**Java Phase 5 : Testing, Deployment and develops tools**

**10 days**

**Day 1 : 19-09-2022**

Testing :

Junit testing Unit testing

TestNG Integration testing

Selenium Testing Automation testing

Testing

Docker

CI and CD tool

Overview of Kubernetes Develops tool

AWS Overview Deployment

Testing :

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

If we run any application using any technologies java, C#, python, C or C++ etc. indirectly we are testing that application.

Read a, b 10 20

Sum = a+b

Write b 30

Once we run the program then we have to provide the input and expect the output. If expectation and actual result match. Then we can say test pass else test fail.

Controller layer, model layer, bean layer, dao layer, resource layer, service etc.

Testing mean running the program without main method or functions.

Testing mainly divided into two types.

Black box testing : if we are black box tester then we need knowledge to how to run the application using command prompt or tool.

Input----------🡪 Logic/ Process--------🡪 Output

White box testing : if we are white box tester then we need knowledge about that technologies. Because we are writing test case to check the business logic.

Input ---🡪 Login/ Process -----🡪 Output

Under this option we can say manual testing or automation testing.

These testing we can do manually or we can take the help of automation testing tool inside a tool we can write script which is responsible to run those test cases.

Unit testing : Unit testing is part of STLC (Software Testing Life cycle). STLC is a part of SDLC(Software Development Life cycle).

Unit testing is process in which the smallest testable code or part of an application testing independently. Generally we write code inside function or method. Those method or function test independently working or not. Unit testing come under the type of white box testing.

jUnit : jUnit is an open source small testing framework which help to do the unit testing.

jUnit 3.x without annotation

jUnit 4.x with annotation

jUnit 5.x with annotation with combination of more other third party library.

TestNG

In Junit testing we will create test case and test suite.

Test Case : it is type of normal testing class which contains more than one test method with @Test annotation which help to test function functionality.

Using test case we can run more than one test function.

Test suite : Test suite is use to run more than one test case which contains more than one test function.

In Eclipse IDE by default they provided testing plugin for junit testing.

Testing hook : testing hook is like a life cycle testing method which will get call automatically before testing as well as after testing.

**Day 2 : 20-09-2022**

ProductDao

Using JDBC

Then we will test service layer and dao layer

MVC

Controller layer depends upon service layer

Service layer depends upon dao layer

Dao layer depends upon resource layer

Resource layer depends upon resources like database.

Service layer make the mock or fake or dumpy response for DAO layer.

Controller can make mock object for service layer

To achieve mocking mechanism we can have depends upon third partly library

Jmockito : we can configure jUnit with Jmockito to achieve mocking mechanism

We can run only one test case. That test case class can contains more then on test function.

Test suite is to execute more than one test case.

TestNG : It is open source light weighted testing framework base upon jUnit testing.

Test NG mean testing for next generation.

Using Test NG with combination of Selenium we can do automation testing.

Features

1. We can run parallel testing.
2. Using Test NG we can generate the report for testing result. By default it will generate in html format we can customer in our own format like xml or json etc.
3. It is easy to use compare to jUnit testing.
4. Using Test NG we can configure other develops tools like maven or gradle or Jenkin etc.
5. In Test NG we can make group to run more than one test function part of same file or different file.
6. We can run priority base testing.
7. TestNG is use to integration testing.

TestNG Project without Maven

TestNG Project with Maven