Junit

Junit is a Java testing framework used to test a piece of java code .

Junit is unit testing framework .

Generally ,unit testing is a type of testing in which single module of the application is tested to check whether it is behaving as expected or not called unit testing .

Junit is a simple ,open source framework to write and run repetable tests.

Junit promotes the idea of test first code later .

Why Junit ??

To write and run repetable tests.

Programmers normally write their code ,then write tests for it .Better to write tests tests while writing code .

Junit provides a framework to keep tests small and simple to test specific areas of code .

It reduces manual testing time by running automated tests.

It helps to detect bugs early in the development phase .

Regression Testing : Which ensures changes does not break the existing functionality of the application .

Advantages of Junit :

JUnit is widely used for testing Java applications because of its user-friendly functionalities.

The JUnit framework is open source

It has some annotations to utilize test functions

It has a test runner to test running applications

It allows you to write code

It can test automatically and provide feedback

Features of Junit :

JUnit is an open source framework, which is used for writing and running tests.

Provides annotations to identify test methods.

Provides assertions for testing expected results.

Provides test runners for running tests.

JUnit tests allow you to write codes faster, which increases quality.

Junit is elegantly simple. It is less complex and takes less time.

JUnit tests can be run automatically and they check their own results and provide immediate feedback. There's no need to manually comb through a report of test results.

JUnit tests can be organized into test suites containing test cases and even other test suites.

JUnit shows test progress in a bar that is green if the test is running smoothly, and it turns red when a test fails.

Junit is a regression testing framework which is used to implement unit testing in java .

This framework also allows quick and easy generation of test data and test cases .

Features of Junit Framework :

The major feature of this framework are TestFixtures

Test Suites

Test Runners

Junit clasess

1.Test Fixtures ensures that there is a well-known and fixed enviroment in which tests are run so that results are repetable .

Generally there are 2 methods under this setup() which runs before every test

invocation.

teardown() method which runs after every test method.

2.Test Suites(): If you want to execute multiple test cases in a specific order .It can be done by combining all the testcases in a single origin.This origin is called test suites .

you have to use @Runwith and @SuiteClasses annoatations if we want run tests in a suite .

3.Test Runners are used to execute the testcases.

Junit Core class is used in order to execute the tests .And another important method called run classes is provided by junit Runner.JunitCore which is used to run one or several testcases .

The return type of this method is the result object that is used to acess the information about the testcases.

4.Junit Classes are used in writing and testing Junits .

some of the classes are

Assert (Assert will contain set of methods)

TestCase(Contains a test case that defines the fixture to run multiple tests.)

TestResult (it contains the methods in order to collect the result of executing a test case)

Junit Annotations:

Junit uses annotations to control the lifecycle of the test methods and handle common setup/tear down tasks.

1.@Test: If a method is marked as @Test method that will be treated as a teste method .

2.@Before: If a method is marked as @Before that will be executed before each test case which useful for setting up test data .

3.@After: If a method is marked as @After that should be executed after each test case .

4.@BeforeClass: If a method is marked as @BeforeClass that will be executed once before all test cases in a class .Which is generally uised for one-time setup .

5.@AfterClass: If a method is marked as @AfterClass that will be executed once after all testcases in a class.

6.@Ignore: If a method is marked as @Ignore which skips the execution of test method .

7.@Test(expected=Exception.class) : It checks is the method throws a specific exception.

8.@Test(timeout = 1000) : It will wait upto 1000 milliseconds and it get's failed after exceeding the timelimit .

@BeforeAll – to execute some statement before all the test cases

@AfterAll – to execute some statement after all the test cases

Assertions in Junit :

Junit provides various methods to check correctness of testcases known as assertions .

1.aasertEquals(expected,actual): This assertion will checks if both expected and actual values are equal or not .

2.assertTrue(condition) : TassertFalsehis Assertion will return pass only when the given condition is true .

3.assertFalse(condition) : It Assertion will return pass only when the given condition is

false .

4.assertNotNull(object) : This assertion will get true only when the given object is not null .

5.assertNull(object) :This assertion will get true only when the given object is null .

6.assertArraysEquals(expected Array ,result Array) : This assertion will check arrays for equality .

Disadvantages of Junit :

We can use junit only for java not for other languages .

Junit is manily used for unit testing not for end to end testing .

Jmeter is not designed for load or performance testing , so other tools like Jmeter are needed .