ASSIGNMENT=MODULE 2 (MANUAL TESTING)

**NAME: PATEL DIYA GAUTAMBHAI**

1. **What is Error, Defect, Bug and Failure?**

* **Error:** A mistake in coding is called error.
* **Defect:** Error found by tester then it is called defect.
* **Bug:** Defect acceptance by developer team then it is called bug.
* **Failure:** Build does not meet the requirement then it is known failure.

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

* There are 7 key principle and explain with details below,

1. **Testing shows presence of defects:** Testing can reduce the defect but cannot prove that there’re no defect. If no defects are found, it is not said that all defects are remove.
2. **Early testing:** Testing activities should start as early as possible in the development life cycle and should be focused on defined objectives.
3. **Defect clustering:** When a small number of modules contains most of the bugs defected or show the most operational failures.
4. **The pesticide paradox:** 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.
5. **Exhausting testing is impossible:** Testing is exhausting the all combinations but it is difficult and risk to testing that all combinations. So, it is impossible for exhausting testing.
6. **Absence of errors fallacy:** If the system is unusable and does not fulfill the user’s needs and expectations then finding and fixing defects does not help and it is called absence of errors fallacy.
7. **Testing is context dependent:** Testing is done differently in different context. Different kinds of sites are tested differently. For example, testing is an agile project and differently testing in a sequential life cycle project.

1. **Difference between the verification and validation.**

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| **VERIFICATION** | **VALIDATION** |
| * It is done by before the coding. * Verification is also called the development level. * Plan done by parrel of verification. * It is a static testing. * There are three activities;(1) inspections, (2) reviews, (3) walkthrough * Example: user requirement, system requirement, technical specification, program specification | * It is done by after the coding. * Validation is also called the test levels. * Plan are already for parrel validation. * It is a dynamic testing. * This is one activity;(1) testing * Example: unit test, system test, acceptance test, integration test |

1. **Difference between the QA, QC and TESTING.**

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| **QUAALITY ASSURANCE** | **QUALITY CONTROL** | **TESTIING** |
| * Process oriented activities * It is a preventive process * It is a subset of software test life cycle * It is a board process * It can do throughout the process * It is done by stakeholder * Focuses on process and achieve the required quality * Activities which ensure the implementation of process * Verify the quality | * Product oriented activities * It is a corrective process * QC is a subset of QA * It is a narrow process * It can do the before the release * It is done by team of upper-level management and program department * Focuses on product and check require quality * Activities which ensure the verification of developed software with respect to documented requirement * Validity the quality | * product oriented activities * It is a preventive process * Testing is a subset of QC * It is a narrow process * It can do at the testing stage or along with the development process * It is done by test engineer’s and developer * Focuses on actual testing * Activities which ensure the identification of bugs/error/defects in the software * Validity the quality |

1. **What is traceability matrix?**

* To protect against change you should be able to trace back from every system component to the original requirement that caused its presence.
* There are three types of traceability matrix;(1) Backward traceability

(2) Forward traceability

(3) Bi-directional traceability

* **PROS:** Easy to identify the missing functionalities

. To make sure that all requirement included in the test cases

* **CONS:** Poor or unknown test coverage, more defect found in production

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

* Boundary value analysis is a black box test design technique where test case is designed by using near the limit of valid ranges.
* **Example;** Assume that, age is variable of any function and its minimum value is 18 and the maximum value is 40, both 18 and 40 will be considered as boundary values.

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

* The main aim is to treat group of inputs as equivalent.
* Ep can be used all levels of testing.
* Equivalence partitioning is the process of defining the optimum number of tests by reviewing documents such as functional design specification and detailed design specification.
* **Example;** In the same example above but 18 and 40 number are include in figure.

1. **What is integration testing?**

* Integration testing is a level of the software testing process where individual units combined and tested as a group.
* Integration testing tests integration or interfaces between components and interactions to different parts of the system.
* There are two levels of integration testing;(1) component integration testing

(2) system integration testing

* There are two methods of integration testing;(1) big-bang integration testing

(2) incremental integration testing

1. Top-down approach
2. Bottom-up approach
3. **What is component testing?**

* It means ”A unit is the smallest testable part of software”.
* Some times known is unit testing, module testing or program testing.
* The goal of unit testing is to isolate each part of the program and show that the individual parts are correct.
* Unit testing is performed by using the white box testing method.

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

* Functional system testing is a requirement that specifies a function that a system or system component must perform.
* There are two types of test approach: (1) Requirement based functional testing

(2) Process based testing

1. **What is non-functional testing?**

* Non-functional testing is the attributes of a component system that do not relate to functionality.
* It is the testing of “how” the system works.
* Hence load testing is carried out to check systems performance at different loads.
* **Example;** usability, reliability, efficiency, maintainability, interoperability and portability.

1. **What is black box testing? What are the different black box testing techniques?**

* Black box testing, either functional and non-functional and do not need knowledge for internal structure.
* The testers have no knowledge of how the system or component is structured inside the box.
* The main advantages are code access not required but it is a blind coverage and inefficient testing.
* There are four techniques in black box; (1) Equivalence partitioning

(2) Boundary value analysis

(3) Decision tables

(4) State transition testing

1. **Means what big bang testing is?**

* In big bang integration testing is all components or modules is integrated simultaneously, after which everything is check as a whole.
* It has main advantages that everything is finished before the integration testing starts but the major disadvantages is time consuming and difficult to trace the cause of failures.

1. **Explain the difference between functional testing and non-functional testing.**

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| **FUNCIONAL TESTING** | **NON-FUNCTIONAL TESTING** |
| * Functional testing is executed first * Easy to do manual testing * Functional testing describes what the product does * Business requirements are the inputs to functional testing * Types of functional testing  1. Unit testing 2. Black box testing 3. White box testing 4. Smoke testing 5. Sainty testing 6. Integration testing | * Non functional testing should be performed after functional testing * Tough to do manual testing * Non-functional testing describes how good the product works * Performance parameters like speed, scalability are input to non-function testing * Types of non-function testing  1. Performance testing 2. Load testing 3. Stress testing 4. Migration testing 5. Security testing 6. Volume testing |

1. **What is Ad-hoc (error guesting) testing?**

* Ad-hoc testing is an informal testing type with an aim to break the system.
* It does not follow any test design techniques to create test cases.
* Main aim of this testing is to find defects by random checking.
* There are three types of ad-hoc testing:(1) Buddy testing

(2) Pair testing

(3) Monkey testing

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

* White box testing is an analysis of the internal structure of the component or system.
* It is also known as structure-based testing, glass testing and open testing.
* In white box testing the tester is concentrating on how the software does it
* There are three types of white box testing:(1) Statement coverage

(2) Decision coverage

(3) Condition coverage

1. **Explain the difference between smoke and sanity testing?**

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| **SMOKE TESTING** | **SANITY TESTING** |
| * Smoke testing is performed to ascertain that the critical functionalities of the program is working fine * Smoke testing is usually performed by the developers and testers * Smoke testing is usually documented or scripted * Smoke testing is subset of Regression testing | * Sanity testing is done to check the new functionality/bugs have been fixed * Sanity testing is usually performed by tester * Sanity testing is usually not documented and unscripted * Sanity testing is a subset of Acceptance testing |

1. **What is the difference between STLC and SDLC?**

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| **CRITERIA** | **SDLC** | **STLC** |
| Definition | SDLC is a structure imposed to software development product that defines the process for planning, analysis, design, implementation, document, deployment, maintenance and support | STLC is a structure to ensure the quality of software product that defines the different stages for requirement analysis, test planning, test case development, test environment setup, test execution and test cycle closure |
| Phases | There are six phases:   1. Requirement gathering 2. Analysis 3. Design 4. Implementation 5. Testing 6. Maintenance | There are six phases:   1. Requirement analysis 2. Test planning 3. Test case development 4. Test environment setup 5. Test execution 6. Test cycle closure |
| Relationship | SDLC encompasses STLC | STLC is a subset of SDLC |
| Members required | There are more developers required | There are less testers required |
| Coding drafting | Here coding is carried out by the development team | Here the testers or testing team prepare test cases |
| Automated | It cannot be automated | It can be automated |

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

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| **TEST SCENARIO** | **TEST CASES** | **TEST SCRIPT** |
| Test scenario is an any functionality that can be tested. | Test cases involve the set of steps, conditions and inputs which can be used while performing the testing phase | Test script is a set of sequential instruction that detail how to execute a core business function |
| It is focused on ‘What to be tested’ | It is focused on ‘How to be tested | It is focused on the expected result |
| Takes less time and fewer resources to create | Requires more resources and time | Requires less time for testing but more resources for scripts creating and updating |
| Includes an end-to- end functionality to be tested | Includes test steps, conditions and inputs for testing | Includes different commands to develop a script |

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

* A document describing the scope, approach, resources and schedule of intended test activities.
* there are four information covered: (1) Test planning strategy

(2) Test planning factor

(3) Test planning activity

(4) Exit criteria

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

* Purpose of exit criteria is to define when we stop testing either at the end the all testing and end of the phase testing.

1. **What is an exploratory testing?**

* Exploratory testing is a concurrent process where test design, execution and logging happen simultaneously.
* There are two types of exploratory testing:(1) Structured based testing

(2) Ad-hoc[randomly] based testing

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

* There are two level of risk;

1. **Project risk:** project risks concerns differ form of budgetary, schedule, personal, resources, and customer related problems.
2. **Product risk:** Possibility that the system/software might fail to satisfy the users expectation is known by product risk. Product risks are sometimes also referred quality risk.
3. **What is Alpha testing?**

* It is always performed by the developers at the software development site
* Sometimes it is also performed by independent testing team
* Alpha testing is a not open to the market and public
* It is always performed within the organization
* It is form of acceptance testing
* It comes under the category of both white box testing and black box testing

1. **What is Beta testing (Field testing)?**

* It is always performed by the customers at their own site
* It is performed by independent testing team
* Beta testing is always open to the market and public
* It is always performed in real time environment
* It is also form of acceptance testing
* It is only kind of black box testing

1. **What is Stress testing?**

* System is stressed beyond its specification to check how and when it fails this known by stress testing.
* Stress testing is also known as endurance testing and spike testing.
* There are four types of stress testing:(1) Application stress testing

(2) Transactional testing

(3) Systemic stress testing

(4) Exploratory stress testing

* The main purpose of stress testing is to make sure that the system recovers after failure which is called as recoverability.

1. **What is GUI testing?**

* Graphical user interface testing is the process of testing the system’s GUI of the system under test. GUI the testing involves checking the screen with the controls like menus, buttons, icons and all types of bars.
* It is a check error messages are displayed correctly, check that the image has good clarity, extra
* There are three approach of GUI testing: (1) Manual based testing

(2) Record and Replay testing

(3) Model based testing

1. **What is load testing?**

* Its performance software testing to check the behavior of under load. Testing is an application of under heavy load, such as testing web site under arrange of loads to determine at what point the system’s response time degrades or fails.
* Load testing is also known by volume testing and scalability testing.
* The main pros are reduced costs of failure and increase customer satisfaction.
* The main con is a programming knowledge to use load testing tools.
* There are some strategies of load testing: open-source load testing tools, enterprise load testing tools, in house developed load testing tools.

1. **Mention what are the categories of defects/bug categories are..?**

* There are five defects: (1) Database defects/ Data quality

(2) Critical functionality defects

(3) Functionality defects

(4) Security defects

(5) User interface defects

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

* Ther are six types of performance testing:(1) Load testing

(2) Stress testing

(3) Endurance testing

(4) Spike testing

(5) Volume testing

(6) Scalability testing

1. **Difference between Severity and Priority.**

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| **SEVERITY** | **PRIORITY** |
| * It is absolute and customer focused | * It is relative and business focused |
| * Severity means the seriousness of the defect in the product functionality | * Priority means how soon the bug should be fixed |
| * It is driven by functionality | * It is driven by developer |

1. **What is bug life cycle?**

* The duration or time span between the first-time defects is found and the time that it is closed successfully, rejected, postponed or deferred is called as ‘Defect Life Cycle’.
* Bug/ Defect life cycle:

Duplicate Rejected Deffered Not A Bug

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1. **What is Severity?**

* Severity is absolute and customer-focused.
* It is the extent to which the defect can affect the software.
* In other word it defines the impact that a given defect has on the system.
* There are five types: Critical, Major (High), Moderate (Medium), Minor Low) and Cosmetic.

1. **What is priority?**

* Priority is relative and business-focused.
* Priority defines the order in which we should resolve a defect. Should we fix it now, or can it wait?
* This priority status is set by the tester to the developer mentioning the time frame to fix the defect.
* There are four types: Low, Medium, High and Critical.

1. **When should “Regression Testing” be performed?**

* When the system is stable and the system or the environment changes when testing bug-fix releases as part of the maintenance phase it should be applied at all test levels.

1. **Advantages of Bugzilla?**

* It is an open-source so widely used in bug tracker.
* It automates documentation.
* It integrates with an e-mailing system.
* It easily integrates with test management instruments.
* It is a highly customizable and flexible.
* It is a integrated collaborations.

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

* There are two Methodologies in Agile Development Model:

1. **Scrum:** Scrum is an agile development method which concentrates particularly on how to manage tasks within a team-based development environment. Basically, scrum is derived from activity that occurs during rugby match. It is a working in small teams (7 to 9 members).
2. **Kanban:** Kanban is a very popular framework for development in the agile software development methodology. It provides a transparent way of visualizing the tasks and work capacity of a team.
3. **Explain the difference between Authorization and Authentication in web testing. What are the common problems faced in web testing?**

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| **AUTHORIZATION** | **AUTHENTICATION** |
| * It is done after the user successfully authenticate themselves. | * It is done before the Authorization. |
| * It is not changeable by the user. | * This process is changeable by the user. |
| * The data is moved through access tokens. | * The data is moved through data tokens. |
| * It needs the user’s access privilege and its security levels. | * It requires the login details of the users. |

* Some common problems are (1) weak password policies

(2) Overprivileged Accounts

(3) not using single sign on

(4) lack of centralized identify management

1. **When to used Usability Testing?**

* It is used for before beginning any new design work and after you've begun the strategy work around a brand-new site or app.

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

* Check Error Message are displayed correctly.
* Check for clear demarcation of different sections on screen.
* Check the alignment of the text is proper.
* Check font used in application is readable.
* Check that the image has good clarity.
* Check that the image is properly aligned.
* Check the positioning of GUI elements for different screen resolution.