**Testing Framework for Java**

It is an *open-source testing framework* for java programmers. The java programmer can create test cases and test his/her own code.

It is one of the unit testing framework. Current version is junit 5.

To perform unit testing, we need to create test cases. The **unit test case** is a code which ensures that the program logic works as expected.

The **org.junit** package contains many interfaces and classes for junit testing such as Assert, Test, Before, After etc.

## **Types of unit testing**

There are two ways to perform unit testing: 1) manual testing 2) automated testing.

#### 1) Manual Testing

If you execute the test cases manually without any tool support, it is known as manual testing. It is time consuming and less reliable.

#### 2) Automated Testing

If you execute the test cases by tool support, it is known as automated testing. It is fast and more reliable.

#### **Annotations for Junit testing**

The Junit 4.x framework is annotation based, so let's see the annotations that can be used while writing the test cases.

**@Test** annotation specifies that method is the test method.

**@Test(timeout=1000)** annotation specifies that method will be failed if it takes longer than 1000 milliseconds (1 second).

**@BeforeClass** annotation specifies that method will be invoked only once, before starting all the tests.

**@Before** annotation specifies that method will be invoked before each test.

**@After** annotation specifies that method will be invoked after each test.

**@AfterClass** annotation specifies that method will be invoked only once, after finishing all the tests.

#### Methods of Assert class

The common methods of Assert class are as follows:

1. **void assertEquals(boolean expected,boolean actual)**: checks that two primitives/objects are equal. It is overloaded.
2. **void assertTrue(boolean condition)**: checks that a condition is true.
3. **void assertFalse(boolean condition)**: checks that a condition is false.
4. **void assertNull(Object obj)**: checks that object is null.
5. **void assertNotNull(Object obj)**: checks that object is not null.