**Software Testing**

**Assignment Module–2(Manual Testing)**

1. **What is Exploratory Testing?**

* Exploratory testing is concurrent process that involves testing design, execution and logging happens simultaneously.

1. **What is traceability matrix?**

* Traceability matrix is a document that maps relationship between testcases and specified requirements in software testing.

1. **What is Boundary value testing?**

* Boundary value testing that test design methodology that specifically focus on identify and testing the boundaries of input values.

1. **What is Equivalence partitioning testing?**

* Equivalence partitioning is a black box testing technique that divides input into partitions. Where the behaviour of the system is expected to be the same.

1. **What is Integration testing?**

* Integration Testing is level of software testing process where individual components/unit of software are combined. And tested as group.

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

* The level of risk is primarily assessed by considering two key factors: likelihood (how probable it is that a negative event will occur) and impact (the severity of the consequences if that event does happen).

1. **What is Alpha** **testing?**

* Alpha testing is the first end-to-end testing of a product to ensure it meets the business requirements and functions correctly.
* It is always performed by the developers at the software development site.
* Sometimes it is also performed by Independent Testing Team.
* Alpha Testing is not open to the market and public
* It is conducted for the software application and project.
* It is always performed in **Virtual Environment**.
* It is always performed within the organization

1. **What is Beta testing?**

* Beta testing is the process of **testing a software product or service in a real-world environment** before its official release.
* It is always performed by the customers at their own site.
* It is not performed by Independent Testing Team.
* Beta Testing is always open to the market and public.
* It is usually conducted for software product.
* It is performed in **Real Time Environment**.
* It is always performed outside the organization.

1. **What is Component Testing?**

* Component Testing is level of software testing process where individual components/units of software are tested.

1. **What is functional system testing?**

* Functional system testing is type of software testing in which the system tested against the functional requirement of specifications.

1. **What is Non-Functional system testing?**

* Non-Functional testing that test the attributes of a component or system that do not relate to functionality, e.g. reliability, efficiency, usability, interoperability, maintainability and portability.

1. **What is GUI Testing?**

* GUI testing ensures that an applications graphical interface work as expected and meets the requirements. It involves checking the screens with controls like menus, buttons icons and all types of bars – toolbar, menu bar, dialog boxes and windows etc.

1. **What is Ad-hoc testing?**

* Ad-hoc testing is informal testing type with aim to break the system.

1. **What is load testing?**

* Load testing is a type of performance testing that test the system behaviour under their real life work load conditions.

1. **What is stress testing?**

* Stress testing perform to test the robustness, stability and reliability of the system or software application under the extreme heavy load.

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

* White box testing is type of software testing that test internal Structure, code and logic of the software application.
* There are three type of technique in white box testing:

1. Statement/ Segment Coverage
2. Condition Coverage
3. Decision Coverage
4. **What is black box testing? What are the different black box testing techniques?**

* Black box testing is type of software testing that test functionality of the software without knowledge of internal code.
* There are many types of technique in Black box testing:

1. Equivalence Partitioning
2. Boundary Value Analysis
3. Decision Table
4. State transition
5. **Mention what are the categories of defects?**

* Here the mention types of defect:

1. Critical Functionality Defect
2. Functionality Defect
3. Data Quality/ Database Defect
4. Security Defect
5. User Interface (UI) Defect
6. **Mention what big bang testing is?**

* Big bang testing is technique of integration testing where all the components or modules are integrated simultaneously, after that all the modules are tested as a whole.

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

* Purpose of exit criteria is to define when we **stop testing** eighter at the:
* End of all testing – ex. Product go live
* End of phase of testing – ex. Handover from system test to UAT

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

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

1. **What is 7 key principles? Explain in detail?**

* There are a following list of 7 key principles:

1. Testing shows presence of defects
2. Exhaustive testing is impossible
3. Early testing
4. Defect Clustering
5. The pesticide paradox
6. Testing is context dependent
7. Absence of error fallacy
8. **Testing shows presence of defects** : Testing helps identify defects and errors in software.

* We cannot prove that there are no defects at all, even if all tests pass, there could still be hidden issues.

1. **Exhaustive testing is impossible :** It's impractical to test every possible combination of inputs and conditions due to the vast number of potential scenario.

* It’s not possible to test every scenarios for software, so testing should be prioritized.

1. **Early testing:** Starting testing as early as possible in the development lifecycle, ideally during the requirement analysis phase.

* It helps catch defects early when they are easier and cheaper to fix.

1. **Defect Clustering :** A small number of modules or features within a system tend to contain a majority of the discovered defects, often following the Pareto principle (80/20 rule).
2. **The pesticide paradox :** Using the same testing technique repeatedly. It will not produce new result.
3. **Testing is context dependent :** The testing approach should be tailored to the specific system being tested, considering factors like its complexity, criticality, and target users.
4. **Absence of error fallacy :** Assuming that a system is completely error-free just because no defects were found during testing is a fallacy.

* testing can only reveal the presence of defects, not guarantee their absence.

1. **Difference between QA v/s QC v/s Tester.**

|  |  |  |  |
| --- | --- | --- | --- |
| SR. NO | QA | QC | Tester |
| 1 | QA stands for **Quality Assurance** | QC stands for **Quality Control**. |  |
| 2 | Focuses on **preventive activities** to avoid defects. | |  | | --- | | Focuses on **corrective processes** to identify and fix defects. |  |  | | --- | |  | | Focus on **Preventing Process** to identify and report bugs or issues. |
| 3 | It is a **process-oriented.** | It is a **product-oriented**. | It is a **product-oriented**. |
| 4 | Quality assurance is subset of **software testing life cycle.** | Quality Control is sub set of **QA. focusing on testing activities.** | Tester is sunset of the **Quality Control.** |
| 5 | Focuses on **processes and procedures.** | Focuses on **actual testing by executing software**. | Executes test cases and validates the software. |
| 6 | Performed by QA engineers or managers who design processes. | Performed by QC teams or testers focusing on the product. | Testers are responsible for test execution and defect reporting. |

1. **Difference between Smoke and Sanity?**

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| --- | --- | --- |
| SR. NO | Smoke testing | Sanity testing |
| 1 | Smoke testing performs after receiving new software build to ensure that critical functionalities of the software are working correctly. | Sanity testing performs after receiving new software build with minor changes in functionality or code to ensure that the bugs have fixed and no new problems were caused by these changes. |
| 2 | Smoke testing is performed by the tester and developer. | Sanity testing is performed by the tester. |
| 3 | Smoke testing is usually scripted and documented. | Sanity testing is usually unscripted and not documented. |
| 4 | |  | | --- | | Checks the overall system's functionality. | | |  | | --- | | Focuses on specific components or functionalities. | |
| 5 | Smoke testing is like general health check up. | Sanity testing is like specialized heath check up. |

1. **Difference between verification and Validation**

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| --- | --- | --- |
| SR. NO | Verification | Validation |
| 1 | Verification is a static testing. | Validation is dynamic testing. |
| 2 | Activities – reviews, walkthrough, inspection. | Activities – Testing. |
| 3 | It comes before validation. | It comes after verification. |
| 4 | Verification is for prevention of errors. | Validation is for detection of errors. |
| 5 | Left side of v represents development level activities. | Right side of v represents testing level activities. |

1. **Explain types of Performance testing.**

* Performance testing is Quality Assurance process that involves testing software applications to ensure they perform well under their expected workload.
* There are following types of performance testing:

1. **Stress testing** : Stress testing perform to test the robustness, stability and reliability of the system or software application under the extreme heavy load.
2. **Load testing** : Load testing is a type of performance testing that test the system behaviour under their real life work load conditions.
3. **Spike testing**: Spike testing involves evaluating a system's ability to handle sudden, extreme surges in traffic
4. **Endurance testing** : Verifies the system's reliability over extended periods of use.
5. **Volume Testing**: Focuses on the system's ability to handle large amounts of data effectively.
6. **Scalability Testing**: Examines the system's ability to grow as user demands increase.
7. **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 called bug.
* If build does not meet the requirements then it is failure.

1. **Difference between Priority and Severity**

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| --- | --- | --- |
| SR. NO | Severity | Priority |
| 1 | Severity is absolute and Customer-Focused. | Priority is Relative and Business-Focused. |
| 2 | Severity means how severe the defect is affecting the functionality. | Priority means how fast the defect has to be fixed. |
| 3 | It is driven by functionality | It is driven by business value. |
| 4 | It is associated with functionality or standards. | It is associated with scheduling. |
| 5 | Severity is related to the quality standard. | Priority is related to scheduling to resolve the problem. |
| 6 | |  | | --- | | Ex. A crash = High Severity | | Ex. A minor defect in a critical feature = High Priority. |

1. **What is Bug Life Cycle?**

* The bug life cycle is the process that describe how bugs and defects in software are found, tested and fixed.

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

|  |  |  |
| --- | --- | --- |
| SR. NO | Functional testing | Non Functional testing |
| 1 | Functional testing is a type of software testing in which the system is tested against the functional requirement of specification. | Non-Functional testing that test the attributes of a component or system that do not relate to functionality, e.g. reliability, efficiency. |
| 2 | It is based on requirement of customer. | It is based on expectation of customer. |
| 3 | Easy to execute manually. | Tough to execute manually. |
| 4 | It tests what the product does. | It describes how the product does. |
| 5 | Based on business requirements. | Based on performance requirement. |
| 6 | Types of functional testing  Smoke testing  Sanity testing  Unit testing | Types of functional testing  Load testing  Stress testing  Security testing |

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

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| --- | --- | --- |
| SR. NO | STLC | SDLC |
| 1 | STLC stands for software testing life cycle. | SDLC stands for software development life cycle. |
| 2 | STLC is mainly related to software testing. | SDLC is mainly related to software development. |
| 3 | Goal of SDLC is to complete successful development of software | Goal of STLC is to complete successful testing of software. |
| 4 | In STLC, less number of members (testers) are needed. | In SDLC, more number of members (developers) are required for the whole process. |
| 5 | It helps in developing good quality software. | It helps in making the software defects free. |

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

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| --- | --- | --- | --- |
| SR. NO | Test Scenarios | Test Cases | Test Script |
| 1 | Test Scenario is any functionality that can be tested. | Test case is a set of actions executed to verify particular features or functionality. | Test script is a set of instructions to test an app automatically. |
| 2 | Helps test the end-to-end functionality in an Agile way | Helps in exhaustive testing of an app. | Helps to test specific things repeatedly. |
| 3 | Is more focused on what to test | Is focused on what to test and how to test. | Is focused on the expected result. |
| 4 | Includes an end-to-end functionality to be tested. | Includes test steps, data, expected results for testing. | Includes different commands to develop a script. |
| 5 | Allows quickly assessing the testing scope. | Allows detecting errors and defects. | Allows carrying out an automatic execution of test cases. |

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

* A Test Plan is a formal document that outlines the scope, objectives, approach, resources, and schedule of testing activities for a project.

1. **What is priority?**

* Priority is Relative and Business-Focused. Priority is how quickly the defect needs to be fixed.

1. **What is severity?**

* Severity is absolute and Customer-Focused. Severity is how badly the defect affects the system.

1. **Bug categories are…**

* There following bug categories :

1. Database defect

2.Critical Functionality defect

3. Functionality defect

4. Security defect

5. User interface defect

1. **Advantage of Bugzilla .**

* **Free and Open-Source** – No licensing cost, making it a budget-friendly choice for organizations.
* **Easy to Use** – Simple web-based interface that allows testers and developers to report and manage bugs efficiently.
* **Customizable Workflow** – Users can define their own workflow, statuses, and rules according to project needs.
* **Email Notifications** – Sends automatic updates to team members when a bug is created, updated, or resolved.
* **Multi-Language Support** – Available in various languages, making it suitable for global teams.

1. **Difference between priority and severity**

|  |  |  |
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1. **What are the different Methodologies in Agile Development Model?**

* There are the different Methodologies in Agile Development Model :

1. Kanban
2. Scrum
3. **When to used Usability Testing?**

* There are many software applications / websites, which miserably fail, once launched, due to following reasons –
* Where do I click next?
* Which page needs to be navigated?
* Which Icon or Jargon represents what?
* Error messages are not consistent or effectively displayed
* Session time not sufficient.

1. **What is the procedure for GUI Testing?**

* Graphical User interface (GUI) testing involves a series of steps to ensure that a user interface is functional, usable, and visually consistent. The steps include:
* **Planning**: Define the scope of testing and identify key areas of the UI
* **Preparation**: Set up the testing environment with the necessary tools and resources
* **Test case development**: Create detailed test cases that cover different aspects of the UI
* **Test execution**: Perform the tests by interacting with the UI as a user would
* **Issue reporting**: Document any issues or inconsistencies encountered
* **Fix review**: Review and validate fixes to ensure that issues have been resolved
* **Continuous testing**: Continue to test and improve the UI

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

* "Authentication" refers to the process of verifying a user's identity, like checking if they are who they claim to be by using login credentials. While "Authorization" determines what actions or resources a verified user is allowed to access within the system.
* Common problems encountered in web testing include: cross-browser compatibility issues, performance concerns, security vulnerabilities, user experience (UX) challenges, testing across different devices, data privacy issues, load testing, and ensuring proper functionality across various browser versions and operating systems.