**Testing :**

Testing is use to find the defect or error or bugs in the application.

Layer architecture

Java Bean class : set of variable and setter/getter method.

Service class : pure business logic.

Dao class : Data Access Object : (JDBC Java Database connectivity)

Using java if we want to store, retrieve, update and delete

View layer : presentation logic

Resource class : database connection, file handling any resources.

class OperationService {

public int add(int x, int y) {

int sum = x+y;

return 0;

}

}

Test the code without main method or main function for each layer. We need to test actual and expected output.

Testing mainly divided into 2 types.

Manually testing:

Tester or developer need to interact test classes (test case classes)

Automation testing:

Tools will interact.

Sub category

Black box testing : we doesn’t check the code.

Input process Output

Tester

White box testing : we check the code

Input process Output

Tester/ developer

**Unit testing :** Unit testing is a type of white box testing. Which help to test function functionality working or not. We test individual units / components example : the code which we write inside function or methods.

**Integration testing :** test the interaction between more than one modules or function/ methods.

**System testing :** The application working or not according to client requirements.

**Junit :** Junit is an open source third party framework which provided set of classes which help to unit testing for Java application.

Junit 3.x -🡪 purely interface base

Junit 4.x -🡪 annotation

Junit 5.x 🡪 it is a combination of more than one module ie Jupiter etc. Java support java 8 features.

**TestNG**

**Maven** : maven is a build tool.

Build tool responsible to compile the program, run the program, help to create jar or war file, help to download external jar or dependencies files, help to create the documentation etc.

Maven provide standard project structure which we can use in all IDE.

Pom.xml file

Project object model

Junit test case : it is a type of class which contains more than one test function with @Test annotation which help to test function functionality.

Junit test suite

Test hook: hook mean life cycle methods.

TestSuite : TestSuite in Junit is a type of test class which is responsible to run more than one test case class.