# Module 2

* **What is exploratory testing?**

**Ans:**

it is a software testing method that involves designing, developing and executing tests simultaneously. It’s often described as unstructured or random. Often its not recorded. testers rely on their intuition and creativity to generate test ideas.

* **What is the Traceability matrix?**

**Ans:**

A traceability matrix is a tool used to track and correlate requirements Throughout the software development lifecycle**.**

**It has 3 types**

1. Forward traceability: Mapping of requirements to test cases
2. Backword traceability: Mapping of test cases to requirements
3. Bi-directional traceability: it combines both forward and backward traceability so it is a good traceability matrix.

* **What is Boundary value testing?**

**Ans:**

In Boundary value testing they tests the boundaries of input to find errors. they check if the system is accepting and rejecting inputs correctly.

* **What is Equivalence partitioning testing?**

**Ans:**

Equivalence partitioning aims to treat groups of inputs

as equivalent and to select inputs to test them all.

EP can be used for all level testing.

It assumes that:

* If one value finds the bug, the others probably will too
* If one doesn’t find a bug, the others probably won’t either
* **What is integration testing ?**

**Ans:**

Integration testing is a crucial phase in software testing where individual units are combined and tested as a group. The purpose is to verify that the different units work.

There are two levels of integration testing:

1) Component integration testing

1. System integration testing

together correctly and identify the defects that arise from their interaction.

* **What determines the level of risk?**

**Ans:** the level of risk is determined by the combination of the likelihood (probability) of a risk occurring and the potential impact (severity) if it does occur.

* **What is Alpha testing?**

**Ans:**

Alpha testing is conducted by people within the organization. It helps to identify and fix usability problems. It is done by company persons.

* **What is beta testing?**

**Ans:**

Beta testing isconducted in the actual environment where the software will be used and people outside the organisation that helps to catch any remaining bus or usability issues before the official launch. It is done by end user.

* **What is component testing?**

**Ans:**

Component testing is a type of testing of individual software components. focuses on verifying the functionality of single unit of software in isolation. It is typically written and run by software developers to ensure that whether code meets its design and behaviour as intended.

* **What is functional system testing?**

**Ans:**

A functional system testing is a requirement that specifies a function that a system or system components must perform.

There are **two** types of test approach**:**

-Requirement based functional testing

-process based testing

* **What is Non-functional testing**?

**Ans**: in Non-functional testing it tests the attributes of a components or system that do not relate to functionality. It checks how will the software performs, rather that the specific functions it carries out.

**Ex**. – performance, security, usability, reliability etc.

* **What is GUI Testing?**

**Ans:**

GUI testing involves checking the screens with the controls like menus, buttons, icons, and all type of bars – tool bar, menu bar, dialog boxes, windows etc.

Approach of GUI testing:

**-Manual based testing**

**-Record and replay**

**-Model based testing**

* **What is Adhoc testing?**

**Ans:**

Ad hoc testing is a software testing method that’s performed without a formal plan or documentation. it’s informal way to find defects and bugs quickly. This testing is performed when knowledge of testers in the system under test is very high. It checks randomly to find defects.

Type of ad hoc testing:

**-Buddy testing:**

Two buddies mutually works on identifying defects in the same module one from development team and another person will be from testing team.

-**Pair testing:**

Two testers are assigned modules, share ideas and work on the same machines to find defects. One can execute tests and another person take notes on the findings. One can be tester and another **scriber** during testing.

**-Monkey testing:**

Randomly test the product or application without test cases with a goal to break the system.

* **What is load testing?**

**Ans:**

Load testing is performance testing that checks system behavior under load. To measure its performance and ensure it meets the required standards per speed, reliability, and scalability.

* **What is stress Testing?**

**Ans:**

Stress testing is a type of performance testing that focuses on evaluating how a system behaves under extreme conditions or beyond its maximum capacity.

* **What is whit box testing and list the types of white box testing?**
* **Ans**: White box testing is based on an analysis of the internal structure of the component or system.

There are many types of white box testing like:

* Statement coverage
* Decision coverage
* Condition coverage
* **What is black box testing? What are the different black box testing techniques?**

**Ans**: black box testing is all about evaluating the functionality of a software or application without any knowledge of its internal code or structure. The testers have no knowledge of how the system or components is structured inside the box.

**Ther are four techniques of black box**

1. **Equivalence partitioning**
2. **Boundary value analysis**
3. **Decision tables**
4. **State transition testing**

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

**Ans:**

**-**Data Quality/Database Defects

-Critical Functionality Defects

-Functionality Defects

-Security Defects

- User Interface Defects

* **Mention what big bang testing is?**

**Ans:** Big bang testing is a type of integration testing. This is a phase in software testing where individual components or modules of a software are combined and tested as single unit. It is convenient for small systems.

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

**Ans:**

**-** End of all testing

- Ensure Quality

- Risk mitigatation

- all critical bugs are fixed

* **When should "Regression Testing" be performed?**

**Ans:**

-change in requirements and code is modified according to requrements

-defect fixing

-performance issue fix

-new feature is added

* **What are 7 key principles? Explain in detail.**

**Ans**:

1. Testing shows the presence of defects
2. Exhaustive testing is impossible
3. Early testing
4. Defect clustering
5. The pesticide paradox
6. Testing is context dependent
7. The absence of errors fallacy
8. **Testing shows the presence of defects** :

Testing can show that there is a defect but can not prove that there is no defect. Testing can reduce the probability of undiscovered defects in software, but even if no defects are found, it is not proof of correctness. We test to find faults.

1. **Exhaustive testing is impossible:**

Testing everything including all combinations of inputs is not possible.so instead of exhaustive testing, we can use risk and priorities to focus testing. Because it is impractical, it needs enormous resources and also takes too much time

1. **Early testing:**

Testing activities should start as soon as possible in the software development and should be focused on defined objectives.

1. **Defect clustering**:

A small number of modules contain most of the defects. Because defects are not evenly spread in the system, they are clustered.

1. **The pesticide paradox:**

Repeating the same test cases, again and again, will not find new bugs so it is necessary to review the test cases and add or update test cases to find new bugs

1. **Testing is context dependent**:

Different type of software needs to perform different types of testing. For example, the testing of e-commerce site is different from testing of an Android application.

1. **Absence of errors fallacy:**

If a built software is 99% bug-free but does not follow user requirements then it is unusable. It is not only necessary that software is 99% bug-free but it is also mandatory to fulfil all the customer requirements.

* **Difference between QA vs QC vs Tester**

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| **QA** | **QC** | **Tester** |
| * Preventing defects before they occur * -Reviewing and approving the improvement * Process oriented activities * It is a subset of SDLC | * Identifying and correcting defects in the final product. * Reporting and tracking defects. * Product-oriented activities * It is subset of quality assurance | * Executing tests to find and report bugs * Designing and executing test cases. * Product oriented activities * It is subset of quality assurance |

• **Difference between Smoke and Sanity?**

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| * To quickly assess the stability of a new build and determine if it's ready for more in-depth testing. * Broad, focusing on the most critical functionalities. * Performed after a new build or version is deployed. | * To ensure that specific changes, bug fixes, or new features work as intended without breaking existing functionalities. * Specific changes, bug fixes, or new features work as intended without breaking existing functionalities. * Performed after specific changes, bug fixes, or enhancements. |

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| **Smoke** | **Sanity** |

* **Difference between verification and validation**

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| **Verification** | **Validation** |

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| * The process of checking whether the software conforms to the specified requirements and design * Ensuring that the product is built according to requirements * Typically occurs earlier in the development process, before validation * Reviews, walkthrough inspections | * The process of checking whether the software meets the actual needs and expectations of the customer * Ensuring that the right product is built * Typically occurs later in the development process, after verification * testing |

* **Explain types of performance testing.**

**ANS:**

-Load testing

-Stress testing

-Endurance testing

- Spike testing

-Volume testing

- Scalability testing

* **What is an error, Defect, bug and failure?**

Ans: A mistake in coding is called error; error found by tester is called defect; a defect accepted by the developer then it is called bug; build does not meet its requirements then it is a failure.

* **What is Bug Life Cycle?**

**Ans:** The developer first identifies the bug, then moves to the tester for testing, and the tester marks the stages based on the priority of the bug that needs to be fixed. Finally, they fix the bug, develop error-free software, and deliver it to the customer.

* **Explain the difference between functional testing and nonfunctional testing.**

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| **Functional testing** | **Nonfunctional testing** |

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| * It focuses on verifying that the software performs its intended functions correctly * Focuses on “what” the software does: it checks if the software performs the task it was designed. * Easy to do manual testing * Both manual and automation tools can be used * Types of testing   -unit, smoke, sanity, integration, white box, black box, user acceptance, regression | * It evaluates aspects of the software that are not directly reacted to its specific functions. * Focuses on “how” the software performs: it checks the software’s performance, usability, security etc. * Tough to do manual testing * Using tool will be effective for this testing * Types of testing   -performance, load, volume, stress, security, installation, penetration, compatibility, migration etc. |

* **What is the difference between the STLC (software testing life cycle) and SDLC (software development life cycle)?**

**And:**

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| |  | | --- | | **SDLC** |  * It the overall process of planning, creating, testing, and deploying software. * It outlines the stages involved in building a software application * It focuses on building the right software in the right way * Includes requirements gathering, design, coding, testing, deployment, and maintenance | |  | | --- | | **STLC** |  * It is a specific process within the SDLC that focuses solely on the testing phase * It outlines the steps involved in testing the software to ensure it meets requirements and defect-free * It focuses on ensuring the quality of the software by identifying and fixing defects * Includes planning, test design, setup, execution, reporting, closure |

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

**Ans:**

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| **Test scenarios** | **Test cases** | **Test script** |
| **1**. It focus on broad, general objective  **2**. it Can cover multiple test cases  **3.** Serves as a starting point for creating more detailed test cases. | 1. It focus on specific steps for testing a feature/requirement  **2.** Provides instructions on how to test  **3.** Contains information like test ID, test steps, expected results, and actual results. | **1.** It focus on automation of test case execution  **2.** Automates the execution of a test case  **3.** Can be used to execute multiple test cases quickly and reliably. |

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

**Ans:**

A test plan is a document detailing the objectives, resources, and processes for a specific test session for a software or hardware product. The plan typically contains a detailed understanding of the eventual workflow.

* **What is a priority?**

**Ans:**

How quickly a bug should be resolved. It’s about the business impact and the timeline for fixing the issue.

**priority can be of following types:**

**-Low**

**-Medium**

**-High**

**-Critical**

* **What is severity?**

**Ans:**

Severity refers to the degree of impact a software or bug has on the functionality of the application or software. It measures how Badly the bug affects the software.

**Severity can be of following types:**

**-critical**

**-major**

**-moderate**

**-minor**

**-cosmetic**

* **Bug categories are…**

**Ans:**

Bugs can be categorized based on their severity (impact on the product experience) and priority (order in which they should be addressed)

* **Advantage of Bugzila**

**Ans:**

**-**Effective Bug Tracking

**-** Automation Features

**-** Robust Reporting Tools  
**-** Scalability and Security

**-** Collaboration

**-** Simplicity and Adaptability

* **Difference between Priority and Severity**

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| * Priority refers to how soon the defect should be fixed * It is based on the importance of fixing the defect * Types   - Low  - Medium  - High  - Critical | * Severity refers to the impact a defect has on the system or application * It is based on how seriously the defect affects the functionality * Types   - Critical  - Major  - Moderate (Medium)  - Minor  - Cosmetic |

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| **Priority** | **Severity** |

* **What is the different methodology in agile development model?**

**Ans:**

There are two main methodology of agile

**1.scrum**

**2.kanban**

**1.scrum:**

SCRUM is an agile development method which concentrates particularly on how to manage tasks within a team based development environment.

It consists **three roles and responsibilities**

1. **Scrum master:** scrum master is responsible for setting up team, sprint meeting and remove obstacles to progress
2. **Product owner:** is a key role in the scrum framework and is responsible for defining and priotizing the features, enhancements and fixes that need to be developed in a product.
3. **Scrum team:** Team manages its own work and organizes the work to complete the sprints or cycle.

**There are 3 scrum ceremonies:**

**1)Sprint planning:** held at beginning of the sprint for planning sprint.

**2)Daily scrums:** a short meeting daily for 15 minutes by scrum master consists product owner, testers, designers, developers etc.

**3)Sprint review:** a meeting held at the end of every sprint. a product shows to client for demo and team discuss the features they added.

- **Retrospective** is a meeting held at the end of every sprint to review what went right and what can be improved within a team.

- **Burndown chart** shows the progress in a sprint. After each sprint we need to examine the progress of each sprint.

**- Sprint** is a time-boxed period in which the Scrum team needs to finish the set amount of work. Each sprint has a specified timeline, like 2-4 weeks

* **Explain the difference between Authorization and Authentication in Web testing. What are the common problems faced in Web testing?**

**Ans:**

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| **Authorization** | | **Authentication** | |
| * This process verifies the identity of a user, typically through mechanisms like usernames and passwords, or biometrics. * it's about confirming "what" the user is allowed to access or do. | * Once a user is authenticated, authorization determines what they are allowed to do or access within the system. * It's about confirming "who" is trying to access the system. |