Software Testing Assignment

Module-2(Manual Testing)

- **What is Exploratory Testing?**

➢ Though the current trend in testing is to push for automation, exploratory testing is a new way of thinking.
➢ Exploratory testing is adhoc testing with purpose of find bugs.
➢ Exploratory testing in functionalities are checked in a adhoc manner.
➢ There is no structure in this testing.

- **What is traceability matrix?**

➢ Test conditions should be able to be linked back to their sources in the test basis, this is known as traceability.
➢ **Three types of traceability matrix**

1. **Forward Traceability** – Requirements to Test cases
2. **Backward Traceability** – Test Cases to Requirements
3. **Bi-Directional Traceability** - A Good Traceability matrix is the References from test cases to basis documentation and vice versa.

- **What is Boundary value testing?**

➢ Boundary value testing is checked in limited ranges.
➢ Boundary value analysis is a method which refines equivalence partitioning.
➢ The testing which is done in the range of boundary value is called valid.
➢ The testing which is done outside the range of boundary value is called invalid.

- **What is Equivalence partitioning testing?**

- Equivalence partitioning is the process of defining the optimum number of tests by Reviewing documents such as the Functional Design Specification and Detailed Design Specification, and identifying each input condition within a function.
- If value is between 1 and 100(>=1 and value <=100) in range, it called valid partition.
- If value is less than 1 and more than 100 then it's called invalid partition.
- The Valid partition is bounded by the values 1 and 100.

- **What is Integration testing?**

- Integration testing is a software testing process that verifies how well different part of an application work together.
- The components are then integrated and tested as a group.
- Integration testing is done by a specific integration tester or test team.
- There are 2 levels of Integration Testing:
    1. Component Integration Testing
    2. System Integration Testing

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

- A properly designed test that passes, reduces the overall level of Risk in a system.
- A factor that could result in future negative consequences; usually expressed as impact and likelihood.
- **Types of Risk**
- Project Risks
- Product Risk

- **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 not open to the market and public.
- It is always performed in **Virtual Environment**.
- Alpha Testing is definitely performed and carried out at the developing organizations location with the involvement of developers.

- **What is Beta testing?**

- 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 performed in **Real Time Environment**.
- Beta Testing is performed and carried out by users or you can say people at their own locations and site using customer data.
- It is also considered as the User Acceptance Testing (UAT) which is done at customers or users area.
- Beta testing can be considered **"pre-release"** testing.

- **What is component testing?**

- A minimal software item that can be tested in isolation. It means "A unit is the smallest testable part of software."
- The testing of individual software components.
- Unit testing is the first level of testing.
- It is also known as Unit Testing, Module Testing or Program Testing.

- Unit tests are typically written and run by software developers to ensure that code meets its design and behaves as intended with debugging tool.
- Unit testing is performed by using the White Box Testing method.

- **What is functional system testing?**

- Testing based on an analysis of the specification of the functionality of a component or system.
- Functional test based on the Functions and features.
- This testing mainly involves black box testing.
- Each & every functionality of the system is tested by providing appropriate input, verifying the output and comparing the actual results with the expected results.
- The testing can be done either manually or using automation.

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

- Testing the attributes of a component or system that do not relate to functionality, e.g. reliability, efficiency, usability, interoperability, maintainability and portability.
- It is the testing of “how” the system works.
- performance testing is carried out to check & fine tune system response times.
- load testing is carried out to check systems performance at different loads.
- **Ex: Users logging in at the same time after a major update.**

- **What is GUI Testing?**

- GUI stands for Graphical User Interface.
- GUI testing involves checking the screens with the controls like menus, buttons, icons, and all types of bars – tool bar, menu bar, dialog boxes and windows etc.
- Check all the GUI elements for size, position, width, length etc.
- Check alignment of the text.
- Check Colour of the font.
- Check the images are properly.

- **What is Adhoc testing?**

- Adhoc testing is an informal testing type with an aim to break the system.
- The main aim of testing that involves random checking to find defects is called adhoc testing.
- Testers randomly test the application without any test cases or any business requirement document.
- Adhoc Testing does not follow any structured.
- There are three types of adhoc testing:
    1. Buddy Testing
    2. Pair testing
    3. Monkey Testing

- **What is load testing?**

- Load testing is a type of performance testing that assesses how a system performs under a simulated load.
- Long Load time
- Poor response time
- Poor scalability
- Bottlenecking

- **What is stress Testing?**

- Stress testing is a method of testing a system stability by subjecting it to intense conditions.
- Stress testing is used to test the stability & reliability of the system.
- Stress testing is also known as endurance testing.
- Most prominent use of stress testing is to determine the limit, at which the system or software or hardware breaks.
- Notepad is under stress and gives 'Not Responded' error message.
- **Types of stress testing:**
    1. Application Stress Testing
    2. Transactional Stress Testing
    3. Systemic Stress Testing
    4. Exploratory Stress Testing
- **Stress testing tools:**
    1. Stress Tester
    2. Neo Load
    3. App Perfect

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

- White box testing is a software testing technique that involves examining the internal structure, logic, and code of application.
- It's also known as glass box testing.
- White box testing is the detailed investigation of internal logic and structure of the code.
- The tester needs to have a look inside the source code and find out which unit of the code is behaving inappropriately.
- **Types:**
    1. Statement coverage
    2. Decision coverage
    3. Condition coverage

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

- Black box testing is a software testing technique that verifies that a program works as intended without needing to know the internal code.
- It's also known as closed box testing.
- The testers have no knowledge of how the system or component is structured inside the box.
- The technique of testing without having any knowledge of the interior workings of the application is Black Box testing.
- The tester is oblivious to the system architecture and does not have access to the source code.
- **Type:**
    1. Equivalence partitioning
    2. Boundary value analysis
    3. Decision tables

4. State transition testing
5. Use-case Testing
6. Other Black Box Testing

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

- **Types of defect:**
  1. Database Defects
  2. Critical Functionality Defects
  3. Functionality Defects
  4. Security Defects
  5. User Interface Defects

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

- Big bang testing is a software testing technique that integrates all components of a system and test them as a whole.
- It's also known as big bang integration testing.
- Big bang testing tests the entire system as a unit.
- It's used before system testing and acceptance testing.
- This testing can save time and resources.

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

- Successful Testing of Integrated Application
- Executed Test Cases are documented
- All High prioritized bugs fixed and closed
- Technical documents to be submitted followed by release Notes

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

- Regression testing should be performed after any changes to software, including new features, bug fixes, or codebase changes.
- It should be performed before deploying a new version of the product.
- Regression testing tool:
    1. Quick Test Professional (QTP)
    2. Rational Functional Tester (RFT)
    3. Selenium

- **What is 7 key principles? Explain in detail?**

    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 Errors Fallacy

a) Testing shows presence of Defects
- Testing reduce the probability of undiscovered defect**.**

b) Exhaustive Testing is Impossible
- All combinations of input & preconditions are not possible.

c) Early Testing
- Testing activities should start as early as possible in the development life cycle.

d) Defect Clustering
- Defect are not evenly spread in a system.

e) The Pesticide Paradox

- Therefore, we must learn, create and use new tests based on new techniques to catch new bugs

f) Testing is Context Dependent

- Deferent kinds of site are tested differently.

g) Absence of Errors Fallacy

- Even after defects have been resolved it may still be unusable and does not fulfil the user's need and expectations.

• Difference between QA v/s QC v/s Tester

1. QA

- Quality assurance focuses on improving the development process.
- Quality assurance involves designing processes and procedures.
- Quality assurance include training, documentation, monitoring, and audits.
- Process oriented activities.
- It is a subset of STLC.

2. QC

- Quality control focuses on the product to find defects after development.
- Quality control involves testing products to ensure they meet standards.
- Quality control includes code reviews and testing activities.
- Product oriented activities.
- It is a subset of QA.

3. Tester

- Tester focuses on actual testing.
- The identification of bugs/error/defects in the Software.
- Product oriented activities.
- It is a subset of QC.

- **Difference between Smoke and Sanity?**

1) SMOKE:

- Smoke testing verify basic functionality and stability.
- Broad evaluation of core functionalities.
- After new builds or code changes.
- This testing is identifying critical issues early.

2) SANITY:

- Sanity testing confirm that changes haven't broken existing functionality.
- Sanity testing focused on specific functionalities or bug fixes.
- After changes, when the build is comparatively stable.
- This testing ensures software remains stable after updates.

- **Difference between verification and Validation**

- **Verification:**

- Verification also known as development levels.
- to ensure that work products meet their specified requirements.
- Evaluation Items in verification=> Plans, Requirement Specs, Design Specs, Code, Test Cases.
- Activities in this level=> Reviews Walkthroughs Inspections.

- **Validation:**

- Validation also known as Test levels**.**
- to demonstrate that the product fulfils its intended use.
- Evaluation Items in validation=> The actual product/software.
- Activities in this level=> Testing.

- **Explain types of Performance testing.**

- Load testing
- Stress testing
- Endurance testing
- Spike testing
- Volume testing
- Scalability testing
- **Load testing:**
- Load time is normally the initial time it takes an application to start.
- This should generally be kept to a minimum.
- **Poor response time:**
- Generally, this should be very quick.
- Again if a user has to wait too long, they lose interest
- **Poor scalability:**

- A software product suffers from poor scalability when it cannot handle the expected number of users or when it does not accommodate a wide enough range of users.
- **Bottlenecking:**
- Bottlenecks are obstructions in system which degrade overall system performance.
- Bottlenecking is often caused by one faulty section of code.
- Bottle necking is generally fixed by either fixing poor running processes or adding additional Hardware.

● What is Error, Defect, Bug and failure?

- **Error:** A mistake in coding is called an error.
- **Defect:** If it will found by tester then is called defect.
- **Bug:** If development team will accept then it's called bug.
- **Failure:** Does not meet the requirements then it is failure.

● Difference between Priority and Severity

- **Priority:**
- Priority is Relative and Business-Focused.
- Priority defines the order in which we should resolve a defect.
- The priority status is set based on the customer requirements.
- **Type:**
- Low
- Medium
- High
- Critical

- **Severity:**
- Severity is absolute and Customer-Focused.
- it defines the impact that a given defect has on the system.
- **Type:**
- Critical
- Major
- Moderate
- Minor
- Cosmetic

- **What is Bug Life Cycle?**

- The bug life cycle is the process a bug goes through from when it's discovered to when it's fixed and closed.
- It is also known as the defect life cycle.
- **Stages of the bug life cycle:**

- New
- Assigned
- Open
- Fixed
- Pending retest
- Retest
- Verified
- Reopen
- Closed

- **Explain the difference between Functional testing and Non-functional testing**

- **Functional testing:**
- Functional testing checks that a software application's features work as expected.
- Functional testing is executed first.
- Manual testing or automation tools can be used for functional testing.
- Easy to do manual testing.
- **Types of Functional testing:**
- Unit Testing
- Smoke Testing
- Sanity Testing
- Integration Testing
- White box testing
- Black Box testing
- User Acceptance testing
- Regression Testing

- **Non-functional testing:**
- Non-functional testing evaluates the application's performance and quality.
- Non-functional testing should be performed after functional testing.
- Using tools will be effective for this testing.
- Tough to do manual testing.
- **Types of Non-functional testing:**
- 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:**
- STLC stands for software testing life cycle.
- STLC is the process of testing software.
- STLC is a subset of SDLC that focuses on testing the software.
- **STLC in a 6 phases:**
- Requirements analysis
- Test planning
- Test case development
- Test environment
- Test execution
- Test cycle closer

- **SDLC:**
- SDLC stands for software development life cycle.
- SDLC is the process of building software.
- SDLC is a linear process that includes planning, design, development, testing, and maintenance.
- **SDLC in a 6 phases:**
- Requirement
- Analysis
- Design
- Implementation
- Testing
- Maintenance

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

- **Test scenarios:**
- A test scenario is a high level description of user interaction with a system, outlining the context for testing.

- **Test cases:**
- Test case is a detailed set of steps of verify a specific feature within that scenario.

- **Test script:**
- Test script is a set of instruction written in a programming language to automate the execution of test case.

• 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.
- Determining the scope and risks, and identifying the objectives of testing.
- All projects require a set of plans and strategies which define how the testing will be conducted.
- The organisation's test policy
- Scope of the testing being performed
- Testing objectives
- Project Risks
- Constraints
- Criticality
- Testability
- Availability of resources

- **What is priority?**

➢ How urgent the bug needs to be fixed?

- **What is severity?**

➢ How much a bug impacts the software.

- **Bug categories are…**

➢ Security, Database, Functionality (Critical/General), UI

- **Advantage of Bugzilla.**

➢ Effective bug tracking
➢ Automation
➢ Reporting
➢ customization
➢ Security
➢ Search
➢ Prioritization

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

  - **Authentication:**
  - Authentication means verifying a user's identity.
  - Authentication usually involves providing credentials like a password or data.

  - **Authorization:**
  - Authorization determines what actions or resources a verified user is allowed to access based on their assigned permissions.
  - Authorization check against a set of rules to determine access levels.

  - **Common problems:**
  - Weak password policies
  - Insufficient password complexity requirements
  - Lack of multi-factor authentication
  - Insecure login forms

- **Write a scenario of only WhatsApp chat messages**

- Verify that the user can set a chat wallpaper.
- Verify that the user sets privacy settings like turning on/off last seen, online status, read receipts, etc.
- Verify that the user can take the complete chat backup of his chats.
- Verify that the user can delete his WhatsApp account.
- Verify that the user can check data usage by images, audio, video, and documents in WhatsApp chats.

- **Write a Scenario of Pen**

- Verify the type of pen
- Verify that the user is able to write clearly
- Verify if the pen is with a cap or without a cap.
- Verify the colors of the ink on the pen.
- Verify if the text written by the pen is erasable or not.
- Check if the text written by the pen is waterproof or not.
- Verify that the user is able to write normally
- Verify if the pen can support multiple refills or not.

- **Write a Scenario of Pen Stand**

- Verify the type of stand
- Verify the stand is square, circle, rectangle etc.
- Verify the stand colour.
- Verify the stand height.
- Verify the stand weight.
- Verify the how many pen is store in stand.

- **Write a Scenario of Door**

- Verify if the door is single door or bi-folded door.
- Check if the door opens inwards or outwards.
- Verify that colors of the door are as specified.
- Verify if the door is sliding door or rotating door.
- Check the position, quality and strength of hinges.
- Check the type of locks in the door.
- Verify if the door is having peek-hole or not.
- Verify if the door is having stopper or not.

- **Write a Scenario of ATM**

- Verify the type of ATM machine
- Verify that on properly inserting a valid card different banking options appear on the screen.
- Check that no option to continue and enter credentials is displayed to the user when the card is inserted incorrectly.
- Verify that the touch of the ATM screen is smooth and operational.
- Verify that the user is presented with the option to choose a language for further operations.
- Check that the user is asked to enter a pin number before displaying any card/bank account detail.
- Verify that there is a limited number of attempts up to which the user is allowed to enter the pin code.

- **When to used Usability Testing?**

- Usability testing should be used early and often throughout the product development cycle.
- Starting at the prototyping phase and continuing even after launch.
- Usability Testing identifies usability errors in the system early in development cycle and can save a product from failure.
- **Goal of Usability Testing:**
    I. Effectiveness of the system
    II. Efficiency
    III. Accuracy
    IV. User Friendliness

- **What is the procedure for GUI Testing?**

- UI testing involves evaluating the functionality, usability, and responsiveness of an application's user interface.
- **Approach of GUI Testing:**
    I. Manual based testing
    II. Record and replay
    III. Model based testing
- **GUI Testing Examples:**
    I. Web Based Testing
    II. Mobile Based Testing
    III. Game Based Testing

- **Write a scenario of Microwave Owen**

- verify that the dimensions of the oven are as per the specification provided.
- Verify that the oven's material is optimal for its use as an oven and as per the specification.
- Verify that the oven heats the food at the desired temperature properly.
- Verify that the oven heats food at the desired temperature within a specified time duration.
- Verify the ovens functioning with the maximum attainable temperature.
- Verify the ovens functioning with minimum attainable temperature.
- Verify that the oven's door gets closed properly.
- Verify that the oven's door opens smoothly.

- **Write a scenario of Coffee Vending Machine.**

- Verify that the dimension of the coffee machine is as per the specification.
- Verify that outer body, as well as inner part's material, is as per the specification.
- Verify that the machine's body colors as well brand is correctly visible and as per specification.
- Verify the input mechanism for coffee ingredients-milk, water, coffee beans/powder, etc.

- Verify that the quantity of hot water, milk, coffee powder per serving is correct.
- Verify the power/voltage requirements of the machine.
- Verify that coffee should not leak when not in operation.

- **Write a scenario of chair**

- Verify that the chair is stable enough to take an average human load.
- Check the material used in making the chair-wood, plastic etc.
- Check if the chair's leg is level to the floor.
- Check the usability of the chair as an office chair, normal household chair.
- Check if there is back support in the chair.
- Check if there is support for hands in the chair.
- Verify the paint's type and colors.
- Verify if the chair's material is brittle or not.

- **Write a Scenario of Wrist Watch**

- Verify the type of watch
- Verify the material of the watch and its strap.
- Check if the shape of the dial is as per specification.
- Verify the dimension of the watch is as per the specification.
- Verify the weight of the watch.
- Check if the watch is waterproof or not.
- Verify that the numbers in the dial are clearly visible or not.
- Check if the watch is having a date and day display or not.
- Verify the colors of the text displayed in the watch – time, day, date, and other information

- Verify if the dial's glass/plastic is resistant to minor scratches or not.
- Check the battery requirement of the watch.

- **Write a Scenario of Lift(Elevator)**

- Verify the dimensions of the lift.
- Verify the type of door of the lift is as per the specification.
- Verify the type of metal used in the lift interior and exterior.
- Verify the capacity of the lift in terms of the total weight.
- Verify the buttons in the lift to close and open the door and numbers as per the number of floors.
- Verify that the lift moves to the particular floor as the button of the floor is clicked.
- Verify that the lift stops when the up/down buttons on a particular floor are pressed.
- Verify if there is an emergency button to contact officials in case of any mishap.
- Verify the performance of the floor – the time taken to go to a floor.
- Verify if the lift interior is having proper air ventilation.
- Verify lighting in the lift.
- Verify that at no point the lift door should open while in motion.

- **Write a Scenario of WhatsApp Group (generate group)**

- Verify the new group option is available or not.
- Verify the contact are adding in group.
- Verify the number of contact are added in group.
- Verify the rename of group are change.

- **Write a Scenario of WhatsApp payment**

- Verify your bank account add on WhatsApp.
- Verify opponent bank account add to WhatsApp.
- Verify the payment option is visible.
- Verify the payment successfully.
- Verify the payment message show.