**Software testing assignment**

**Module -2**

1. **What is Exploratory testing?**

Ans. Exploratory testing is based on the knowledge of the tester. Using past experienced use and intuition to guess where error may occur.

Exploratory testing is a concurrent process where test design execution happens simultaneously.

1. What is traceability matrix?

Ans. Traceability matrix is a graph of requirement v/s component that should help to trace back from every system component to the original requirement.

There are three types to Traceability matrix

* Forward traceability
* Backward traceability
* B- directional traceability

1. What is boundary value testing?

Ans. Boundary value analysis is a methodology for designing test case that concentrates software testing effort on case near the limits of valid ranges.

1. What is Equivalence partitioning testing.

Ans. Equivalence partitioning is a process of defining the optimum numbers of tests by reviewing documents such as the functional design specification and detailed design and identifying each input condition within a function.

* The number fall into a relationship where each would have the same of equivalent result.

1. What is integration testing?

Ans. Integration testing is performed to expose defects in the interface and in the interaction between integrated components or system.

* In integration testing developer and tester both can conduct the testing.
* Integration testing is a level of the software testing process where individual unit are combined and tested as a group
* There are two level of integration testing

1. Component integration testing
2. System integration testing

* There are two method of integration testing

1. Big bang integration testing
2. Incremental integration testing
3. What determines risk of level

Ans. –A Risk is a factor that could result in future negative consequences; usually expressed as impact and likelihood.

You need to identify the risks associated with your project

Risks are of two types

1.Project Risks

2. Product Risk

1. What is Alpha testing?

Ans. Alpha testing is always performed by the developer at the software development.

* It is conduct for the software application and project.
* It is always performed within the organization.
* It comes under the category of both white box testing and black box testing.
* It is always performed in virtual environment.

1. What is Beta testing?

Ans. Beta testing is always performed by the customer at their own site.

* It is conduct for the software product
* It is always performed outside the organization.
* It only comes under the category of black box testing.
* It is always performed in real time environment.

9.What is component testing?

Ans. Component testing is a level of software testing process where individual unit/components of a system are tested.

* Component testing is the first level of testing and is performed prior to integration testing.
* Component testing is performed by using the white box testing.

10. What is Functional system testing?

Ans. Functional system testing: A requirement that specifies a function that a system or system component must perform.

* Manual testing or automation tools can be used for functional testing.
* Functional testing describes what the products does
* There are 7 types of Functional testing

1. Black box testing
2. White box testing
3. Experienced testing
4. Smoke testing
5. Sanity testing
6. End to End testing
7. Regression testing

11. What is Non-functional testing?

Ans. Non- functional testing: testing that attributes of a component or system that relate to reliability, efficiency, usability, maintainability and portability.

* Non- Functional testing describe how good the products works.
* Using tools will be affecting for this testing.
* Non- functional testing should be performed after functional testing.
* There are 7 types of Non –Functional testing

1. Usability testing
2. Compatibility testing
3. GUI testing
4. Security testing
5. Performance testing
6. Stress testing
7. Load testing

12. What is GUI testing?

Ans. Graphical user interface (GUI) testing is a process of testing the system`s GUI of the system under test.

GUI testing involves checking the screens with the control buttons like menus, button, icons, and all types of bars- tool bars, menu bars windows etc.

* There are 3 approach of GUI testing
* Manual based testing
* Record and Replay
* Model Based testing

13. What is Ad-Hoc testing?

Ans. Ad-Hoc testing is an informal testing type with an aim to break the system.

* It does not follow any test case design techniques to create test case.
* Main aim of this testing is to find defects by random checking.
* This testing is primarily performed if the knowledge of testers in the system under test is very high.
* There are three types of Ad-hoc testing

1. Buddy testing
2. Pair testing
3. Monkey testing

14. What is Load testing?

Ans. Load Testing: It’s a performance testing to check system behavior under load.

* Load testing does not break the system.
* This testing helps determine how the application behaves when multiples users access is simultaneously.

15. What is Stress testing?

Ans. Stress testing: System is stressed beyond its specification to check how and when it fails.

* Stress testing is used to test the stability and reliability of the system.
* Stress testing is also known as endurance testing.
* It even tests beyond the normal operating point and evaluates how the system works under those extreme conditions.
* Tools for stress testing

1. Stress tester
2. Neo load
3. App perfect

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

Ans. White box testing: Testing based on an analysis of the internal structure of the component or system.

* Structure –based testing techniques also known as ‘white box’ testing or glass-box.
* In order to perform white box testing on an application
* Types of white box testing

17. What is black box testing?

Ans. Black box testing: The technique of testing without having any knowledge of the interior workings of the application.

* Specification –based testing techniques also known as ‘Black box’ testing.

Types of Black box testing

1. Equivalent partitioning
2. Boundary value analysis
3. Decision table
4. State transition table
5. Use- case Testing

18. Mention what are the categories of defects?

Ans. Categories of Defect:

1.Security defect

2. Functionality defect

3. Critical Functionality defect

4. User interface defect

5.Database defect/ data quality

19. Mention what big bang testing is?

Ans. Big bang testing is method of integration testing.

* In big bang testing is a testing approach where all components or module are integrated and tested as a single unit.

Advantage

* It is convenient for small system
* Big bang testing has the advantage that everything is finished before integration testing started.

Disadvantage

* Fault localization is difficult.
* The major disadvantage is that in general it is time consuming and difficult to trace the cause of failures because of this

20. What is the purpose of exit criteria?

Ans. The purpose of exit criteria is to define when we stop testing either at the:

* End of all testing –E. g. product go live.
* End of phase of testing (E. g. hand over from system test to UAT)

21. When should “Regression Testing “should be perform?

Ans. Regression testing should be carried out:

* When the system is stable and the system or the environment changes
* When testing bugs fix release as part of the maintenance phase.
* It should be applied at all test levels.
* It should be considered complete when agreed completion criteria for regression testing have been met.
* Regression testing suites evolve over time and given that then are run frequently are ideal candidates for automation.

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

Ans. **7 Key Principles**

1. **Testing shows present of defects**:

* Testing can show that defects are present, but cannot prove that there are no 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.

1. **Exhaustive testing is Impossible**:

* Testing everything including all combinations of inputs and preconditions is not possible.

1. **Early testing:**

* Testing should be start as early as possible and it should be focused on defined objectives.

1. **Defects clustering:**

* The small number of module can contain the most number of defects discovered during pre- realize testing and shows most operation failures.
* 80% of defects are occurred due to the 2 % of code

1. **Pesticide paradox:**

* If the test repeated over and over again, then we should not use the same test case. Otherwise we will no longer able to find new defects.

1. **Testing is context dependent**:

* Testing is performed differently in different –different context.
* Eg. if we are testing software of space agency or airline then the data security is mostly needed. so, most of the weightage will be of testing data security and if we are testing E- commerce website then most of the weightage will be on UI & factors affecting customer attraction.

1. **Absence of error fallacy:**

No matter how many errors we find and fix it, if it is not as per the client requirement and does not fulfill the needs and expectations of client then finding and fixing defects does not help.

23. Difference between QA v/s QA v/s Tester?

Ans. **QA (QUALITY ASSURANCE):**

* Activities which ensure the implementation of processes, procedures and standards in context to verification of developed software and intended requirements
* It Focus on process and procedures rather than conducting actual testing on the system.
* It has process oriented activities.
* QA has preventive activities.
* It is subset of software life cycle (SDLC).

**QC (QUALITY CONTROL):**

* Activities ensure the verification of developed software with respect to documented (or not in some cases) requirement.
* It Focus on actual testing by executive, software with intend to identify bug/defects through implementation of procedures and process.
* It has Product oriented activities.
* QA has corrective process.
* QA considered as the subset of Quality Assurance.

**TESTER:**

* Activities which ensure the identification of bugs /error/defects in the software.
* It Focus on actual testing.
* It has product oriented activities.
* It has a preventive process.
* Testing is the subset of quality control.

25. Difference between Smoke and Sanity?

Ans. **Smoke testing:**

* Smoke testing is performed after software build to ascertain that the critical functionalities of the program is working fine.
* Smoke testing is also known as build verification process.
* The testing is performed by developer and testers.
* Smoke testing is a subset to regression testing.
* Smoke testing is exercise the entire system.
* Smoke testing is usually documented.
* The object of this testing is to verify ‘stability’ of the system.

**Sanity test**

* After receiving a software build, with minor changes in code, or functionality, sanity testing is performed to ascertain that the bugs have been fixed and no further issue are introduced due to these changes.
* Sanity testing is performed by testers
* Sanity testing is a subset of acceptance testing.
* Sanity testing is exercise only the particular component of the entire system.
* The object of the testing is to verify the ‘rationality’ of the system.

26. Difference between verification and validation

Ans:

|  |  |
| --- | --- |
| Verification | Validation |
| 1. Verification is a static testing.   2. Verification is under development activity.  3. In this phase ensure that the product is being built according to the requirements and design specification.  4. In other words, to ensure that work products meet their specified requirements. | 1. Validation is dynamic testing.      1. Validation after development activity. 2. In this phase ensure that the product actually meets the user’s needs, and that the specifications were correct in the first place. 3. In other words, to demonstrate that the product fulfills its intended use when placed in its intended environment |

27. Explain types of Performance testing.

Ans. Performance testing: It involves testing software applications to ensure they will perform well under their expected workload.

* There are 6 types of performance testing.

1. Load testing
2. Stress testing
3. Endurance testing
4. Spike testing
5. Volume testing
6. Scalability testing
7. Load testing: it`s performance testing to check system behavior under load.

* Load testing does not break the system.
* This testing helps determine how the application behaves when multiples users access is simultaneously.

1. Stress testing: System is stressed beyond its specification to check how and when it fails.

* Stress testing is used to test the stability and reliability of the system.
* Stress testing is also known as endurance testing.
* It even tests beyond the normal operating point and evaluates how the system works under those extreme conditions.

1. Endurance testing: Endurance testing, also known as stress testing.

* It is a type of software testing that is used to determine how well a system or application can handle prolonged usage or a large number of users over a long period of time.
* The goal of endurance testing is to identify any issue that may arise when the system is used for an extended period of time, typically hours or days.

1. Spike testing: Spike testing is a type of software testing that is done by suddenly increasing or decreasing the load on the system or software application.

* The load is generated by huge number of users and the behavior of the system is observed.
* The goal of spike testing will fail or survive in case of dramatic changes in load.

1. Volume testing: Volume testing is a type of software testing which is carried out to test a software application with a certain amount of data.

* In volume testing, we will concentrate on the number of data rates than the number of users. It is also called Flood testing.

1. Scalability testing: It is used to check an application`s performance by increasing or decreasing the load in particular scales known as Scalability testing.

* It is executed at a software, hardware, or database level.

28. What is Error, Bug, Defect and failure?

Ans. Error: A mistake in coding is called Error.

Defect: Error found by tester it is called Defect.

Bug: Defect accepted by development team then it is called Bug.

29. Difference between priority and severity.

Ans. **Priority:**

* Priority is a parameter to decide the order in which defects should be fixed
* Priority means how fast defect has to be fixed.
* Priority is related to scheduling to resolve the problem
* Product manager decides the priorities of defects.
* Priority value is subjective.
* Priority value changes from time to time.

***Severity:***

* Severity is a parameter to denote the impact of a particular defect on the software.
* Severity means how severe defect is affecting the functionality.
* Severity value is objective.
* Severity is related to the quality standard.
* Severity value doesn’t change from time to time.
* Testing engineer decides the severity level of the defect.

30. Difference between Functional testing and Non-functional testing.

|  |  |
| --- | --- |
| **Functional testing**   1. A requirement that specifies a function that a system or system component must perform.   2. Manual testing or automation tools can be used for functional testing.  3. Functional testing describes what the products does.  4. Easy to do manual testing.  5. Business requirements are the inputs to functional testing.  6. Functional testing is executed | **Non-Functional testing**  1.Testing that attributes of a component or system that relate to reliability, efficiency, usability, maintainability and portability.  2. Non-functional testing should be performed after functional testing.  3. Non-Functional testing describe how good the products works.  4 Tough to do manual testing.  5. Performance parameters like speed, scalability are inputs to non-functional testing.  6. Non-Functional testing should be performed after functional testing. |

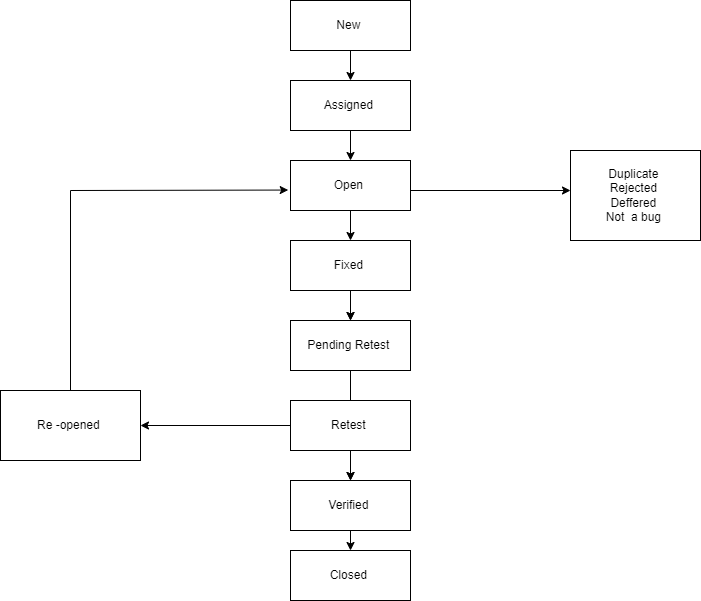
31. What is difference between SDLC (Software development life cycle) and STLC (software testing life cycle)?

|  |  |
| --- | --- |
| SOFTWARE DEVELOPMENT LIFE CYCLE (SDLC) | SOFTWARE TESTING LIFE CYCLE(STLC) |
| 1. SDLC is mainly related to software development. 2. SDLC involves six phases. 3. Phases of SDLC – Requirement gathering, analysis, design, implementation, testing, maintenance. 4. Goal of the SDLC is to complete successful development of software. 5. It helps in developing good quality of software. | 1. STLC is mainly related to software testing. 2. STLC involves six phases. 3. Phases of STLC- Requirement analysis, test planning, test case development, test case environment setup, test case execution, closure. 4. Goal of the STLC is to complete successful testing of software. 5. It helps in making the software defects free. |

32. What is bug life cycle?

Ans. The duration or time spent between the first time defects is found and the time that it is closed successfully, rejected, postponed, as deferred is called as ‘Bug (defect) life cycle’.

Bug (defect) life cycle



33. What are the difference between Test scenario, Test case and Test script.

Ans. ***Test scenario:***

* A Scenario is any functionality that can be tested. It is also called Test Condition, or Test Possibility.
* Test scenario is test procedure.
* Test scenario is ‘what to be tested’.
* The scenarios are derived from use case.
* Test scenarios represent a series of action that determines that are associated together.
* Scenario is thread of operations.

***Test Case:***

* Test cases involve the set of steps, conditions and inputs which can be used while performing the testing tasks.
* Test case is ‘How to be tested’.
* Test case are derived from test scenario.
* Test case are set of input and output given to the system.
* Test case represents a single action by user.
* Test case consist of set of input values, execution precondition, expected Results and executed post-condition developed to cover certain test Condition.

***Test Script:***

* A set of sequential instruction that detail how to execute a core business function.
* There are two type of Script

1. Manual Testing
2. Automation Testing

* Contents of a Test Procedure are:
* Test procedure specification identifier
* Purpose
* Special requirements
* Procedure steps

34. Explain what is Test plan and? What is the information that should be covered.

Ans. A test plan is a detailed document that describes the test strategy, objectives, schedules, estimation, deliverable, and resources, required to

* Determining the scope and risks, and identifying the objectives of testing.
* Defining the overall approach of testing (the test strategy), including the definition of the test levels and entry and exit criteria.
* Integrating and coordinating the testing activities into the software life cycle activities.
* Making decisions about what to test, what roles will perform the test activities, how the test activities should be done, and how the test results will be evaluated?
* Scheduling test analysis and design activities. Scheduling test implementation, execution and evaluation.
* Assigning resources for the different activities defined.
* Defining the amount, level of detail, structure and templates for the test documentation.

35. What is priority?

Ans. Priority is a relative and business-focused.

* Priority defines the order which we should resolves a defect. 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. If high priority is mentioned then the developer has to fix it at the earliest. The priority status is set based on the customer requirements.
* For example: If the company name is misspelled in the home page of the website, then the priority is high and severity is low to fix it.

36. What is severity?

Ans. Severity is absolute and Customer-Focused. 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.

For example: If an application or web page crashes when a remote link is clicked, in this case clicking the remote link by a user is rare but the impact of application crashing is severe, so the severity is high but priority is low.

37. Advantage of Bugzilla.

Ans. The Advantages of Bugzilla are:

* it is an open-source widely used bug tracker;
* it is easy in usage and its user interface is understandable for people without technical knowledge;
* it easily integrates with test management instruments;
* it integrates with an e-mailing system;
* it automates documentation
* Automatic Duplicate Bug Detection.
* Search option with advanced features.
* File/Modify Bugs by Email.

38. Bugs categories are….

Ans. There are the categories of bug:

1. Security Defects: Application security defects generally involve improper handling of data sent from the user to the application. These defects are the most severe and given highest priority for a fix.
2. User Interface Defects: As the name suggests, the bugs deal with problems related to UI are usually considered less severe.
3. *Data Quality/Database Defects*: Deals with improper handling of data in the database.
4. *Critical Functionality Defects*: The occurrence of these bugs hampers the crucial functionality of the application.
5. *Functionality Defects:* These defects affect the functionality of the application.

39. What are the different methodologies in Agile development model?

Ans. Different methodologies for Agile:

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

* Scrum is derived from activity that occurs during rugby match. Scrum believes in empowering the development team and advocates working in small teams (say- 7 to 9 members).
* It consists of three roles and their responsibilities are explained as follows:

1. Scrum Master: Master is responsible for setting up the team, sprint meeting and removes obstacles to progress
2. Product owner: The Product Owner creates product backlog, prioritizes the backlog and is responsible for the delivery of the functionality at each iteration
3. Scrum Team: Team manages its own work and organizes the work to complete the sprint.

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, i.e., 2 weeks to 1 month.

The scrum team agrees with this timeline during the sprint planning meeting.

Scrum roles:

There are three roles in scrum

1. **Product owner**: Product Owner is the person who communicates with the clients understands their requirements. Product Owner is the responsible person from the company for software development.

2. **Scrum Master**: During the sprint, Agile says that the team should meet together once daily. When the team is following scrum means that they are conducting meetings daily for 10 to 15 minutes. This meeting is known as a scrum meeting. Scrum Master is the person who handles the scrum meeting.

**3. Scrum team:** The team comprises of persons who work on the project. It can be developers, testers or designers. When we talk about Agile or Scrum then we talk about the team, we do not talk about developers, or testers as an individual. Agile says that developers can work as a tester or testers can work as a developer when the need arises.

Artifacts of scrum

1. Product backlog: Where all requirements are stored.
2. Sprint Backlog: In the sprint backlog, a small set of product backlog activities are performed within that sprint. The 'n' number of sprint backlogs is equal to the 1 product.
3. Burndown chart: The burndown chart tells how you are working on the sprint. In the burndown chart, the graph starts from some time, i.e., where the activity gets started, and at the end of the sprint, the graph reaches to zero where the activity ends.

Scrum ceremonies:

1. Sprint planning
2. Daily scrum
3. Sprint Review
4. Sprint Backlog
5. Sprint
6. Sprint delivery

* ***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.
* It mainly uses physical and digital boards to allow the team working on. Kanban originated in Toyota in the 1940s.
* The Kanban board has columns and story cards. The columns are nothing, but workflow states and cards are nothing but a demonstration of the actual task a team member is performing.

40. To create HLR & Test Case of 1) (Instagram, Facebook) only first page.

Ans. Submit in project.

41. To create HLR & test case of Web Based (WhatsApp web)

Ans. Submit in project.

42. To create HLR and Test Case on this Link. <https://artoftesting.com/>

Ans. Submit in project.

43. Write a scenario of

* Whatsapp chat messages
* Pen
* Pen Stand
* Door
* ATM
* Microwave Owen
* Coffee vending Machine
* Chair

Ans. Submit in project

44. To Create Scenario (Positive & Negative)

* Facebook Chat on Mobile
* Wrist Watch
* Lift (Elevator)
* Whatsapp Group (generate group)
* Whatsapp payment
* Instagram (video call with chat)
* Online shopping to buy product (Flipkart)
* Gmail (receiving Mail)

Ans. Submit in project

45. When to used Usability Testing?

Ans.  Aim to have **usability testing** as a recurring activity in your product design process. Practice it during every phase of your product development.

conduct usability testing before putting any design resources to work.

46. What is the procedure for GUI Testing?

Ans. 1. Testing the size, position, height, width of the visual elements.

2.Verifying and testing the error messages are displayed or not.

3.Testing different sections of the display screen.

4.Verifying the usability of carousel arrows.

5.Checking the navigation elements at the top of the page.