**03-02-2025**

**Testing:**

The process of identifying the products is satisfying the needs/requirements of the client or not.

**Objectives of Testing:**

* Identify defects, errors, or missing requirements to the products.
* Ensuring the correctness of project/software development.
* Reducing maintenance costs.
* Ensuring the product is bug free before shipment/release end user.
* Ensuring the reliability of the software.
* Identify usability issues and improve user satisfaction.

**Why Testing?**

Testing is essential in software development and other fields to ensure that to meet all standards before deployment.

**Quality:**

Quality is a continuous process throughout the software development life cycle.

**Software Testing:**

* Software Testing is a continuous process.
* High-quality software is delivered quickly and consistently at every stage of the development.
* Software Testing is used to detect and identify the defect present in the developed

Software.

**Need for Software Testing:**

* Continuous testing reduces the risk of deployment failures.
* Check whether the developed software is a user friendly or not.
* Security improvement.
* Check whether the customer is satisfying or not.
* Reduces cost of fixing bugs.

**Quality Software:**

* Continuous Testing.
* User friendly.
* When we develop the software in time with no bugs.
* Testing starts early in the development cycle.

**Project:**

If the software is developed based on the requirement of single customer, then it is known as project.

**Product:**

If the software is developed based on the requirement of multiple customers in the market, then it is known as product.

**Error:**

* Incorrect logic.
* Human mistake during development.

**Bug/Defect:**

* Incorrect implementation.
* Performance.

**Failure:**

* A bug that was not detecting during testing.
* Complete deviation from the system.

**04-02-2025**

**Software Testing:**

Software Testing is used to detect and identify the defect present in the developed software.

**They are two types of Software Testing**

1. Manual Testing
2. Automation Testing
3. **Manual Testing**

Manual Testing is a process where testing execute test cases without using automation tools.

**Advantages**

* More flexible for small projects.
* Less cost.
* It gives quick feedback.
* Easy to understand

**Disadvantages**

* Time consuming.
* Difficult to scale for large applications.

1. **Automation Testing**

Automation Testing involves using scripts and testing tools to execute test cases automatically.

**Advantages**

* Reduce human errors.
* Fast execution.

**Disadvantage**

* Maintenance cost high.
* Requires programming knowledge.

**Categories/Techniques of Software Testing**

1. Static testing
2. Dynamic Testing
3. **Static Testing**

Static Testing is a software testing technique that involves reviewing and analyzing code without executing.

1. **Dynamic Testing**

Dynamic Testing is a software testing technique that involves executing the code

1. White Box Testing
2. Black Box Testing
3. **White Box Testing**

White Box Testing is focuses on internal logic and code structure.

1. Unit Testing/Component Testing
2. Integration Testing
3. **Unit Testing/Component Testing**

Unit Testing is a software testing technique where individual components are tested.

1. **Integration Testing**

Integration Testing is a type of software testing where multiple components are tested together.

1. **Black Box Testing**
2. System Testing
3. User Acceptance Testing
4. **System Testing**

System Testing is a type of software testing is to test whole applications.

1. **User Acceptance Testing**

User Acceptance Testing is a level of software testing in which software is tested for user acceptance.

1. Alpha Testing
2. Beta Testing
3. **Alpha Testing**

Testers will test the application software in the presence of customer.

1. **Beta Testing**

Testing is done by the customer to check whether software is working properly or not.

**Smoke Testing**

Basic test to check if the applications is stable for further testing.

**Difference between Bug & Defect**

|  |  |
| --- | --- |
| **Bug** | **Defect** |
| Identified by the testers | Identified by the developer |
| Fault in the software | Variance of the output |
| Bugs are caused by incorrect logic | Defect are caused by misunderstanding |

**Difference between Error & Failure**

|  |  |
| --- | --- |
| **Error** | **Failure** |
| If a program can’t run | If an end-user discover an issue with the s/w |
| Occurs during coding or designing | Occurs during runtime or testing |
| Mistake made by the developer | Software doesn’t meet the expected output |