**Module – 2 Assignment**

1. **What is exploratory testing?**

Though the current trend in testing is to push for automation, exploratory testing is a new way to thinking, automation has its limits.

* It is a random testing but it is adhoc testing with purpose to find a bug
* It is structured and rigorous

1. **What is traceability matrix?**

To protect against changes you should be able to trace back from every system component to the original requirement that caused its present.

A software process should help you keeping the virtual table up to date. Simple technique may be valuable.

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

Boundary value testing is a methodology for designing test cases that concentrates software testing efforts on cases near the limits of valid range.

Boundary values analysis is a method which refines equivalence partitioning.

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

Aim is to treat groups of inputs as equivalent and select one representative input to test them all.

EP can be used all level of testing

EP says that by testing one value we have to tested partition (typically a mid point value is used) it assumes that.

If one value find a bug , the other probably will to

If one doesn’t find a bug than other probably won’t find too.

1. **What is integration testing?**

Integration testing is performed to expose the defect in the interfaces and in the interaction between integrated component or system.

Integration testing is a level of the software testing process where individual units are combined and tested as a group.

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

Determining the level of risk usually involves trying to assess not only the likelihood of an identified risk from actually occurring, but also the potential magnitude the consequences this risk could have on an organisation and its stakeholder

1. **What is Alpha testing?**

Alpha testing is conducted by the development site.

Alpha testing is done by the developers site as well as independent testing team.

Alpha testing is done in a virtually not for client or public. It is comes under the white box testing and black box testing.

1. **What is Beta testing?**

Beta testing is performed by the customers at their own site or system.

It is performed by the independent testing team.

It is always open to public and market.

Beta testing is performed in real environment.

It is consider as a pre-release testing. Pilot testing is testing to product in a real world as well as collect data on the use of product.

1. **What is component testing?**

Component testing (Unit testing) is going to test small or single module or individual module in the system is called component testing or unit testing.

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

A requirements that specifies a function that system or system component must perform.

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

Non-functional testing is performed reliability, scalability.

It is performed after functional testing

Performance parameters like speed, scalability, are input to non-functional testing.

1. **What is GUI testing?**

GUI testing is a Graphical User Interface.

GUI testing is involves to check the system function or controls like, menus, buttons, icons, tool bars, dialog box, and window.

1. **What is Adhoc testing?**

Adhoc testing is an internal testing types within aim to break the system.

It does not follow any test design technique to create test cases.

Adhoc testing is use for find a defect by random checking.

1. **What is load testing?**

It is a performance testing type to check the behaviour of the application under the increasing user load.

1. **What is stress testing?**

Stress testing is done to make sure that the system or application should not crash while increasing the user limit.

1. **What is white box testing and list the white box testing type.**

White box testing is to analysis the system or application internal structure. White box testing performance by the developers and the internal structure or coding knowledge is required to perform white box testing.

* Statement Coverage
* Condition Coverage
* Decision Coverage

1. **What is black box testing? What are the black box testing technique?**

Blackbox testing is either functional or non-functional without reference to the internal structure or source code of the application/software.

Black box testing is performed by the tester.

There is no need to understand or knowledge of the coding.

* Blackbox Testing Technique
* Equivalence Partitioning
* Boundary Value Analysis
* Decision Table
* Use Case
* State Transition Testing

1. **Mention the categories of defects?**

There are several categories of defect is;

* Data Quality / Data Defects
* Critical Functionality Defects
* Functionality Defect
* Security Defects
* User Interface Defects

1. **What is the big bang testing?**

In big bang integration testing, all component or modules is integrated simultaneously, after which everything is tested as a whole.

Big bang testing has the advantage that everything is finished before integration testing starts.

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

Successful testing of integrated application

Executed test cases are documented

All high priority bugs are fixed and closed.

1. **When should regression testing is performed?**

It is performed when the software or its environment has been changed.

To ensure that the modification have not caused to unintended side effect elsewhere in the software and modification still meet the requirements.

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

Seven Key principle:

1. **Testing Shows Presence 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 it is no found any defects, it is not a proof that the software has no defect or defect free.

1. **Exhaustive Testing is Impossible:-**

* Testing everything including all combination inputs and precondition is not possible,
* Instead of doing exhaustive testing we can take risk and test high priority to focus testing efforts.
* We have learned that we can not test everything
* That is we priorities our testing efforts and test risk based testing.

1. **Early Testing:-**

* Testing activities should start as soon as possible in the software development life cycle.
* Testing activities is focused on defined objectives.

1. **Defect Clustering:-**

* A small modules contains number of defects discovered during pre-release testing, or are responsible for the most operational failure
* Defects are not evenly spread in a system
* They are not clustered

1. **Pesticide Paradox:-**

* If the same tests are repeated over and over again, eventually the same set of test cases will no longer find any new defects
* To overcome this pesticide paradox, the test cases regularly reviewed and revise, and new and different test are need to be written to exercise different part of the software potentially find more defects.

1. **Testing Is Contest Dependent :-**

* Testing is basically context dependent
* Testing is done differently in different context
* Different kinds sites are tested differently
* Safety- Critical software is tested differently from an e-commerce.
* Testing can be 50% of the development costs, In NASA Apollo program’s is 80% of the testing
* For commercial software 3 to 10 failure are eligible for ten thousand line of code
* For industrial software 1 to 3 failure is acceptable and
* 0.01 failure per code for NASA Shuttle code!

1. **Absence of Error Fallacy:-**

* If the system built is unusable and does not full-fill the user needs and expectations then finding and fixing defects does not help
* Even after defects have been resolved it may still be unusable and does not full fill the users need and expectations.

1. **Difference between QA vs QC vs Tester.**

|  |  |  |
| --- | --- | --- |
| **QA** | **QC** | **Tester** |
| Activities which ensures the implementation of processes, procedures and standards in context to verification of developed software and intended requirements | Activities which ensure the verification of developed software with respect to documented requirements. | Activities which ensure the identification of bugs/error/defects in the Software. |
| Focuses on processes and procedures rather than doing actual testing | Focuses on actual testing by executing Software with intend to identify bug/defect through implementation of procedures and process. | It focuses on actual testing |
| Process oriented activities | Product oriented activities | Product oriented activities |
| Preventives activities | It is a corrective process | It is a preventive process |
| It is a subset of STLC (Software Test Life Cycle) | It is a subset of Quality Assurance | It is a subset of Quality Control |

1. **Difference between Smoke and Sanity**

|  |  |
| --- | --- |
| **Smoke** | **Sanity** |
| Smoke testing is performed to ascertain that the critical functionalities of the program is working fine | Sanity testing is done to check the new functionalities bug have ben fixed |
| This testing is verify the stability of the system in order to with more rigorous testing | This testing is to verify the rationality the system in order to proceed with more rigorous |
| This testing is performed by the developers and testers | This testing is only performed by the tester |
| It is documented or scripted | It is not documented or unscripted |
| Smoke testing is subset of regression testing | Sanity testing Is a subset of acceptance testing |
| Smoke testing exercise the entire system from end to end | Sanity testing exercise only the particular component of the entire system |
| It is like general health check up | It is like specialized health check up |

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

|  |  |
| --- | --- |
| **Verification** | **Validation** |
| It is a static testing | It is a dynamic testing |
| It consist of checking documents and program | It consist of validating and testing actual testing |
| It is used to find bug in the beginning phase of the software | It find the bug which can not find during verification |
| Verification is done by the quality assurance team | Validation is done by testing team |
| Verification is the specification of the application | Validation is the specification of the actual product |

1. **Explain type of performance testing?**
2. **Load testing :-** It’s a performance testing to check system behaviour under load. Testing an application under heavy loads, such as testing of a website under a range of loads to determine at what point the system response time degrades and fail.

🡪 This testing helps determines how the application behaves when multiple user can used simultaneously.

1. **Stress testing :-** Stress testing is used to test the stability & reliability of the system. This test mainly determines the system on its robustness and error handling under extremely heavy load condition.

🡪 System is stressed beyond its specification to check how and when it fails. Performed under heavy load like putting large number beyond storage capacity, complex database queries, continuous input to system or database load.

🡪 Stress testing is done to make sure that the system is not crash under crunch situation.

1. **Endurance testing :-** Endurance testing is a non-functional type of software is tested with high load extended over a significant amount of time to evaluate the behaviour of the software application under sustained use. The main purpose of the endurance testing is to ensure that the application is capable to handle extended load without any wastage of time.
2. **Spike testing :-** Spike testing is a type of performance testing in which an application receive sudden increase or decrease in load. The goal of spike testing is to determine the behaviour of a software application when it receives extreme variation in traffic.
3. **Volume testing :-** Volume testing is a type of software testing, where the software is subjected to a huge number of data. Volume testing is done to analyse the system performance by increasing the volume of data in the database.
4. **Scalability testing :-** Scalability testing is a type of load testing that measure the application ability to scale up or down as a reaction to an increase in the number of users. It tests how the system is going to sudden spike or fall of user request loads.
5. **What is error, bug, defects and failure.**

* **Error :-** Mistake in code is called error
* **Defect:-** Error found by tester is called defect
* **Bug :-** Defect accepted by developer team then it is called Bug.

🡪 If development team can not accept defect then it is defect or in pending phase.

* **Failure :-** If the system can-not meet the requirements then it is called failure.

1. **Difference between priority and severity?**

|  |  |
| --- | --- |
| **Priority** | **Severity** |
| Priority defines the order to solve the defects | Severity is defines which defect is effect the system |
| Priority is used to solved the defect on priority based | Severity is used to how much defect should affect the software |
| Priority should be focused on four categories | Severity is also focused on four categories |
| Critical priority, High priority, Medium priority, and Low priority | Critical priority, Major priority, Moderate priority, and Minor priority. |
|  |  |
|  |  |
|  |  |

1. What is bug life cycle.

A computer bug is failure in a computer program that prevent it from working correctly or produces un-correct results.

Bug arise from mistakes and mistakes done by people, in either program’s source code or its design.

1. **Difference between functional testing and non functional testing.**

|  |  |
| --- | --- |
| **Functional Testing** | **Non Functional Testing** |
| Functional testing is performed using the functional specification provided by client and verifies the system against the functional requirement | Non functional testing is check the performance, scalability, reliability and other non functional aspect of the software system |
| Functional testing is executed first | Non functional testing is performed after functional testing |
| Manual testing and automation testing tools can be used for functional testing | Using tools will be effective for this testing |
| Business requirements are the inputs of the functional testing | Performance parameters like speed, scalability are the inputs of the non functional testing |
| Functional testing is describe what the product does | Non functional testing is describe how the product works |
| Easy to do manual testing | Tough to do manual testing |
| Types of functional testing is:   * Unit testing * Smoke testing * Sanity testing * Regression testing * White box testing * Black box testing * User acceptance testing * Integration testing | Types of non functional is:   * Performance testing * Security testing * Migration testing * Penetration testing * Load testing * Stress testing * Volume testing * Installation testing * Compatibility testing |

1. **What is priority?**

Priority defines the order in which we should resolve defect. It is define as per the priority type like, high priority, low priority, medium priority and critical priority.

1. **What is Severity?**

Severity is defines the how much effect can affect to the software or system.

Severity also define four categories, Critical, Major, Moderate, and Minor.

1. **Difference between Software Development Life Cycle and Software Testing Life Cycle.**

|  |  |
| --- | --- |
| **Software Development Life Cycle** | **Software Testing Life Cycle** |
| SDLC is mainly related to the development process | STLC is mainly related to the testing process |
| SDLC is used for developing and testing the phases | STLC is only focuses on testing phase |
| SDLC has total six phases | STLC has total five phases |
| In SDLC more developers are required for develop the software | In STLC required less number of tester |
| SDLC developed good quality product | STLC help to software or application is bug or defect free |
| SDLC phases are performed before STLC | STLC phases are performed after SDLC phases |
| In SDLC, development team make plans and design as per the requirement | In STLC, Testing team make the plans and design for testing planning |

1. **Different between test scenarios, test cases, and test scripts ?**

|  |  |  |
| --- | --- | --- |
| **Test Scenario** | **Test Cases** | **Test Scripts** |
| In test scenarios functionality can be tested | Is a set of actions executed to verify the particular features or functionality | Is a set of instruction to test an application automatically. |
| Is a derived from test artifacts like business requirement specification and software requirement specification | Is a mostly derived from test scenarios | Is a mostly derived from test cases |
| Helps the end to end functionality in and agile way | Helps in exhaustive testing of an application | Helps to test specific things repeatedly |
| Is more focused on what to test | Is focused on what to test and how to test | Is focused on expected result |
| Take less time fewer and fewer resources to create | Require more resource and time | Require less time for testing but more resource for scripting, creating and updating |
| Includes an end to end functionality to be tested | Includes test steps data expected result to be tested | Includes different commands to develop a script |
| Allows quickly assessing the testing scope | Allows detecting errors and defects | Allows carrying out and automatically execution of test cases. |

1. **Explain what test plan is? What information should covered?**

The test plan is a document that catalogs the strategies, objective, schedules, and estimations, resources and deadlines required to complete that projects.

Think of it’s a blueprint for running the tests needed to ensure the software is working correctly and controlled by test managers.

1. **Bug categories are.**

Software bugs can be classified into multiple categories based on their nature and impact. These categories includes functional bug, logical bug, workflow bug, Unit level bug , System level integration bug, out of bound bug and security bug.

1. **Advantages of Bugzilla.**

* Improve the quality of the product.
* It enhances the communication between the development team and testing team.
* It has capabilities to adapt multiple situation.
* It is a open source widely used for tracking bugs.
* It easily integrates wit test managements instruments.
* It integrate with an emailing system.
* It automates documentation.

1. **What are the different methodologies of Agile Development model.**
   * + Scrum
     + Kanban
     + Extreme programming
     + Adaptive software development
     + Dynamic software development method
2. **Explain the difference between authentication and authorization in web testing? What are the common testing problems are faced in web testing?**

While web testing, testing team will face many defects and error in it.

* + - Failing to conduct through functional testing across mobile.
    - Insufficient testing for browser compatibility.
    - Failing to conduct through functional testing across desktop
    - Poor data security
    - Failing to provide an intuitive experience
    - Not performing testing frequently enough
    - Living digital accessibility to the last minutes
    - Localization and the global experience
    - The most common bug

|  |  |
| --- | --- |
| **Authentication** | **Authorization** |
| Usually the first of steps of a security access control | Usually comes after authentication |
| Verify the user identity | Grands and denies permission to the user do something |
| To common methods includes: User name, Password answer to security question code send why SMS or Email | Permission are granted and monitored by organization |
| Uses bio-metrics data like finger print, face recognition, and retinal scan | Common method includes : role-based access control and attribute based access control |
| Its visible by the user | It not visible by the user |
| Its changeable by the user | Can not be changeable by the user |
|  |  |