the application is fast.

PERFORMANCE TESTING TYPES

Stress Testing :

? This testing involves testing an application under extreme workloads to see how it handles high traffic or data processing.

? Here, it identifies the breaking point of an application.

Volume Testing/ Load Testing :

? A large amount of data is populated in a database and the overall software system's behavior is monitored.

? The main objective of this testing is to check the software application's performance under varying database volumes.

PERFORMANCE TESTING TOOLS

Performance testing is significant in real time, particularly from a point of view of customer satisfaction. There are various performance testing tools available, such as:

? Apache JMeter

? LoadRunner

? WebLOAD

? LoadUI

? LoadView

? NeoLoad

COMPATIBITY TESTING

Compatibility testing ensures that software can run on a different configuration, different database, different browsers, and their versions. Compatibility testing is performed by the testing team.

? This type of testing also validates whether web application runs on all versions of all browsers or not.

? https://www.makemytrip.com/ Working in Chrome but is not working in Internet Explorer

EXPLORATORY TESTING

An Exploratory Testing technique is performed without documentation and test cases.

Exploratory Testing is informal testing performed by the testing team. The objective of this testing is to explore the application and looking for defects that exist in the application.