**Static Testing**: This testing is used to check defects in the software without actually executing the code. Here programmer checks every line of code and handover to the tester. This type of testing uses both manual and automation testing.

**Techniques:** code reviews, code analysis, document reviews.

**Dynamic Testing:** It confirms that the software product works according to the clients requirements or not. This dynamic testing is broadly divided into two groups white box testing and black box testing.

**White Box Testing**: Focus on internal structure of the code. Developers check each line of code.

**Black Box Testing:** Checks functionality of the product. Looks only at whether the product functions as expected.

This dynamic testing includes some methods :

**Unit Testing**: Modules are tested by QA engineers.

**Integration Testing**: Individual modules are grouped and tested.

**System Testing**: Checking entire software system by verifying the app with software requirements listed in specifications.

**User Acceptance Testing**: Testing the software in real- world from users end.This is of two types Alpha and Beta Testing.

**Alpha Testing**: Software is tested by internal development team to identify any issues from the user end.

**Beta Testing**: Software is released to limited group of external users to check it works properly or not.

Testing Types:

**Functional Testing:** It is a Black box testing technique. Testing what system does

based on business requirement. Here tester don’t have knowledge over what

code is written. It verifies actions and operations of an application.

**Non Functional Testing**: It verifies behaviour of an application. It says how the

product does. It checks how the product works in all conditions, let us if a college

results are released then we can experience a server down issues due to many

Users try to access that website. Checking whether the product is working in all

conditions is called as non functional testing.

**Smoke Testing**: It is used to identify and fix any major issues in the software

before final testing is performed. It reduces the risk of software failures.

**Sanity Testing:** If any code changes have been made in existing code then this

Testing is done to check whether the application is working properly as expected

or not. This testing helps early detection of issues, and it’s a cost effective.

Regression Testing: When new functionality is added to existing software or the

existing code is modified, It involves running tests to make sure that everything

working as it should. If smoke test or sanity test is passed then it is sent to

regression test.

Installation Testing: Here checking whether the software is compatible to work

in different configured systems or not. To ensure that the software can be easily

installed, configured, and uninstalled.

Monkey Testing: Checking the software by giving random number to check

whether it works properly or it crashes.

Concurrency Testing: Multi User testing to check it works properly or any issues

Raised while multiple users accessed it.

Debugging: Fixing a bug in the software.

**SOFTWARE DEVELOPMENT LIFECYCLE**

* Planning
* Requirement analysis
* Design
* Implementation
* Testing
* Deployment
* Maintenance

**Water fall model:** It involves 6 stages. This is a sequential approach and linear process. This model is used when projects requirements and goals are very clear.

Because can’t modify in the middle of process. Six stages are:

Requiremen analysis Design Implementation Testing Deployment Maintenance

In this every stage involves a documentation. One stage can be started after the completion of before stage. It is not suitable for changing requirements after process is started. Once one stage is completed it is difficult to modify.