***Assignment : Module 2***

1. **What is Exploratory testing ?**

**Ans :** Exploratory testing is a type of software testing where test cases are not created in advance but testers can check system on the fly. Exploratory testing is widely used in Agile models and is all about discovery , investigation, and learning.

1. **What is traceability matrix ?**

**Ans :** Test conditions should be able to linked back to their sources in the test basis , this is known as traceability. It can be horizontal through all the test documentation foe a given test level or It can be vertical through the layer of development documentation. There are 3 types of traceability matrix

* Forward
* Backward
* Bi- Directional

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

**Ans :** It is methodology for designing test cases that concentration software testing efforts on cases near the limits of valid range. It checks for the input values near the boundary that have a higher chance of error. Every partition has its maximum and minimum values and these maximum and minimum values are the boundary values of a partition.

1. **What is Equivalence Partitioning testing?**

**Ans :** This type of testing aim is to treat groups of inputs as equivalent and to select one representative input to test them all. If a condition of one partition is true, then the condition of another equal partition must also be true, and if a condition of one partition is false, then the condition of another equal partition must also be false.

1. **What is Intergration testing?**

**Ans :** This testing is conducted ensure that all the component of system are working properly as a group. The aim of integration testing is to test the interfaces between the modules and expose any defects that may arise when these components are integrated and need to interact with each other.

**There are two types of Intergration testing**

1. **Component intergration testing :** It is done after component and before system testing. This process done to make sure that the final application is working properly to merge everything.
2. **System intergration testing:**  SIT is done after sysem testing and before acceptance testing. This testing is done to make sure that one or more system can be merge and working end to end manner.
3. **What is determines the level of risk?**

**Ans :**  A factor that could result in future negative consequence usually expressed as impact and likehood. 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, should it occur.

**Types of risk**

* + Product
  + Project

1. **What is alpha testing?**

**Ans** : **Alpha Testing** is a type of software testing performed to identify bugs before releasing the product to real users or to the public. Alpha Testing is one of the **user acceptance testing.** This is referred to as alpha testing only because it is done early on, near the end of the development of the software.

1. **What is beta testing ?**

**Ans :** Beta testing is the process of testing a software product or service in a real-world environment before its official release. It is an essential step in the software development lifecycle as it helps identify bugs and errors that may have been missed during the development process.

1. **What is component testing?**

**Ans :**  In component testing , the testing process conducted by developers only. Here , white bow testing is conducted. It is perform prior to the integration testing. Stabs , drivers , frameworks , and nock or fake object are used for test pupose.

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

**Ans :** Functional testing is basically defined as a type of testing that verifies that each function of the software application works in conformance with the requirement and specification. This testing is not concerned with the source code of the application. Each functionality of the software application is tested by providing appropriate test input, expecting the output, and comparing the actual output with the expected output.

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

**Ans :Non functional testing**  is a type of [Software Testing](https://www.geeksforgeeks.org/software-testing-basics/) that is performed to verify the non-functional requirements of the application. It verifies whether the behaviour of the system is as per the requirement or not. It tests all the aspects which are not tested in functional testing. Non-Functional testing is a software testing technique that checks the non-functional attributes of the system.

1. **What is GUI testing?**

**Ans :** GUI is the abbreviation of 'Graphical User Interface'. It contains several visual elements, such as buttons, text boxes, menus, checkboxes, images, etc. GUI testing refers to the validating UI functions or features of an application that are visible to the users, and they should comply with business requirements.

1. **What is Adhoc testing?**

**Ans :** When a software testing performed without proper planning and documentation, it is said to be Adhoc Testing. It is also referred to as Random Testing or Monkey Testing. This type of testing doesn't follow any documentation or plan to perform this activity.

1. **What is load testing?**

**Ans :** Load testing is a kind of performance test which determines a system’s performance under real life load condition.  Basically, load testing determines the behaviour of the application when multiple users use it at the same time. It is the response of the system measured under varying load conditions. The load testing is carried out for normal and extreme load conditions.

**Load tester tools**

* Load Runner
* Web load
* A stera load tester
* Review’s web load
* Silk performer
* Studio, rational load

1. **What is stress testing?**

**Ans :** It is done to test that , the system can works on extreme situation or extreme condition. System is stressed beyond it’s capacity to check how and when does it fail. It is also known as endurance testing. Goal of stress testing is the system to recover after some break down.

**Stress testing tools**

* Stress tester
* Neo load
* App perfect

1. **What is white boxing testing? And list the type o white box testing?**

**Ans : White box testing** techniques Analyze the internal structures the used data structures, internal design, code structure, and the working of the software rather than just the functionality as in black box testing. It is also called glass box testing or clear box testing or structural testing. White Box Testing is also known as transparent testing or open box testing. White box testing is also known as structural testing or code-based testing, and it is used to test the software’s internal logic, flow, and structure **Testing techniques**

* **Statement coverage**
* **Decision coverage**
* **Condition coverage**

1. **What is Black box testing? What are the different black box testing techenique? Ans :** Black-box testing is a method of software testing that examines the functionality of an application without peering into its internal structures or workings. This method of test can be applied virtually to every level of software testing: unit, integration, system and acceptanceBlack box testing involves testing a system with no prior knowledge of its internal workings. A tester provides an input, and observes the output generated by the system under test.

**Techenique of black box testing**

* **Equivalence Partitioning**
* **Boundary value Analysis**
* **Decision table**
* **State transition Testing**

1. **Mention what is big bang testing?**

**Ans :** Big Bang Integration Testing is an integration testing strategy wherein all units are linked at once, resulting in a complete system. Big bang testing requires little to no planning beforehand. All the modules are completed before testing begins. Another advantage of using big bang testing is that it tests the entire system.

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

**Ans :** Exit criterion is used to determine whether a given test activity has been completed or not. Exit criteria can be defined for all of the test activities right from planning, specification and execution. Exit criterion should be part of test plan and decided in the planning stage.Software testing teams will use exit criteria to determine if a test plan or project can exit to the next stage or be considered complete.

1. **When should Regression testing be performed?**

**Ans :** Here are the scenarios when you can perform regression testing.

* **New functionality is added to the application:** This happens when new features or modules are created in an app or a website. The regression is performed to see if the feature is working properly.
* **In case of change requirement:** When any significant change occurs in the system, regression testing is used. This test is done to check if these shifts have affected other features.
* **After a defect is fixed:** The developers perform regression after fixing a bug issue in any functionality. This is done to determine if the changes made while fixing the issue have affected other related features.
* **Once the performance issue is fixed:** After fixing any performance issues, regression testing is done to see if it has affected other functionalities.
* **While integrating with a new external system:** Regression testing is required whenever the product integrates with a new external system.

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

## Ans :

## Testing shows the presence of defects

You test software to identify problems so you can fix them before you deploy the software to production environments. However, this process doesn't mean that there aren't any bugs in the product. It just means that there may be bugs, but you didn't find them.

## Exhaustive testing is impossible

The truth is that you can't test everything, i.e., every combination of preconditions and inputs. And if you try to do so you'll waste time and money, but it won't affect the overall quality of the software.

## Early testing

When it comes to the software development lifecycle, testing early is the key to identifying any defects in the requirements or design phase as soon as possible

## Defect clustering

Defect clustering is the idea that a small number of software modules or components contain the most defects — sort of applying the Pareto Principle to software testing, i.e., approximately 80% of the issues are found in 20% of the components.

## Pesticide paradox

This principle centres around the theory that if you repeatedly use a particular pesticide on your crops, the insects you're trying to kill or repel will eventually become immune to the pesticide and it will no longer be effective.

Likewise, if you continuously run the same tests, eventually they'll fail to find new defects, even though they'll probably confirm the software is working.

* **Testing is context dependent**

Software testing is all about the context, which means that no one strategy will fit every scenario. The types of testing and the methods you use totally depend on the context of the systems or the software, e.g., the testing of an iOS application is different from the testing of an e-commerce website.

## Absence-of-errors fallacy

If your software is 99% error-free but it doesn't follow your user's requirements, it's still not usable. That's why it's critical to run tests that pertain to the requirements of the system. Software testing isn't just about finding bugs, it's about ensuring that the software meets the user's needs and requirements.

1. **Difference between QA/QC/Tester?**

**Ans :** QA, QC, and Testing are like a chain that works together to ensure a high-quality product. QA sets the standards for how it should be done, QC ensures those standards are followed, and Testing checks that everything is up to the quality standards. **Quality assurance**is process oriented. It is all about preventing defects by ensuring the processes used to manage and create deliverables works. Not only does it work, but is consistently followed by the team.

**Quality control**, alternatively, is product oriented. It is the function of software quality that determines the ending result is what was expected. Whereas QA is proactive, QC is reactive. QC detects bugs by inspecting and testing the product. This involves checking the product against a predetermined set of requirements and validating that the product meets those requirements.

**Testing** is a subset of QC. It is the process of executing a system in order to detect bugs in the product so that they get fixed. Testing is an integral part of QC as it helps demonstrate that the product runs the way it is expected and designed for.

1. **Different between smoke abd sanity testing?**

**Ans :** Smoke test is done to make sure that the critical functionalities of the program are working fine, whereas sanity testing is done to check that newly added functionalities, bugs, etc., have been fixed. The software build may be either stable or unstable during smoke testing.

**Smoke Testing:**Smoke testing is a testing technique that is used to check the basic functionality of a software application or system after a build or release. This testing is done to ensure that the build is stable enough for further testing. Smoke testing involves a quick and shallow check of the software application to verify that it is functioning properly and that there are no critical defects that could prevent further testing. Smoke testing is typically performed by testers or developers before any detailed testing is performed. **Sanity Testing:**Sanity testing is a testing technique that is used to check that specific functionality or components of a software application are working as expected after making changes or fixing defects. The main objective of sanity testing is to verify that the changes made to the application have not introduced new defects or issues in the specific functionality or components.

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

**Ans :**

* **Verification** is the process of checking that a software achieves its goal without any bugs. It is the process to ensure whether the product that is developed is right or not. It verifies whether the developed product full fills the requirements that we have. Verification is static testing.   
  Verification means **Are we building the product right?**
* **Validation** is the process of checking whether the software product is up to the mark or in other words product has high level requirements. It is the process of checking the validation of product i.e. it checks what we are developing is the right product. it is validation of actual and expected product. Validation is the dynamic testing.   
  Validation means **Are we building the right product?**

1. **Explain types of performance testing?**

**Ans : There are 6 types of performance testing.**

* **Load testing** is a [type of testing](https://artoftesting.com/types-of-testing) which involves evaluating the performance of the system under the expected workload. A typical load test includes determining the response time, throughput, error rate, etc during the course of the load test.
* **Stress testing** is a type of performance testing where we evaluate the application’s performance at a load much higher than the expected load. 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.
* **Endurance testing** is also known as ‘Soak Testing’. 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.
* **spike testing,** we analyze the behavior of the system on suddenly increasing the number of users. It also involves checking if the application is able to recover after the sudden burst of users.
* **volume testing** is performed by feeding the application with a high volume of data. 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. Using volume testing, we can identify the bottleneck in the application with a high volume of data.

1. **What is error ,defect, bugs and failure?**

**Ans :** We can say that a mistake made by a programmer during coding is called an error, an error found during the unit testing in the development phase is called a defect, an error found during the testing phase is called a bug and when an error is found at an end user's end is called as the failure.

* **Error:**Error is a situation that happens when the Development team or the developer fails to understand a requirement definition and hence that misunderstanding gets translated to buggy code.
* **Defect:**A defect refers to the situation when the application is not working as per the requirement and the actual and expected result of the application or software are not in sync with each other.
* **Bug:** When we have any type of logical error, it causes our code to break, which results in a bug.
* **Failure:**Failure is the accumulation of several defects that ultimately lead to Software failure and results in the loss of information in critical modules thereby making the system unresponsive.

1. **What is difference between priority and severity ?**

**Ans :** Priority is a term that defines how fast we need to fix a defect. Severity is basically a parameter that denotes the total impact of a given defect on any software. Priority is basically a parameter that decides the order in which we should fix the defects. Severity relates to the standards of quality.

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| --- | --- |
| **Severity** | **Priority** |
| Defined by the impact of a specific problem on any application’s functionality. | Defined by the impact on business. |
| Category decided by testers. | Category decided by developers or product owners. |
| Deals with the technical aspects of the application. | Deals with the timeframe or order to fix the defects. |
| The value does not change with time, it’s fixed. | The priority value is subjective and may change after comparing with other defects. |

1. **What is Bug life cycle?**

**Ans :** A computer bug is an error, flaw, mistake, failure, or fault in a computer program that prevents it from working correctly or produces an incorrect result. Bugs arise from mistakes and errors, made by people, in either a program’s source code or its design. The duration or time span between the first time defects is found and the time that it is closed successfully, rejected, postponed or deferred is called as ‘Defect Life Cycle.

1. **Explain the difference between functional and non-functional Testing?**

**Ans :**

* [**Functional testing**](https://www.geeksforgeeks.org/software-testing-functional-testing/) is a type of software testing in which the system is tested against the functional requirements and specifications. Functional testing ensures that the requirements or specifications are properly satisfied by the application. This type of testing is particularly concerned with the result of processing.
* **Non-functional Testing:** [Non-functional testing](https://www.geeksforgeeks.org/software-testing-non-functional-testing/)is a type of software testing that is performed to verify the non-functional requirements of the application. It verifies whether the behaviour of the system is as per the requirement or not. It tests all the aspects which are not tested in functional testing. Non-functional testing is defined as a type of software testing to check non-functional aspects of a software application.

1. **What is difference between STLC and SDLC?**

**Ans :**

| **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. |

1. **What is difference between test script/ test scenario/ test case ?**

**Ans :**

* **Test script :** This story begins with the most detailed way to document testing, the test script. When people talk about test scripts, they usually mean a line-by-line description of all the actions and data needed to perform a test.
* **Test case :** The second most detailed way of documenting testing work is to use test cases. Test cases describe a specific idea that is to be tested, without detailing the exact steps to be taken or data to be used.
* **Test scenario :** The least detailed type of documentation is the test scenario. A test scenario is a description of an objective a user might face when using the program.

1. **Explain the test plan is? What is the information should be cover?**

**Ans :** A Test Plan is a detailed document that catalogs the test strategies, objectives, schedule, estimations, deadlines, and resources required to complete that project. Think of it as a blueprint for running the tests needed to ensure the software is working correctly controlled by test managers.

The test plan conveys how the test will be performed. This includes defining test objectives, test approach, test tools, test environment, test schedules and team responsibilities and composition.

1. **What is priority?**

**Ans :** One can define Priority as a parameter for deciding the order in which one can fix the defect. In this, the defect with a higher priority first needs to get fixed. Priority basically defines the order in which one would resolve any given defect.

1. **What is severity?**

**Ans :** One can define Severity as the extent to which any given defect can affect/ impact a particular software. Severity is basically a parameter that denotes the impact of any defect and its implication on a software's functionality.

1. **Bug categories are……..**

**Ans :** There are some categories of bugs.

* Functional Bug
* Logical Bug
* Workflow Bug
* Unit Level Bug
* System Level Integration Bug
* Out of Bond Bug
* Security Bug

1. **Advantage of Bugzila?**

**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 withtest management instruments.
* it integrates with an e-mailing system.
* it automates documentation.

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

**Ans :** There are 5 main Agile methodologies:

* Kanban
* Scrum
* Extreme Programming (XP)
* Feature-driven development (FDD)
* Dynamic Systems Development Method (DSDM)

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

**Ans :** Some common problem faced in web testing.

### Insufficient testing for browser compatibility

### Failing to conduct thorough functional testing across mobile

### Failing to conduct thorough functional testing across desktop

### Poor data security

### Failing to provide an intuitive experience

### Not performing testing frequently enough

**Different between Authentication and Authorization**

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| --- | --- |
| In the [**Authentication**](https://www.geeksforgeeks.org/authentication-in-computer-network/) process, the identity of users are checked for providing the access to the system. | While in [**Authorization**](https://www.geeksforgeeks.org/what-is-aaa-authentication-authorization-and-accounting/)process, a the person’s or user’s authorities are checked for accessing the resources. |
| In the authentication process, users or persons are verified. | While in this process, users or persons are validated. |
| It is done before the authorization process. | While this process is done after the authentication process. |
| It needs usually the user’s login details. | While it needs the user’s privilege or security levels. |