# TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software manners. There are various types of tests. Each test type addresses a specific testing requirement.

## TESTING METHODOLOGIES:

The following are the Testing Methodologies:

* **Unit Testing.**
* **Integration Testing.**
* **User Acceptance Testing.**
* **Output Testing.**

**Unit Testing:** Unit testing focuses verification effort on the smallest unit of Software design that is the module. Unit testing exercises specific paths in a module’s control structure to ensure complete coverage and maximum error detection. This test focuses on each module individually, ensuring that it functions properly as a unit.

**Integration Testing:** Integration testing addresses the issues associated with the dual problems of verification and program construction.

**User Acceptance Testing: User Acceptance Testing (UAT)** is a type of testing performed by the end user or the client to verify/accept the software system before moving the software application to the production environment. UAT is done in the final phase of testing after functional, integration and system testing is done.

**Output Testing:** output testing is a type of software testing whereby the system is tested against the functional requirements/specifications. Functions (or features) are tested by feeding them input and examining the output.

**Validation Testing:** Validation testing is the process of ensuring if the tested and developed software satisfies the client /user needs. The business requirement logic or scenarios must be tested in detail. All the critical functionalities of an application must be tested here.

## INTEGRATION TESTING:

Integration testing addresses the issues associated with the dual problems of verification and program construction. After the software has been integrated a set of high order tests are conducted. The main objective in this testing process is to take unit tested modules and builds a program structure that has been dictated by design.

**The following are the types of Integration Testing:**

**Top-Down Integration:**

This method is an incremental approach to the construction of program structure. Modules are integrated by moving downward through the control hierarchy, beginning with the main program module. The module subordinates to the main program module are incorporated into the structure in either a depth first or breadth first manner. In this method, the software is tested from the main module and individual stubs are replaced when the test proceeds downwards.

**Bottom-up Integration:**

This method begins the construction and testing with the modules at the lowest level in the program structure. Since the modules are integrated from the bottom up, processing required for modules subordinate to a given level is always available and the need for stubs is eliminated.

The low-level modules are combined into clusters into clusters that perform a specific Software sub-function. A driver (i.e.) the control program for testing is written to coordinate test case input and output.

* 1. **ACCEPTANCE TESTING:**

Acceptance testing, a testing technique performed to determine whether the software system has met the requirement specifications. The main purpose of this test is to evaluate the system's compliance with the business requirements and verify if it has met the required criteria for delivery to end users. There are various forms of acceptance testing:

* User acceptance Testing
* Business acceptance Testing
* Alpha Testing
* Beta Testing