**MODULE 2**

**What is software testing?** Software testing is a process used to identify the correctness, completeness and quality of developed computer software.

**What is Error, Defect, Bug and failure? Error:** Mistake is coding is called as error. **Defect**: Error found by tester is called as defect. **Bug**: Defect accepted by development team is called as bug. **Failure**: When a defect reaches the end customer is called failure.

**What is 7 key principles? Explain in detail? There are the 7 principle** 1.Testing shows presence of defects2. Exhausting testing is not possible3.Early testing4.Defect clustering5. Pesticide paradox6.Test is context dependent7.Absence of error fallacy **1.testing shows presence of defects :**

a. software testing reduce the present of defects.

b. software testing talks about the presence of defect and does not talk about the absence of defects.

c. Even multiple testing can never ensure that software is 100% bug free.

**2. Exhaustive testing is not possible**

a. software testing is impossible means the software can never test at every test cases.

b. It can test only some test cases and assume that software is correct and it will produce the correct output in every test cases.

**3. Early Testing**

a. The defect detected in early phases of SDLC will very less expensive.

b. For better performance of software, start software testing will start at initial phase.

**4.Defect** clustering**:**

In a project, a small number of the module can contain most of the defects.

**5. Pesticide Paradox:**

a. Repeating the same test cases again and again will not find new bugs.

b.It is necessary to review the test cases and add or update test cases to find new bugs.

**6. Testing is context dependent:**

1. testing approach depend on context of software developed.

2. Different types of software need to perform different type of testing.

3. The testing of the e-commerce site is different from the testing of the android application.

**7:Absence of error fallacy:** 1. If a built software is 99% bug free but it does not follow the user requirement then it is unusable.2. It is not only necessary that software is 99% bug free but it also mandatory to fulfil all the customer requirement.Q. **What is integration testing?**  In this testing phase, different software modules are combined and tested as a group to make sure that the integrated system is ready for system testing. Integrating testing checks the data flow from one module to other modules. This kind of testing is performed by testers.

**Q what is beta testing?**

1. It is always perform by the customer at their own site.
2. It is not perform by independent testing team.
3. Beta testing is always open to the market and public.
4. It is usually conducted for software product.
5. It is performed real time environment.
6. It is form of acceptance testing
7. It is one kind of black box testing.
8. Beta testing can be consider “pre-release” testing.

**Q What is Boundary value testing?** 1.Boundary value analysis is a methodology for designing test cases concentrates software testing efforts on case the limit of valid range **.** **2.**Boundary value analysis is same to EP 3.boundary value analysis test case design to critical as compare to ep **4.Find out the boundary value and test one value above and below it.**

**Q What is alpha Testing? 1.**It is always performed by developers at the  **software development site.**

**2.** It is perform by independent testing team.

3. alpha testing is not always open to the market and public.

4.Its conducted for the software application and product

5.Its always performed by virtual environment.

6.It is part of acceptance testing.

7.It is come under both black and white box testing.

8.Unit Testing , Integration Testing and System testing when combined are known as alpha testing.

**Q What is the functional system testing?**

1.Functional system testing is requirement that specific a function that a system perform.

2. A Requirement may exist as a text document and/or a model.

3. There is two types of techniques

a. Requirement based functional testing

b. Process Based functional Testing

**Q What is Non-Functional Testing?**

1.Testing of those requirement that do not related to functionality.

2.Non Functional requirement are performance, load, data volume , storage, performance , usability ,stress ,security etc

**What is component testing?** A Unit is the smallest testable portion of a system or application. The unit can be compiled, liked, loaded, and executed. Unit testing helps to test each module separately. Unit testing is performed by developers.

**What is Adhoc testing?** Adhoc testing is a type of testing which is performed without any planning and documentation. It is unstructured, unplanned, and informal testing.

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

1.Black box testing is either function or non function, without any reference to internal structure of the component and system.

2.specification based on testing techniques is also known as black box testing.

3.Input/output driven testing techniques because they view the software as a black box with input and output.

4.we can done without knowledge of code and internal structure.

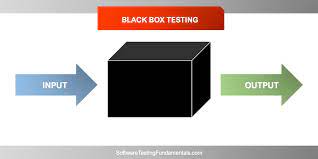
5.It is done by tester or developer and also end user.

List of black box testing:

1.Equivalence partitioning

2.Boundry Value Analysis

3.State Transition Testing



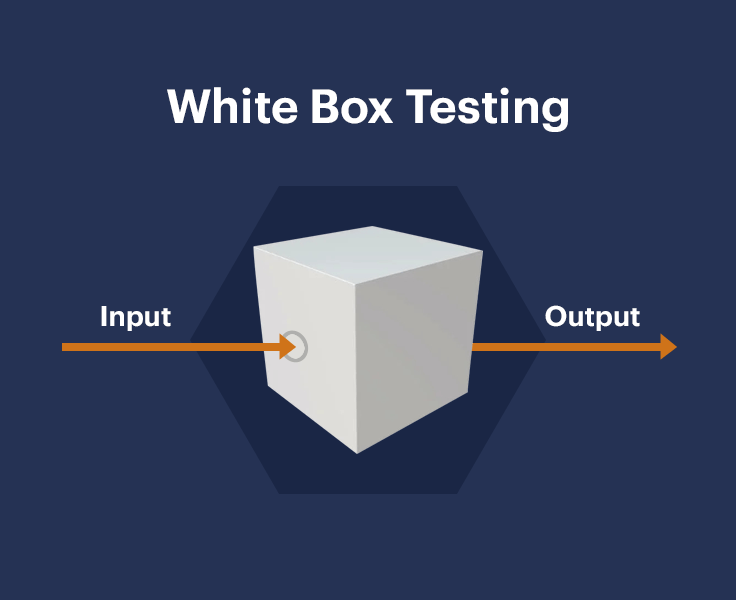
• **What is white box testing and list the types of white box testing?**

1. This type of testing is based on analysis of the internal structure of the component or system.

2. This is also know as glass box, open box testing.

3. White box testing is the details investigation of internal logic and structure of the code.

4. This type on testing is done by the developer.



**list the types of white box testing:**

1.Statement Coverage

2.Decision Coverage

3.Condition Coverage

**Q Mention what bigbang testing is?**

**1.**In Big Bang Integration testing all component or module integrated simultaneously after which everything is tested as a whole.

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

3.The major disadvantage is that in generally it is time consuming and difficult to track the cause of failure because of this late integration.

4.Here all component are integrated together at once and then tested.

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

1.Its divide or to partition a set of test condition into sets or group that can be considered as data for testing.

2.If one condition within the partition is passed then all the condition are passed.

3. If one condition within the partition fails then all the condition fails.

4. These condition may not always be true however tester can use better partitions.

**What is load testing?**

1.Load testing is performance testing technique using which the response of the system is measured under various load condition.

2.Load testing is the process of putting demand on a software system or computing device and measuring its response?

3.Its helps to identify the maximum capacity of an application And which application element is causing degradation.

4.Load testing can also be done in the field to obtain a qualitative idea of how well a system functions in the “real word”.

**Q. What is stress testing?**

1.Stress testing a non testing technique that is performed as part of performance testing.

2.It is done to evaluate the applications behaviour beyond the normal load condition.

3.Normall these are related to synchronization issue, memory leaks etc.

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

1.a defect is an error or mistake made in application that makes a system behave differently than desire requirement.

2.Finding a defect or bug from the application coded by the developer is the responsibility of the testing team.

3.The testing team make sure that all the bug are found before the application goes in live or is end user.

4.there is the different stages



**NEW:**

1.When a tester find a new bug/defect.

2.We posted in the bug tracking tool with status as “New”.

3.The defect explanation, steps to produce , the bug and severity of bug also provided.

**ASSIGNED:**

1.Once a bug is posted by tester.

2.The respective manager will approve it and assign the bug corresponding developers.

3.After the bug has been assigned to someone. Its status changed to “Assigned”

**OPEN:**

1.The developer starts analyzing and work on the defect fixed.

a.Dupplicate: Same defect find out the other tester.

b. Rejected: The developer feel the defect is not genuine defect then It is changed the defect as Rejected. (Invalid bug)

c. Deferred: New or assigned bug is given deferred status based on urgency and criticality of bug.

d. Not a bug: The bug is not affected in functionality of the application then status changed assigned to “not a bug”

**Fixed:**

1.When bug is fixed by the developer.

2.It is status changed to Fixed and Assigned back to Tester.

**Pending Retest:**

1. When a bug is fixed by developer.
2. The testing is remain and Its status changed to “pending retest”

**Retest:**

1. Once it has been tested If it is solved. It is status changed to Verified.
2. If it is not solve. It is status changed to Reopen. By testing team.

**Verified:**

1.After the testing If the tester feel the bug is resolved. It is marked as verified.

**Reopen:**

If the tester is not satisfied with the solve issue. The bug is assigned to “reopen”

**Closed:** After the bug is verified .Its moved to the closed status.

**Q. When should "Regression Testing" be performed?**

1.Software regression testing should be performed and taken up as soon as the developer add new functionality to an application.

2. This is because of the dependency between the newly added and previous functionality that is critical for the software function according to the requirement defined.

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

1.Exit criteria is used to determine whether a given test activity has been completed or not.

2. Exit criteria can be defined for all of the activities right from planning, specification and execution.

3.Exite criteria should be part of test plan and decided in planning stage.

**Q Explain types of Performance testing.**

There is five type

1 Load testing :

a. Load testing is a type of testing which involves evaluating the performance of the system under the expected workload.

b. A typical load test includes determining the response time, throughput, error rate, etc during the course of the load test.

2. Stress testing:

a. Stress testing is a type of performance testing where we evaluate the application’s performance at a load much higher than the expected load.

b. Another aspect of the stress testing is to determine the break-point of the application, the point at which the application fails to respond in the correct manner.

3.Endurance testing:

a. It is done to determine if the system can sustain the continuous expected load for a long duration. Issues like memory leakage are found with endurance testing.

4.Spike testing:

a. In spike testing, we analyze the behavior of the system on suddenly increasing the number of users.

b. It also involves checking if the application is able to recover after the sudden burst of users.

5.Voulme testing:

a. The volume testing is performed by feeding the application with a high volume of data.

b.The application can be tested with a large amount of data inserted in the database or by providing a large file to the application for processing.

c.Using volume testing, we can identify the bottleneck in the application with a high volume of data.

**Q What is GUI Testing?**

1.GUI stand for Graphic user interface testing.

2.Graphic user interface testing is the process of ensuring proper functionality of the graphical user interface for a specific application.

3.This involves making sure it behaves in accordance with its requirement and works as expected across the range of supported platforms and device.

**What is priority?**

1.Severity is defined as the extent to which a particular defect can create an impact on the software.

2.Severity is a parameter to denote the implementation and the impact of the defect is functionality of the software.

**What is severity?**

1.Priority is defined as parameter that decides the order in which a defect should be fixed.

2.Defect having higher priority should be fixed first.

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

A Test Plan is a formal document derived from requirement documents like Software Requirement Specification, Use Case documents, etc. It describes in detail, the scope of testing and the different activities performed in testing.  
  
It is generally prepared by a test manager and approved by the different stakeholders of the application.

This includes defining test objectives, test approach, test tools, test environment, test schedules and team responsibilities and composition

**Difference between Smoke and Sanity?**

|  |  |
| --- | --- |
| **Smoke Testing** | **Sanity Testing** |
| 1. Smoke Testing is performed to ascertain that the critical functionalities of the program is working fine | 1. Sanity Testing is done to check the new functionality / bugs have been fixed |
| 2. The objective of this testing is to verify the "stability" of the system in order to proceed with more rigorous testing | 2. The objective of the testing is to verify the "rationality" of the system in order to proceed with more rigorous testing |
| 3. This testing is performed by the developers or testers | 3. Sanity testing is usually performed by testers |
| 4. Sanity testing is usually performed by testers | 4. Sanity testing is usually not documented and is unscripted |
| 5. Smoke testing is a subset of Regression testing | 5. Sanity testing is a subset of Acceptance testing |
| 6. Smoke testing exercises the entire system from end to end | 6. Sanity testing exercises only the particular component of the entire system |
| 7. Smoke testing is like General Health Check Up | 7. Sanity Testing is like specialized health check up |

**What is Exploratory Testing?**

*Exploratory testing is a type of testing where testers explore the system on the fly without any pre-prepared set of test documents.*

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

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| --- | --- |
| **Functional testing** | **Non Functional testing** |
| 1. Functional testing is performed using the functional specification provided by the client and verifies the system against the functional requirements. | 1. Non-Functional testing checks the Performance, reliability, scalability and other non-functional aspects of the software system. |
| 2. Functional testing is executed first | 2. Non functional testing should be performed after functional testing |
| 3. Manual testing or automation tools can be used for functional testing | 3. Using tools will be effective for this testing |
| 4. Business requirements are the inputs to functional testing | 4. Performance parameters like speed , scalability are inputs to non-functional testing |
| 5. Functional testing describes what the product does. | 5. Non functional testing describes how good the product work |
| 6. Easy to do manual testing | 6. Tough to do manual testing |
| 7. Types of Functional testing are  a. Unit testing  b. Integration testing  c. Black Box testing  d. White box testing  e. Regression Testing  f. Sanity testing  g. Smoke testing  h. User acceptance testing | 7. Types of Non functional testing are  a. Performance testing  b. Load Testing  c. Stress testing  d. Endurance testing  e. Security Testing  f. Compatibility Testing |

**Q. Difference between Priority AND SEVERITY**

|  |  |
| --- | --- |
| **SEVERITY** | **PRIORITY** |
| 1.Severity is defined as extent to which a particular defect can create an impact on the software. | 1.prority is defined as parameter that decides the order in which a defect should be fixed. |
| 2.severity is parameter to denote the implication and impact of the defect on the functionality of the software. | 2. Defect having higher priority should be fixed first. |
| 1. Severity means sever defect is affecting the functionality | 3.Priority means how fast defect has to be fixed. |
| 4.Severity is related to the quality standard | 4. Priority is related to scheduling to resolve problem. |
| 5.Testing engineer decides the severity level of defect. | 5. Product manager decides the priority of defect. |
| 6. It is value does not change from time to time | 6. Its value change from time to time |
| 7.status  a. critical  b. major  c. moderate  d. minor  e. cosmetic | 7. status  a. low  b. medium  c. high  d. critical |

**Q Difference between verification and Validation**

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| **Verification** | **Validation** |
| Verification is the process of evaluating the artifacts of software development in order to ensure that the product being developed will comply to the standards. | Validation is the process of validating that the developed software product conforms to the specified business requirements. |
| It is a static process of analysing the documents and not the actual end product. | It involves dynamic testing of a software product by running it. |
| Verification is a process oriented approach. | Validation is a product-oriented approach. |
| Answers the question – “Are we building the product right?” | Answers the question – “Are we building the right product?” |
| Errors found during verification require lesser cost/resources to get fixed as compared to be found during the validation phase. | Errors found during validation require more cost/resources. Later the error is discovered higher is the cost to fix it. |
| It involves activities like document review, test case review, walk-throughs, inspection etc. | It involves activities like functional testing, automation testing etc. |

What is traceability matrix?

*Requirements Traceability Matrix is a document that links system requirements with the test cases. It traces the requirements given by the client to the test cases developed to test these requirements.*

Q What determines the level of risk?

The level of risk is determined by analyzing the values assigned to the likelihood of threat occurrence, and the resulting impact of threat occurrence.

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

Dynamic System Development Method (DSDM) This is an Iterative and incremental approach that emphasizes on the continuous user involvement. Test Driven Development (TDD) This is a technique which has short iterations where new test cases covering the desired improvement or new functionality are written first. Feature Driven Development This is an iterative and incremental software development process and this can aim depends on the features. XBreed : Agile enterprise previously known as Xbreed .It is agile way of managing, architecting and monitoring the enterprise.

Crystal :Crystal is an adaptive technique mainly used for software development methodologies.

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

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| --- | --- | --- |
| Quality Assurance | Quality Control | Testing |
| 1 Activities which ensure the implementation of process ,procedure and standard in context to verification of developed software and intended requirement. | Activates which ensure the verification of developed software with respect to document requirement | Activities which ensure the identification of bug, defect in the software |
| 2 Focus on process and procedure rather then conducting actual testing on the system. | Focus on a actual testing by executing software with intend to identify bug, defect through implementation of process and procedures | Focus on actual testing |
| 3 process oriented activities | Product oriented activities | Product oriented activities |
| 4 Preventive activates | Corrective process | Preventive process |
| 5 Its is subset of STLC | QC can be consider as the subset of Quality Assurance | Testing is the subset of QC |

• What is the difference between the STLC (Software Testing Life Cycle) and SDLC (Software Development Life Cycle)?

| SDLC | STLC |
| --- | --- |
| SDLC is mainly related to software development. | STLC is mainly related to software testing. |
| Besides development other phases like testing is also included. | It focuses only on testing the software. |
| SDLC involves total six phases or steps. | STLC involves only five phases or steps. |
| In SDLC, more number of members (developers) are required for the whole process. | In STLC, less number of members (testers) are needed. |
| In SDLC, development team makes the plans and designs based on the requirements. | In STLC, testing team(Test Lead or Test Architect) makes the plans and designs. |
| Goal of SDLC is to complete successful development of software. | Goal of STLC is to complete successful testing of software. |
| It helps in developing good quality software. | It helps in making the software defects free. |
| SDLC phases are completed before the STLC phases. | STLC phases are performed after SDLC phases. |
| Post deployment support , enhancement , and update are to be included if necessary. | Regression tests are run by QA team to check deployed maintenance code and maintains test cases and automated scripts. |
| Creation of reusable software systems is the end result of SDLC. | A tested software system is the end result of STLC. |

Advantage of Bugzila 1 it is an open-source widely used bug tracker. 2 it is easy in usage and its user interface is understandable for people without technical knowledge. 3 it easily integrates with test management instruments. 4 it integrates with an e-mailing system. 5 it automates documentation.

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

When to used Usablity Testing?

What is the procedure for GUI Testing?

Mention what are the categories of defects?

Severity

1. Blocker (Show stopper)

2. Critical

3. Major

4. Minor

• Priority

1. P1 (High)

2. P2 (Medium)

3. P3 (Low)

Bug categories are…

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

