Software Testing Asingnment

Module 2 – Manual Testing

1. What is Exploratory Testing ?

Exploratory testing is complite as exploring the product or system through every specification and functionalities. It is more structured and strict than Adhoc testing

exploratory technique test design, execution and logging happen simultaneously

exploratory testing is highly teachable and manageable

Testing based on thinking activity, which comes from charter.

1. What is Traceability matrix ?

Traceability matrix is use to trace back from every **the system component**. Matrix contains data like number of requirements related to different components.

Types

1. Forward traceability - mapping of requirement to test case
2. Backward traceability - mapping of test case to requirement
3. Bi-directional traceability - mapping in both ways

**3**  What is Boundary value testing ?

Boundary value method for design test case that focus testing on cases near the limits of valid ranges.

Boundary value analysis generate test cases that highlight error better than Equivalence partitioning technique.

1. What is Equivalence partitioning testing ?

Equivalence partitioning is the process of defining the optimum number of test and use for all level of testing.

Group of input as equivalent and select one from them as representative input to test them all.

The Valid partition is bounded by the values 1 and 100

1. What is Integration testing ?

Integration testing is performed to expose defects in the interfaces and the interactions between integrated components.

Individual components are combined and testing as a group to verify the software modules are work in unity.

2 Levels of Integration testing

(1) Component integration testing

(2) System integration testing

There are two techniques in components

1. Functional testing

Black Box Testing techniques

1. Non-Functional testing.

Performance and reliability testing techniques

Integration testing methods

(1) BigBang integration testing

(2) Incremental integration testing

There are two method in incremental method

Top-down approach

Bottom-up approach

If any condition that not specified for the testing is usually not tested is the limitation of this testing.

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

Risk is determined by a combination of probability and severity.

Risk is a factor that could result in future negative consequence usually expressed as impact and likelihood.

Risk should be evaluated at the Business Level, Technological Level, Project Level and Testing Level. Risks are also used to decided to start testing and where more testing is needed.

Types

(1) Project risk

(2) Product risk

Risk considerations can include

financial implication of software being released that is not tested

software being delivered late to market

**7**  What is Alpha Testing ?

Alpha testing is performed by the developers at software development site

And independent testing team

Alpha testing is not open to market & public and It’s a form of uat testing

Performed in virtual environment within the organization.

This testing uses black box & white box testing techniques for software or project.

**8**  What is Beta Testing ?

Beta testing is perform by the customer at their own site using their own data That is not performed by independent testing team.

Beta testing is open to market & public It’s a uat testing

Perform in real time environment outside the organization

beta testing uses black box testing techniques for software or product

It is testing “Pre-release” testing

Performed at the time when software product are marketed & uses pilot testing approach to collect data from users

**9** What is Component testing ?

A minimal software item that can be tested in isolation. A unit is the smallest individual testable part of software

That Also called Unit testing and module testing and program testing.

component test is performed by using White-Box testing method and use done by developers

Unit testing framework, drivers, stubs and mock objects are used to assist in component testing.

**10**  What is Functional system testing ?

Functional system testing of requirement that specifies a function that system or system component must perform. Testing describes what dose the product

Functional system Functionality to be tested like accuracy, interoperability, compliance, auditability and suitablility.

Test Approach

(1) Requirement based functional testing

(2) Business process based testing

This testing involves checking UI, APIs, database, client’s functionality of the application under test.

Ex.

Web based,

Desktop based,

Mobile based,

Game based testing.

**11** What is Non Functional system testing ?

Non Functional system testing the attributes of a component or system that does not related to functionality like reliability, efficiency, usability, maintainability, portability testing etc..

Non Functional system testing testing describes how good the product work.

Non functional testing should be performed after functional testing

Typs of non functionl testing

Load test, stress test, performance test and others are type of this testing.

Ex. Web based,

Desktop based,

Mobile based,

Game based testing.

**12**  What is GUI Testing ?

Graphical User Interface testing is the process of testing the system’s GUI of the System under Testing

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

GUI testing

1. Manual based testing

graphical screens are checked manually by testers in conformance

1. Record and replay

Gui testing done by automation tools

1. Model bases testing

graphical description

**13**  What is Adhoc testing?

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

Does not follow any testing design to create test cases. It also called error guessing technique.

In this testing high required Knowledge of tester for adhoc testing.

Testing is done without specification documents.

Finding defects by random checking.

Types of Adhoc testing :-

(1) Buddy testing

(2) Pair testing

(3) Monkey testing

**14**  What is Load Testing ?

Load testing is to check the system behavior under load To determine at which point the system’s response time degrades or fail.

Load testing minimize risk and cost, improves scalability and increase customer satisfaction.

Load testing identify

Max operating capacity of application

Current infrastructure is sufficient to run app

Bottleneck in system, Hardware limitations issues

Software design, server configuration issues

Sustainability of app (ex. Peak user load)

**15**  What is Stress Testing ?

Stress testing is use to test the stability and reliability of the system. It test beyond the normal operating point and evaluates how the system works under extreme conditions.

By stress testing We can determine the limit; where the system or software or hardware breaks. Also called Endurance testing.

Types of stress testing

(1) Application

(2) Transactional

(3) Systematic

(4)Exploratory

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

White box testing is the testing based on an analysis of the internal structure of the component or system.

It is also called structure based testing

Tester require knowledge of how the software is implemention and how it works.

White box testing is performed at component and component integration test phase.

Test code coverage measures the amount of testing performed by a set of testing,

where the test exercised on coverage items.

Types

1. Statement coverage

It also called segment/line coverage

1. Decision coverage

**also called branch coverage**

**covers both the true and false conditions**

(3) Condition coverage

Others branch condition, dataflow, linear code sequence and jump testing modification condition decision testing.

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

**Black-box testing: Testing, either functional and non fuctional testing**

Black box Testing is without reference to the internal structure of the component or system is called black box testing.

It’s specification based testing.

No source code available,

only interact with system UI

mainly focus on what a system does.

Techniques

(1) Equivalence partitioning

(2) Boundary value analysis

(3) Decision table technique

(4) State transition technique

(5) Use case technique

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

Categories of defects

Data quality

Database defect

Critical functionality defect

Functionality defect

User interface defect

Security defect

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

In Big Bang integration testing all components or modules is integrated simultaneously, after which everything is tested as a whole.

Here all component are integrated together at once and then tested

Advantage

Everything is finished before integration testing starts.

Disadvantage

Time consuming, Difficult to trace the cause, Can miss out testing of high risk critical module.

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

Related to requirement fulfill, project purpse constraint like time and budget and number of defects remain.

Purpose of exit criteria is to define when we STOP testing either at the End of all testing product Go Live End of phase of testing

hand over from System Test to UAT

Exit Criteria typically measures

Thoroughness measures, such as coverage of requirements or of code or risk coverage.

Estimates of defect density or reliability measures. how many defects open by category

Residual Risks, such as defects not fixed or lack of test coverage in certain areas.

Schedules - such as those based on time to market.

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

Regression testing is performed after Smoke & Sanity test

When changes done in software and bug fix releases as a part of maintenance phase.

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

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

These are the 7 general testing principles.

Testing shows presence of defects

Testing reduces the probability of undiscovered defects remaining in the software but, even if no defects are found, it is not a proof of correctness.

Exhaustive testing is impossible

Testing everything including all combinations of inputs and preconditions is not possible. Priorities our testing effort using a Risk Based Approach.

For example In an application in one screen there are 15 input fields, each having 5 possible values, then to test all the valid combinations you would need 30 517 578 125 (515) tests.

Early testing

Testing activities should start as early as possible in the development life cycle. this activities should be focused on checking of client’s requirement.

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.

The 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.

As bugs are eliminated by the programmers, the software improves and the effectiveness of previous tests erodes.

Testing is context dependent

Different kinds of sites are tested differently.

example Safety

critical software is tested differently from an e-commerce site.

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 is impractical.

1. Difference between QA/QC/Tester.

Quality Assurance(QA)

Focus on process and procedures of actual testing on the system

Process oriented activities

Preventive activities

Subset of software testing life cycle (STLC)

Quality control (QC)**ol**

Focus on actual testing by executing software identify bug/defect

Product oriented activities.

It is Corrective process

Subset of Quality Assurance(QA)

Tester

Focus on actual testing of software.

Product oriented activities

It is Preventive process.

Subset of Quality Conrol(QC)

1. Difference between Smoke and Sanity

|  |  |
| --- | --- |
| Smoke Testing | Sanity Testing |
| Smoke testig is Perform to verify that the critical functionalities of the system is working fine or not | Sanity testing is Perform to check that the bugs have been fixed and no further issues due to any changes |
| Subset of regression testing.  Smoke testing is performed by the developers or testers | Subset of acceptance testing  sanity testing is performed by the testers. |
| Usually documented and scripted | Not documented and unscripted |
| The objective of the testing is to verify the stability of the system | The objective of the testing is to verify the rationality of the system |
| Smoke testing is performed on initial unstable builds | Sanity testing is performed on stable builds |

1. Difference between Verification and Validation

|  |  |
| --- | --- |
| Verification | Validation |
| Verification is includes checking documents, design, codes and programs | Validation is includes testing and validating the actual product |
| Verification is the static testing. It comes before validation | Validation is the dynamic testing. It comes after verification |
| Methods used in verification are reviews, walkthroughs, inspections and desk-checking. | Methods used in validation are Black Box Testing, White Box Testing and non-functional testing. |
| It can find the bugs in the early stage of the development | It can only find bugs that could not be found by the verification process. |
| Verification is for prevention of errors | Validation is for detection of errors |
| Verification is about process, standard and guideline | Validation is about the product |

**26**  Difference between SDLC and STLC ?

|  |  |
| --- | --- |
| SDLC | STLC |
| Software development life cycle | Software testing life cycle |
| SDLC is mainly related to software development Life Cycle. | STLC is mainly related to software testing. |
| SDLC, more number of members developers are required for the whole process | STLC, less number of members testers are needed |
| SDLC, development team makes the plans and designs based on the requirements | STLC, testing team makes the plans and designs. |
| helps in developing good quality software | It helps in making the software defects free. |
| Creation of reusable software systems is the end result of SDLC | A tested software system is the end result of STLC |
| Phases  (1) Requirement gathering  (2) Analysis phase  (3) Design phase  (4) Implementation phase  (5) Testing phase  (6) Maintenance phase | Phases  (1) Test planning  (2) Test case development (3) Test environment setup (4) Test execution  (5) Test cycle closure |

1. Explain types of Performance testing.

Software performance testing is a means of quality assurance (QA)

Performance testing is conduct on basis of software’s parameter like Stability, Speed & Scalability (max user load).

Types

(1) Load testing

(2) Stress testing

(3) Spike testing

(4) Volume testing

(5) Scalability testing

1. What is Error, Defect, Bug and failure

Error

Error is a coding mistake in developer

Defect

Error found by tester is called defect.

Bug

Defect accepted by development team is called bug

Failure

Failure is build does not meet the requirements.

1. Difference between priority and severity.

|  |  |
| --- | --- |
| Priority | Severity |
| Priority defines the order in which we should resolve a defect. The priority status is set based on the customer requirements. | It is the extent to which the defect can affect the software. In other words it defines the impact that a given defect has on the system. |
| Priority is relative & business focused | Severity is absolute & customer focused |
| Types  Critical  High  Medium  Low | Types  Critical  Major  Moderate  Minor  Cosmetic |

**30**  What is Bug Life Cycle?

Bug or defect life cycle is the duration or time span between the first time defect is found & the time of closed or rejected or deferred.

test lead, developer, project manager, other testers

Stages of bug life cycle



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

|  |  |
| --- | --- |
| Functional Testing | Non-Functional Testing |
| 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 | Performed after functional testing |
| Easy to do manual testing | Tough to do manual testing |
| Business requirements are the inputs to functional testing | parameters like speed , are inputs to non-functional testing |
| Types  Unit  Smoke  Sanity  Integration  black-box  white-box  UAT  regression testing | Types  Performance  Load  Volume  Stress  Security  Installation  Migration  Penetration  compatibility testing |

**32** What is the difference between test scenarios, test cases, and test scrip.

Test scenario

A scenario is any functionality that can be tested from use cases it Also called condition or possibility.

Scenario is give ideas in “What to be tested”

scenarios are derived from use cases

Test case

Test cases involve the set of steps conditions and inputs which can be used while performing the testing task from test scenarios.

Testcase gives idea in “How to be tested”

Test cases are derived from test scenario

Test Script

A set of instructions that will be perform on the system under test to test identify and system functions are as expected or not.

script is Test process specification.

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

Test plan is a document that describing the strategy scope, approach, resources & environment schedule be intended test activities.

Factours affected test planning

Test policy, testing objectives, project risk and availability of resources, testability

Test plan Activities

Integrating and co-ordinating test activity in STLC, how result evaluate and test ware, process

Exit criteria

Related to requirement fulfill, project constraint like time and budget and number of defects remain.

1. what is priority

priority is a term that defines how ast we need to fix a defect

1. what is severity

Severity is a term that denotes how severely a defect can affect the functionality of the software

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**36** Bugs categories are

Categories of bugs

(1) Database bug

(2) GUI bug

(3) Functionality bug

(4) Security bug

1. Advantages of Bugzilla

Open source, free bug tracking tool.

Automatic Duplicate Bug Detection.

File/Modify Bugs By Email.

Time tracking

Move Bugs Between Installs.

Multiple Authentication Methods

LDAP

Apache server

Search option with advanced features

Automated bug reporting; has an API to interact with system.

Detailed permissions system

Optimized database structure to enhance performance.

Robust security.

Powerful query tool

Ideal for small projects

Integrated email capabilities

1. What are the different 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

1. Kanban

**kanban** is a very popular framwork for development in the agile software development methodology.

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

Authentication

Authentication is verifies who the user

Authentication works through passwords, one-time pins, biometric information, and other information provided or entered by the user.

Authentication is the first step of a good identity and access management process

Authentication is visible to and partially

changeable by the user

Authorization

Authorization determines what resources a user can access

Authorization works through settings that are implemented and maintained by the organization

Authorization always takes place after authentication.

Authorization isn’t visible to or changeable by the user.

Problems faced in Web testing

Insufficient testing for browser compatibility

Fail to conduct functional testing across mobile

Releasing new features breaks the existing system

Bugs like crash, functional error, typos, control flow error

**40** Write agile manifesto principles

Individuals and interactions, Over processes and tools

Working software, Over comprehensive documentation

Customer collaboration, Over contract negotiation

Responding to change, over following a plan

**41**  Write a Scenario of only Whatsapp chat messages

Positive

Check open whatsup chat

Check that it shows proper chat page

Check that user access the text box

Check that user can choose any language type in any languages

Verify that it support alphabets, numbers, special character

Check that it supports functionality of emoji

Verify that we can perform actions like cut, copy, paste, erase

Verify that it supports reply functionality

Check that chat history is properly visible

Negative

Verify the maximum character limit of chat messages

Check its multi language functionality at a time

Check send & receive message functionality without internet

Check entirely chat delete or remove functionality from both side

**42**  Write a Scenario of Pen

Positive

Verify the types of pen ballpen ,ink pen

Check the weight of pen

Check the pen is working properly

Check that pen have ball point

Verify the strength of pen

Check that pen contains ink and gel

Verify the different outer material of pen

Verify the working in any weather

Check the transportability of pen

Negative

Check that pen have any colored ink

Check the strength of ball point

Check that pen works on every surface

Verify that pen is re usable

Check that pen is waterproof

**43**  Write a Scenario of Pen Stand

Positive

Check pen stand is reusable

Check that pen stand have proper structure

Check the different material of pen stand

Verify that for different types of pen

Check the usability of pen stand in any weather

Check the transportability of pen stand

Negative

Check that it can stand on any type of surface

Verify that pen stand have different compartment

Check that it can contain other things small size diary

**44**  When to used Usability Testing?

Usability Testing identifies usability errors in the system early in development cycle and can save a product from failure.

We use usability test when we have to check parameters like Effectiveness of the system, Efficiency, Accuracy & User Friendliness.

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

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..

Approach

(1) Manual based testing

(2) Record and replay

(3) Model based testing