**Module-2(Manual Testing)**

**What is exploratory testing ?**

Exploratory testing is an approach to software testing that is often described as simultaneous learning, test design, and execution.

**What is traceability matrix ?**

Test conditions should be able to linked back to their sources in the test basis , this is known as traceability. It can be horizontal through all the test documentation foe a given test level or It can be vertical through the layer of development documentation.

There are 3 types of traceability matrix

1-Forward

2-Backward

3-Bi- Directional

**What is boundary value analysis ?**

Boundary value analysis is a methodology for designing test cases that concentrate software testing effort on case near the limit of valid ranges.

**What is equivalence partitioning testing ?**

Equivalence Class Partitioning is type of black box testing technique which can be applied to all levels of software testing .

**What is integration testing ?**

Integration testing is a level of the software process where individual units are combined and tested as a group.

**What determines the level of risk ?**

A factor that could result in future negative consequences usually expressed as impact and likelihood.

1-project risk

2-product risk

**What is alpha testing ?**

Alpha testing is a type of software testing performed to identify bugs before releasing the software product to the users.

**What is beta testing ?**

Beta testing is always performed at the time when software product and project are marketed.

**What is component testing ?**

A unit is the smallest testable part of software.

**What is functional system testing ?**

A requirement that specifies a function that a system or system component must perform.

**What is non-functional testing ?**

Testing the attributes of a component or system that do not relate to functionality.

**What is GUI testing ?**

GUI testing is the process of testing the system’s GUI of the system under test.GUI testing involves checking the screens with the controls like menu, buttons, icon.

**What is adhoc testing ?**

Adhoc testing is an informal testing type with an aim to break the system.

**What is load testing ?**

Load testing is a kind of performance testing which determines a system’s performance under real-life condition.

**What is stress testing ?**

Stress testing is to test the system behaviour under extreme conditions and is carried out till the system failure.

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

Testing based on an analysis of the internal structure of the component or system.

Types of white box testing:-

Statement coverage

Decision coverage

Condition coverage

**What is black box testing? What are the different black box testing technique?**

Black box testing either functional/non functional, without reference to the internal structure of the component or system. The tester have no knowledge of how the system or component.

Techniques of black box testing:

Equivalence partitioning

Boundary value analysis

Decision table

State transition testing

Use- case testing

**Mention what are the categories of the defects ?**

Data quality/databse defects

Critical functionality defects

Functionality defects

Security defects

User interface defects

**Mention what bigbang testing is ?**

In big bang testing all components or modules is integrated simultaneously, after which everything is tested as a whole. Big bang testing has the advantage that everything is finished before integration testing starts. The major disadvantages is that in general it is time consuming and difficult to trace the cause of failure because of this late integration. Here all component are integrated together at once, and then tested

**What is the purpose of exit criteria ?**

The purpose of exit criteria is to define when we stop testing either at the :

End of all testing -i.e product go live

End of phase of testing

**When should “regression testing” be performed ?**

When the system is stable and the system or the environment changes.

When testing bug-fix release as part of the maintenance phase.

It should be applied at all test levels.

It should be considered complete when agreed completion criteria for regression testing have been met.

Regression test suits evolve over time and given that they are run frequently are ideal candidates for automation.

**What is 7 key principles? Explain in details.**

Here are the 7 key principles :

1. Testing shows presence of defects : Testing can show that defects are present, but cannot prove that there are no defects. Testing reduces the portability of undiscovered defects remaining in the software but even if no defects are found, it is not a proof of correctness.

2. Exhaustive testing is impossible : Testing everything including all combinations of inputs and preconditions is not possible. So instead of doing the exhaustive testing we can use risks and

priorities to focus testing efforts. We must prioritise our testing effort using a risk based approach.

3. Early testing : Testing activities should start as early as possible in the software or system development life cycle, and should be focused on defined objectives.

4. Defect clustering : A small number of modules contain most of the defects discovered during pre-release testing, or are responsible for the most operational failures. Defects are not evenly spread in a system. They are ‘clustered’.

5. 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. To overcome this pesticide paradox the test cases need to be regularly reviewed and revised, and new and different tests need to be written to exercise different parts of the software or system to potentially find more defects.

6. Testing is context dependent : Testing is basically context dependent. Testing is done differently in different contexts. 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. Even after defects have been resolved it may still be unusable and does not fulfil the user’s needs and expectations.

**Difference between QA/QC/Tester.**

QA QC Tester

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| 1 | Activities which ensure the implementation of process , procedure and standard in context to verification of developed software and intended requirments. | Activities which ensure the verification of developed software with respect to documented requirements. | Activities which ensure the identification of bugs /  errors / 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. | Preventive process. |
| 5 | It is a subset of Software Test Life Cycle (STLC). | It is a subset of Quality  Assurance. | Testing is the subset of Quality Control. |

**Difference between Smoke and Sanity?**

Smoke testing Sanity testing

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| 1 | 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. |
| 2 | The objective of this testing is to verify “stability” of the system in order to proceed with more rigorous testing. | The objective of this testing is to verify the “rationality” of the system in order to proceed with more rigorous testing. |
| 3 | This testing is performed by the developers and testers. | Sanity testing is usually performed by testers. |
| 4 | Smoke testing is usually documented or scripted. | Sanity testing is usually not documented and unscripted. |
| 5 | Smoke testing is a subset of Regression testing. | Sanity testing is a subset of Acceptance testing. |
| 6 | Smoke testing is exercises the entire  system from end to end. | Sanity testing is exercises only the particular component of the entire system. |
| 7 | Smoke testing is like general health check up. | Sanity testing is like specialized health check up. |

**Difference between verification and Validation.**

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| Criteria | Verification | Validation |
| Definition | The process of evaluating work-products of a development phase to determine whether they meet the specified requirements for that phase. | The process of evaluating software during or at the end of the development process to  determine whether it satisfies specified business requirements. |
| Objective | To ensure that the product is being built according to the requirements and design specifications. In other words, to ensure that work products meet their specified requirements. | To ensure that the product actually meets the users needs, and that the specifications were correct in the first place. In other  words, to demonstrate that the product fulfils its intended use when placed in its intended environment. |
| Question | Are we building the product right? | Are we building the right product? |
| Evaluation  Items | Plans, Requirements specs, Design spec,Code, Test cases. | The actual product or software. |
| Activities | Reviews,Walkthroughs,Inspections. | Testing. |

**Explain types of Performance testing.**

Load Testing : Load testing is a kind of performance testing which determines a system’s performance under real life load conditions. This testing helps determine how the application behaves when multiple users access it simultaneously.

Stress Testing : System is stressed beyond its specifications to check how and when it fails. Performed under heavy load like putting large number beyond storage capacity, complex database queries, continuous input to system or database load. Stress testing is done to make sure that the system would not crash under crunch situations.

**What is Error, Defect, Bug and failure ?**

Ans : 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 requirements then it is Failure.

**Difference between Priority and Severity.**

Priority Severity

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| Priority is relative and business focused. | Severity is absolute and customer focused. |
| Priority defines the order in which we should resolve a defects. | Severity is the extent to which the defect can affect the software. |
| Priority focuses on business needs, customer requirements, and project timelines. | Severity is focused on the technical impact on the system’s functionality or usability. |
| Ex : If an application or web page crashes when a remote link is clicked the remote link by an user is rare but the impact of application crashing is severe. So the severity is high but  priority is low. | Ex : If the company name is misspelled in the home page of the website, then the priority is high but severity is low to fix it because it it not crashing the application. |
| Types : Low, Medium, High, Critical | Types : Critical, High, Medium, Low, Cosmetic |

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

Functional Non-Functional

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| 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. | Non-functional testing describes how good the product works. |
| Easy to do manual testing. | Tough to do manual testing. |
| Types : Unit testing, Smoke testing, Sanity testing, Integration testing, White box testing, Black box testing, User acceptance testing, Regression testing. | Types : Performance testing, Load testing,Volume testing, Stress testing, Security testing,Installation testing, Penetration testing,Compatibility testing, Migration testing. |

**What is the difference between the STLC (Software Testing Life Cycle) and SDLC (Software Development Life Cycle) ?**

STLC SDLC

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| It’s a process that defines how to conduct the testing process. | It’s a process that defines how to develop a software. |
| Primarily focuses on testing activities. | Covers the entire software development process. |
| Purpose of STLC is to validate and verify the software product. | Purpose of SDLC is to plan, design, develop, test and deliver the software. |
| Phases : Requirement Analysis, Test planning, Test case development, Test environment setup, Test execution, Test cycle closure. | Phases : Requirements gathering, Analysis, Design, Implementation, Testing, Maintenance |
| Ensure the quality of the software product and identify defects. | Deliver a functional, reliable and high quality software product. |

**What is the difference between test scenarios, test cases, and test script ?**

Ans : Test scenarios : A scenario is any functionality that can be tested. It is also called test conditions, or test possibility. Test scenario is what to be tested. Scenario is thread of operations.

Test Case : Test cases involved the set of steps, conditions, and inputs which can be used while performing the testing tasks. Test case is how to be tested. Test cases are set of input and output given to the system.

Test Script : A set of sequential instruction that detail how to execute a core business function. One script is written to explain how to simulate each business scenario. Script can be manual and automated.

**Explain what Test Plan is? What is the information that should be covered.**

Ans : A document describing the scope, approach, resources and schedule of intended test activities. It should covered approach of testing, including the definition of the test levels and entry and exit criteria, Integrating and coordinating the testing activities into the software life cycle activities, making decision about what to test, who do testing, when and how the test activities should be done and when they should be stopped, Test ware and process.

**What are the different methodologies in agile development model ?**

There are 2 different methodologies in agile development model

1-scrum

2-kanban

**Explain the difference between authorization & authentication in web testing, what are the common problems faced in web testing?**

Authorization – accessibility to pages though permission not given

Authentication – accepting an invalid username/password

There are common problems faces while doing in web testing and the problem are given below: Responsive, security, gui, performance, compatibility, database