TECHPROED

PROFESSIONAL TECHNOLOGY EDUCATION

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TYPES OF TESTING

- **Black - Box Testing (Software Testing- QA Dept.)**

- Black box testing is a type of testing that considers only externally visible behavior. Black box testing considers neither the code itself, nor the "inner workings" of the software. You CAN learn to do black box testing, with little or no outside help.
- **Testing Techniques**
- Equivalence Partitioning.
- Boundary Value Analysis.

- **White - Box Testing (Quality Analyst- QA Dept.)**

- In using this strategy, the tester examine the internal structure of the program
- It is a testing approach that examines the application's program structure, and derives test cases from the application's program logic.

What do you verify in White Box Testing?

- Internal security holes
- Broken or poorly structured paths in the coding processes
- The flow of specific inputs through the code
- Expected output
- The functionality of conditional loops
- Testing of each statement, object, and function on an individual basis

▫ **Unit testing (Dev Dept.)**

- Unit testing is the first level of dynamic testing and is first the responsibility of developers and then that of the test engineers.
- Unit testing is performed after the expected test results are met or differences are explainable/acceptable.

TYPES OF TESTING

- **Integration testing (Dev & QA Dept.)**

- Upon completion of unit testing, integration testing begins.
- Integration testing is black box testing.
- The purpose of integration testing is to ensure distinct components of the application still work in accordance to customer requirements.
- Integration testing is considered complete, when actual results and expected results are either in line or differences are explainable/acceptable based on client input.

- **Functional testing (QA Dept.)**

- Functional testing is black-box type of testing geared to functional requirements of an application.
- This type of testing should be done by testers. This doesn't mean that the programmers shouldn't check that their code works before releasing it (which of course applies to any stage of testing.)

TYPES OF TESTING

- **Regression testing (QA Dept.) (You do)**

- • The purpose of regression testing is to confirm that a recent program or code change has not affected existing features.
- • Regression testing is nothing but full or partial selection of already executed test cases which are re-executed to ensure existing functionalities work fine.
- • This testing is done to make sure that new code changes should not have side effects on the existing functionalities.
- • It ensures that old code still works once the new code changes are done.

Need of Regression Test

Regression Testing is required when there is a :

- Change in requirements and code is modified according to the requirement
- New feature is added to the software
- Defect fixing
- Performance issue fix

TYPES OF TESTING

- **Difference between Re-testing and regression testing:**

- Retesting means testing the functionality or bug again to ensure the code is fixed. If it is not fixed, defect needs to be re-opened. If fixed, defect is closed.
- Regression testing means testing your software application when it undergoes a code change to ensure that the new code has not affected other parts of the software.

- **Sanity testing or Smoke testing (Dev & QA)**

- Typically an initial testing effort to determine if a new software version is performing well enough to accept it for a major testing effort.
- For example, if the new software is crashing systems every 5 minutes, or corrupting databases, the software may not be in a 'sane' enough condition to warrant further testing in its current state.

TYPES OF TESTING

- **system testing (end-to-end testing) (QA)**

- System testing is black box testing, performed by the Test Team, and at the start of the system testing the complete system is configured in a controlled environment.
- The purpose of system testing is to validate an application's accuracy and completeness in performing the functions as designed.
- System testing is accepted complete when actual results and expected results are either in line or differences are explainable or acceptable, based on client input. Upon completion of integration testing, system testing is started.

TYPES OF TESTING

- **End -to- End testing**

- It is similar to system testing; the 'macro' end of the test scale; involves testing of a complete application environment in a situation that mimics real-world use, such as interacting with a database, using network communications, or interacting with other hardware, applications, or systems if appropriate.

▫ **Ad-hoc testing**

- It is also known as Random **Testing** or Monkey **Testing**, is a method of software **testing** without any planning and documentation. The **tests** are conducted informally and randomly without any formal procedure or expected results.
- Scenario 1: If an issue(s) is found right before the production release (Go Live)
  Scenario 2 : If an issue(s) is found in production environment (by customers)

▫ **User Acceptance testing** (QA & Customer/end users)

- Final testing based on specifications of the end-user or customer, or based on use by end-users/customers over some limited period of time.

TYPES OF TESTING

Performance testing (QA Dept.)

- • Term often used interchangeably with 'stress' and 'load' testing. Ideally 'performance' testing (and any other 'type' of testing) is to see the response time (sec) of functionalities under certain load conditions.

1. Load testing (Time & Resource Usage)

- Testing an application under heavy loads, such as testing of a web site under a range of loads to determine at what point the system's response time degrades or fails.

2. Stress testing (Resource Usage “CPU”)

- • Term often used interchangeably with 'load' and 'performance' testing. Also used to describe such tests as system functional testing while under unusually heavy loads, heavy repetition of certain actions or inputs, input of large numerical values, large complex queries to a database system, etc.

GLOSSARY

- Black-box testing ➔ It is visible behavior and external parts of the application done by Testers
- White-Box testing ➔ It is the internal parts and structure of the application
- Equivalence Partitioning => testing the application randomly
- Boundary value analysis ➔ testing the minimums and maximums of the application