Software Testing Assignment

❖ Module 02

- **What is software testing?**

=> Software Testing is a process used to identify the correctness, completeness, and quality of developed computer software.

- What is Exploratory Testing?

=> Exploratory testing allows you to think outside the box and come up with use cases that might not be covered in test cases.

- What is a traceability matrix?

=> Traceability matrix is a table type document that used in the development of software applications to trace requirements.

- What is Boundary value testing?

=> Boundary value is the process of testing between extreme ends or boundaries between partitions of the input values.

- What is Equivalence partitioning testing?

=> Equivalence partitioning is a method for testing software programs. In this technique the data fed into the software to be tested is divided into partitions of equal sizes. From each partition of data.

- What is Integration testing?

=> Integration testing is associated with the architectural design phase. Integration tests are performed to test the coexistence and communication of the internal modules within the system.

- What determines the level of risk?

=> As risk is determined by a combination of probability and severity the main area of the matrix reveals the risk levels.

- What is Alpha testing?

=> Type of testing a software product or system conducted at the developer's site. Usually it is performed by the end user.

- What is beta testing?

=> Final testing before releasing an application for commercial purpose. It is typically done by end-users or others.

- What is component testing?

=> Testing technique similar to unit testing but with a higher level of integration - testing is done in the context of the application instead of just directly testing a specific method. Can be performed by testing or development teams.

- What is functional system testing?

=> Functional system testing is a type of testing that seeks to establish whether each application feature works as per the software requirement.

- What is Non-Functional Testing?

=> Non-Functional testing assesses application priorities that aren't critical to functionality but contribute to the end-user experience.

- What is GUI Testing?

=> Graphical user interface(GUI) testing refers to testing the functions of an application that are visible to the user.

- What is Adhoc testing?

=> Adhoc testing is a type of software testing which is performed informally and randomly after the formal testing is completed to find out any loophole in the system.

- What is white box testing and list the types of white box testing?

=> White box testing is an approach that allows testers to inspect and verify the inner workings of a software system-its code, infrastructure, and integrations with external systems.

Types of White box testing :-

1) Unit testing
   - Execution Testing
   - Operations Testing
   - Mutation Testing
2) Integration testing
   - Top-Down Approach
   - Bottom Up Approach
   - Hybrid Approach

- What is black box testing? What are the different black box testing techniques?

=> Black box testing assesses a system solely from the outside, without the operator or tester knowing what is happening within the system to generate responses to test actions.

Black box testing can be applied to three main types of tests **Functional**, **Non-Functional**, **Regression Testing**.

- Mention what are the categories of defects?

=> The natural and severity of a defect determines which of the three categories.
1) Minor Defect
2) Major Defect
3) Critical Defect

- Mention what bigbang testing is?

=> Bigbang testing testing is an integration testing strategy wherein all units are linked at once, resulting in a complete system.

- What is the purpose of exit criteria?

=> Exit criteria used to determine whether a given test activity has been completed or not.

- When should "Regression Testing" be performed?

=> Whenever a new feature is developed, or when an existing feature is improved or if there are any UI updates made.

- What are 7 key principles? Explain in detail?

=> 7 key principles are as follows..

1) Testing shows presence of Defects :- Testing can show that defects are present, but cannot prove that there are no defects.

2) Exhaustive Testing is Impossible :- Testing everything including all combinations of inputs and preconditions is not possible.

3) Early Testing saves time and money :- Testing activities should start as early as possible in the development life cycle.

4) Defect Clustering Together :- Similarly, most operational failures of a system are usually confined to a small number of modules .

5) Beware of the pesticide paradox :- If the same tests are repeated over and over again, eventually the same set of test cases will no longer find any new defects.

6) Testing is context dependent :- Different kinds of sites are tested differently.

7) Absence of Errors Fallacy :- If the system built is unusable and does not fulfill the user's needs and expectations then finding and fixing defects does not help.

- Difference between QA v/s QC v/s Tester.

S.N.	Quality Assurance	Quality Control	Testing
1	Activities which ensure the implementation of processes, procedures and standards in context to verification of developed software and intended requirements.	Activities which ensure the verification of developed software with respect to documented (or not in some cases) requirements.	Activities which ensure the identification of bugs/error/defects in the Software.
2	Focuses on processes and procedures rather than conducting actual testing on the system.	Focuses on actual testing by executing Software with intend to identify bug/defect through implementation of procedures and process.	Focuses on actual testing.
3	Process oriented activities.	Product oriented activities.	Product oriented activities.
4	Preventive activities.	It is a corrective process.	It is a preventive process.

- Difference between Smoke and Sanity.

Smoke Testing	Sanity Testing
Smoke Testing is performed to ascertain that the critical functionalities of the program is working fine	Sanity Testing is done to check the new functionality / bugs have been fixed
The objective of this testing is to verify the "stability" of the system in order to proceed with more rigorous testing	The objective of the testing is to verify the "rationality" of the system in order to proceed with more rigorous testing
This testing is performed by the developers or testers	Sanity testing is usually performed by testers
Smoke testing is usually documented or scripted	Sanity testing is usually not documented and is unscripted
Smoke testing is a subset of Regression testing	Sanity testing is a subset of Acceptance testing
Smoke testing exercises the entire system from end to end	Sanity testing exercises only the particular component of the entire system
Smoke testing is like General Health Check Up	Sanity Testing is like specialized health check up

- Difference between verification and Validation

Verification	Velidation
It is a static practice of checking documents, design code and progeam	It is a dynamic practice of validating and testing thet actual product
It does not involve code execution	It involve code exeeeution
It is human based checking of documents and files	It is computer based exction of program
It uses walkthrougs, inspections and reviews	It uses black box testing, grey box testing and white box testing

- Explain types of Performance testing.

=> Software performance testing is a means of quality assurance. It involves testing software applications to ensure they will perform well under their expected workload.

Types of Performance Testing :-

1> Load testing - It's performance testing to check system behavior under load.

2> Stress testing - Stress testing is to test the system behavior under extreme conditions and is carried out till the system failure.

3> Endurance testing - Type of testing which checks for memory leaks or other problems that may occur with prolonged execution.

4> Spike testing - Is a type of performance testing in which an application receives a sudden and extreme increase or decrease in load.

5> Volume testing - Testing which confirms that any values that may become large over time can be accommodated by the program and will not cause the program to stop working or degrade its operation in any manner.

6> Scalability testing - Part of the battery of non-functional tests which tests software.

- What is Error, Defect, Bug and failure?

=> A mistake in coding is called Error, error found by tester is called Defect, defect accepted by development team then it is called Bug, build does not meet the requirement then it called Failure.

- Difference between Priority and Severity.

Severity	Priority
It is assocated with standards or high principles	It is associated with scheduling.
Severity depends on harshness of the bug	Priority depends on the urgency which needs to be fixed.
Severity's value is based more on the needs of the end-users. this is the reason why it is customrt focused	Priority velue is based more on the needs of the business. this is the reason why it is buisness focused.
Severity's value is usually set by the bug reporter.	The Priority's velue is initialy set up by the bug reporter.
Severity's value is objective and therefore less likely to change	Priority velue is subjective. the value can change over a period of time depending on the change in the project situation.
A high severity bug may be marked for a fix immediately or later	A high priority bug is marked for a fix immediately.
The team usually needs only a handful of values to specify severity	In practice, new values may be designed on a fairly constant basis.

- What is the Bug Life Cycle?

=> Defect life cycle, also known as Bug life cycle is the journey of a defect cycle, which a defect goes through during its lifetime.

It varies from organization to organization and also from project to project as it is governed by the software testing process and also depends upon the tools used.

- Explain the difference between Functional testing and Non-Functional testing.

Functional Testing	Non-Functional Testing
Functional testing is performed using the functional specification provided by the client and verifies the system against the functional requirements.	Non-Functional testing checks the Performance, reliability, scalability and other non-functional aspects of the software system.
Functional testing is executed first	Non functional testing should be performed after functional testing
Manual testing or automation tools can be used for functional testing	Using tools will be effective for this testing
Business requirements are the inputs to functional testing	Performance parameters like speed , scalability are inputs to non-functional testing.
Functional testing describes what the product does	Nonfunctional testing describes how good the product works
Easy to do manual testing	Tough to do manual testing
Types of Functional testing are □ Unit Testing □ Smoke Testing □ Sanity Testing □ Integration Testing □ White box testing □ Black Box testing □ User Acceptance testing □ Regression Testing	Types of Nonfunctional testing are □ Performance Testing □ Load Testing □ Volume Testing □ Stress Testing □ Security Testing □ Installation Testing □ Penetration Testing □ Compatibility Testing □ Migration Testing