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Introduction to Software Testing

Presented by: Sanvin Patil

Authored by: Sanvin Patil

Agenda

What is Software Testing?

Testing Types

White Box Testing

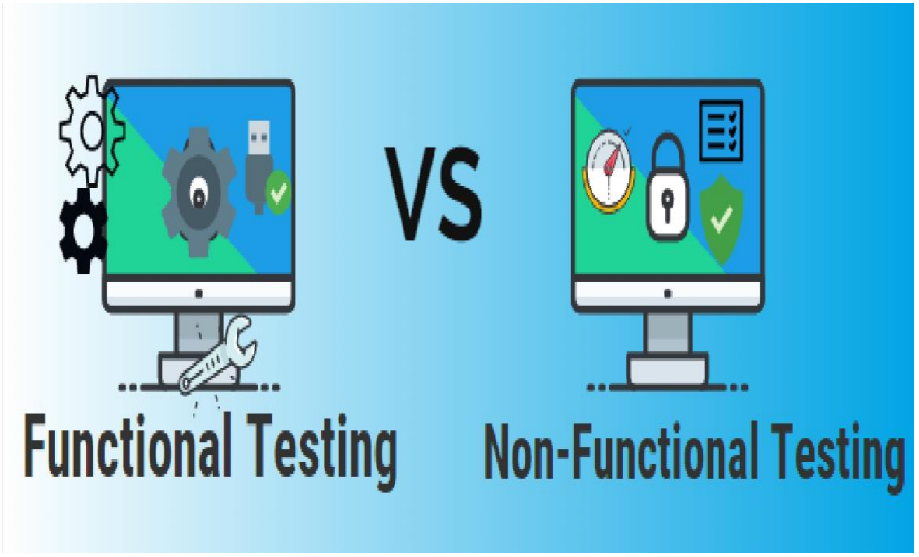
Black Box Testing

Grey Box Testing

STLC

What is Software Testing ?

- Process of validating and verifying of a software program.
- The process of exercising software to verify that it satisfies specified requirements and to detect errors.
- And can be done in two strategies:
    - **Positive testing**
    - **Negative testing**

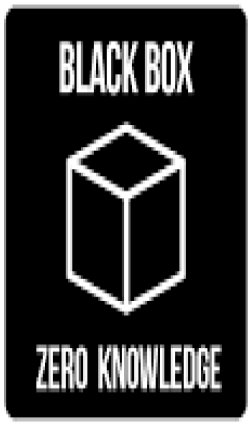


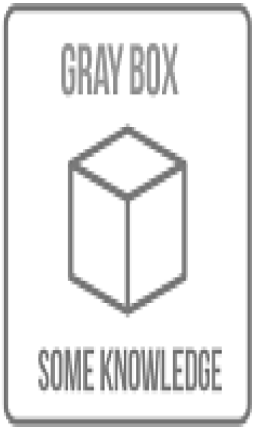
Functional Testing Types

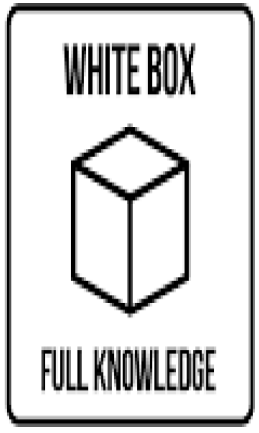
- Unit testing
- Integration testing
- System testing
- Regression testing
- User acceptance testing

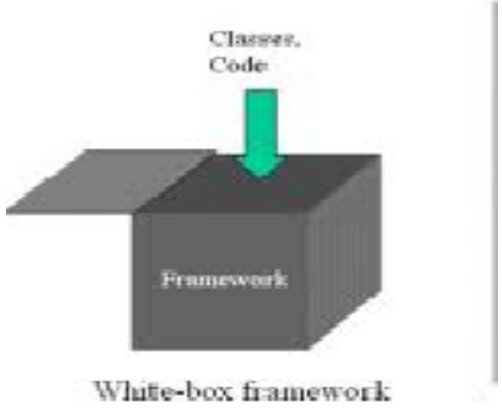
Non-Functional Testing Types

- Performance Testing
- Usability testing
- Security testing









White-box framework

White Box Testing

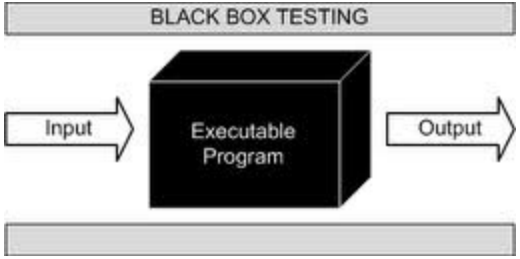
Testing in which the software tester has knowledge of the inner workings, internal structure and language of the software, or at least its purpose.

- Unit Testing
- Code coverage

Black Box Testing

- Black box testing is the testing of the functionality of the software as opposed to its internal structure.

- Integration testing
- System testing
- Regression testing
- User acceptance testing



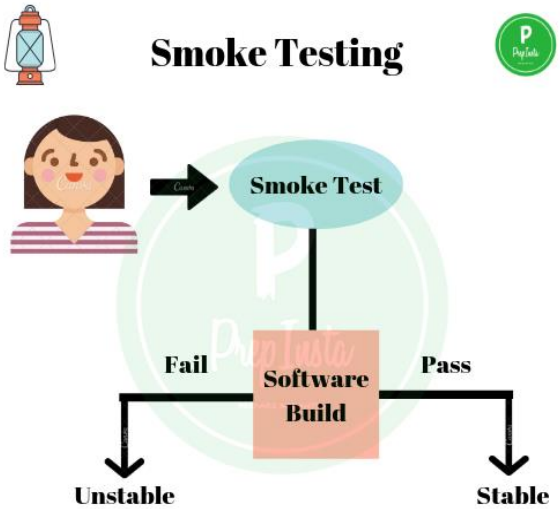
Grey Box Testing

- A combination of Black Box and White Box testing methodologies. Testing a piece of software against its specification but using some knowledge of its internal workings.

- Performance Testing
- Security Testing
- DB Testing
- API Testing

SMOKE/SANITY Testing

Brief test of major functional elements of a piece of software to determine if its basically operational.



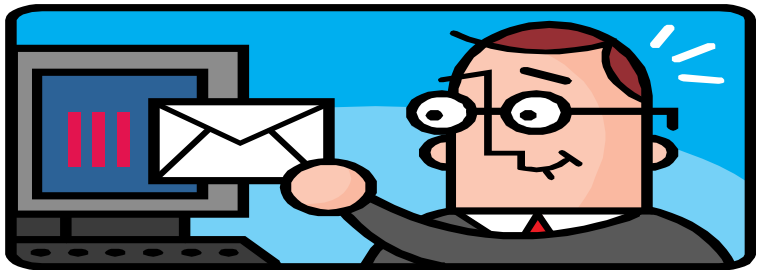
Alpha Testing

Testing of a software product or system conducted at the developer's site by the customer

Beta Testing

Testing conducted at one or more customer sites by the end-user of a delivered software product or system before the general release of the application.

UI/GUI Testing



The goal of GUI testing is to ensure that the Graphical User Interface (GUI) provides the user with the appropriate access and navigation through the functions of the application.

SYSTEM Testing

Testing the system as a whole to validate that it meets its specification and the objectives of its users.

Regression Testing

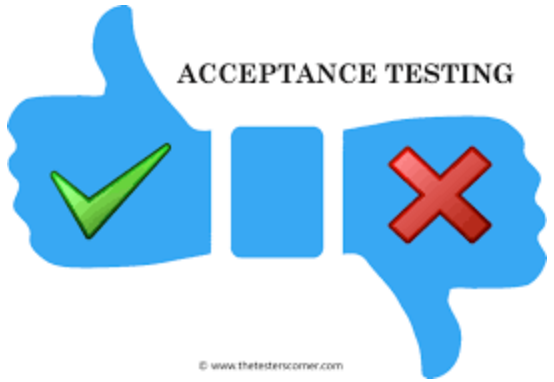
This technique assures that the change will not cause adverse effects on parts of the application/system that were not supposed to change.

Selective retesting of a system or component to verify that modifications have not caused unintended effects and that the system or component still complies with its specified requirements

Acceptance Testing

Testing conducted to enable a user/customer to determine whether to accept a software product

Normally performed to validate the software meets a set of agreed acceptance criteria.



Compatibility Testing

Compatibility testing examines whether your hardware, software, Web site, or internal application works as expected on the wide range of components and systems available in the homes and offices of your end users.

Recovery Testing

Confirms that the application under test:

Recovers from expected or unexpected events without loss of data or functionality.

Events can include shortage of disk space, unexpected loss of communication/network, or power out conditions.

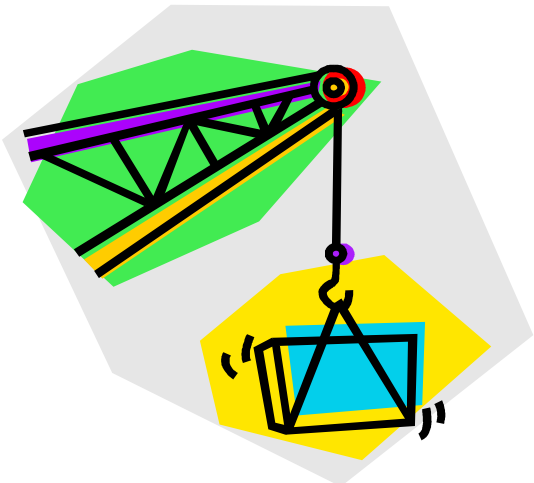
Performance Testing

Performance testing is testing that is performed to determine how fast some aspect of a system performs under a particular workload.

LOAD Testing

The testing of a system that attempts to cause failures involving how the performance of a system varies under normal conditions of utilization (e.g., as the load increases and becomes heavy).

Load testing can identify failures involving scalability requirements as well as distribution and load balancing mechanisms in distributed, scalable systems.

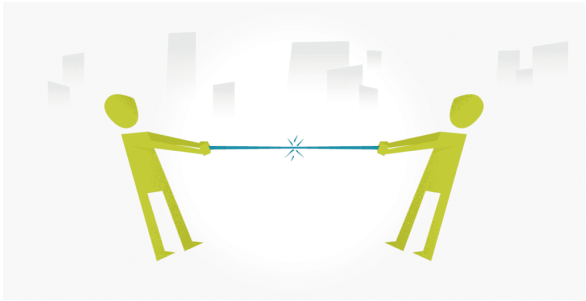


STRESS Testing

Testing performed by running a application in exhausted resources environment.

Stress testing is subjecting a system to an unreasonable load while denying it the resources (e.g., RAM, disc, interrupts etc.) needed to process that load.

The idea is to stress a system to the breaking point in order to find bugs that will make that break potentially harmful

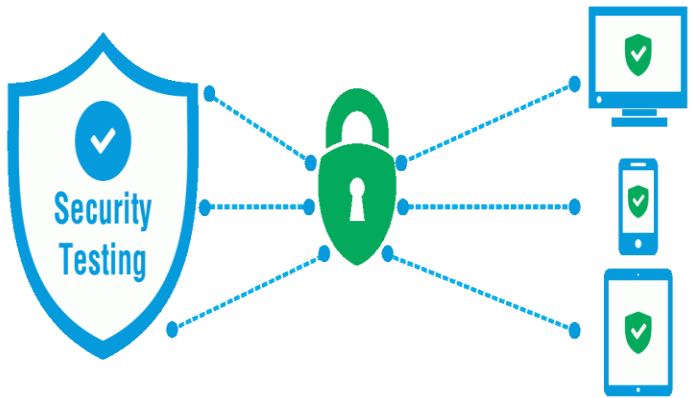


SECURITY Testing

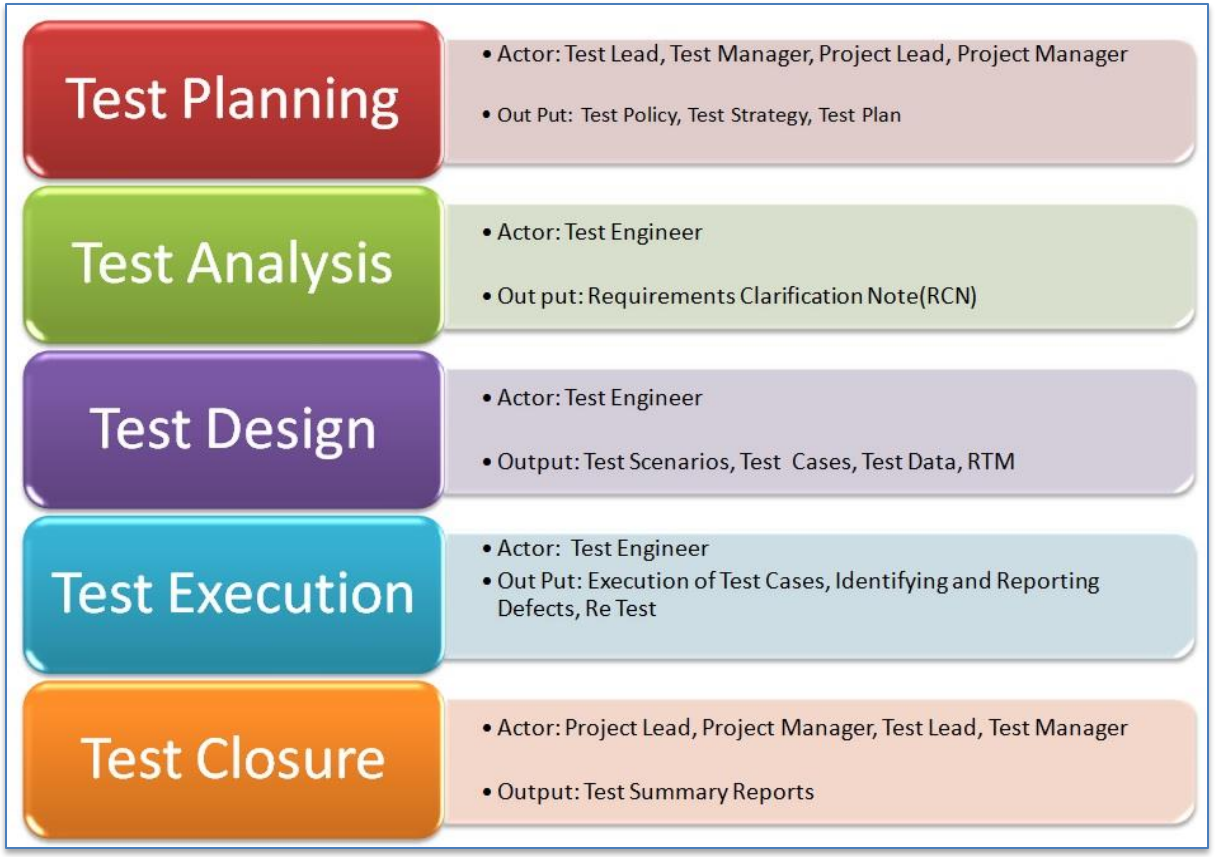
Checking that the system and its data are protected from accidental or malicious damage

Secure against unanticipated as well as anticipated attacks

Tries to penetrate the system through security loopholes.



Software Testing Life Cycle

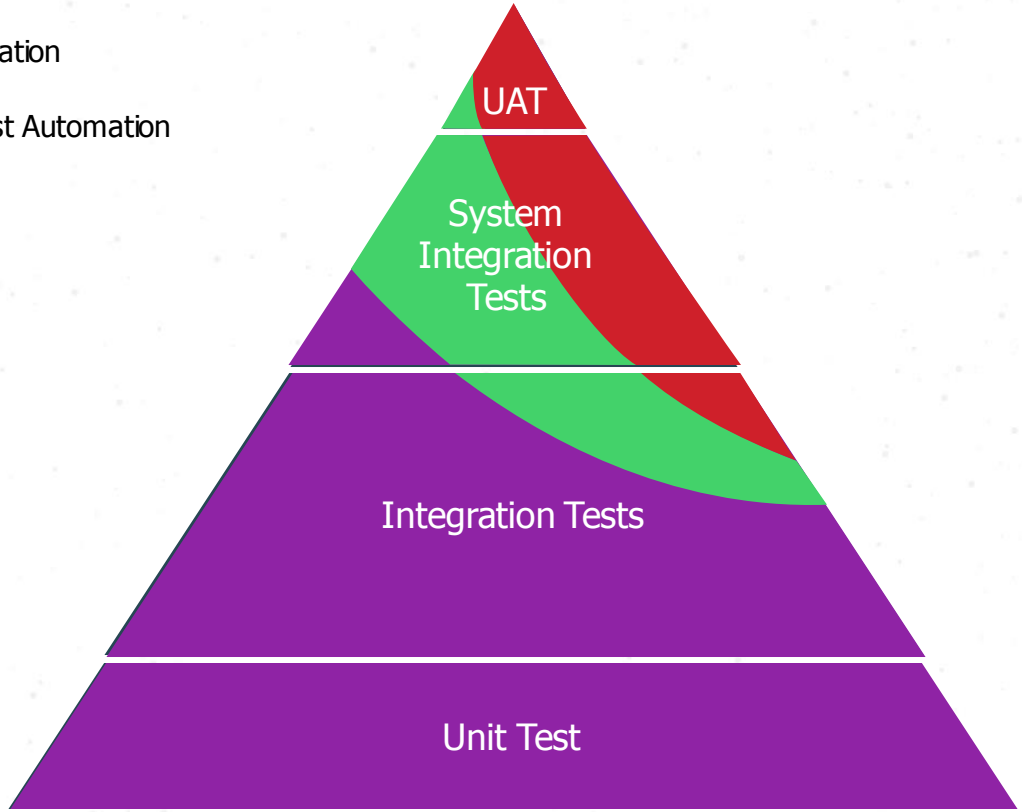


Automation : Opportunity Definition

Manual Testing

UI Test Automation

Unit & API Test Automation



Testing Coverage

UI: Web & Mobile:
- Feature & Acceptance
- Cross Platform

API: Web Services
- Integration

Unit:
- Individual Functions /Methods
- Integration points

Thank You!

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