**TestNG Assertions**

**What is Assertion?**

Asserts helps us to verify the conditions of the test and decide whether test has failed or passed. A test is considered successful ONLY if it is completed without throwing any exception.

**Types of Assertions:**

1) Hard Assertion

2) Soft Assertion

**Hard Assertion**

It is the default assert mechanism built into TestNG’s package. ***We use it when a test has to stop immediately after the assertion fails****.*

**Soft Assertion**

It is a custom assert mechanism supported by TestNG’s package. ***We use it when a test has to continue execution even after an assertion fails in the sequence****.*

**Hard Assertions**

1) Assert.assertTrue()

2) Assert.assertFalse()

3) Assert.assertEquals()

**Test1:**

**import** org.testng.Assert;

**import** org.testng.annotations.Test;

**public** **class** Test1 {

      @Test

**void** demoTest() {

            Assert.*assertTrue*(**true**); // passed

            Assert.*assertEquals*("welcome", "welcome"); // true - passed

            Assert.*assertEquals*("selenium", "selenium");// true - passed

            System.***out***.println("Successfully passed!");

      }

}

Above Test which includes multiple assert calls, all of which get passed and so the test case.

**Test2**

**import** org.testng.Assert;

**import** org.testng.annotations.Test;

**public** **class** Test2 {

      @Test

**void** demoTest() {

            Assert.*assertTrue*(**true**); // passed

            Assert.*assertEquals*("welcome", "Welcome"); // false - failed

            Assert.*assertEquals*("selenium", "selenium");

            System.***out***.println("Successfully passed!");

      }

}

In above scenario, the second assert call fails which leads to the end of the test case.

**Testcase:**

**import** org.openqa.selenium.By;

**import** org.openqa.selenium.WebDriver;

**import** org.openqa.selenium.WebElement;

**import** org.openqa.selenium.chrome.ChromeDriver;

**import** org.testng.Assert;

**import** org.testng.annotations.Test;

**public** **class** TestCase1 {

           @Test

**public** **void** loginTest()

           {

     System.*setProperty*("webdriver.chrome.driver","C://Drivers/chromedriver\_win32/chromedriver.exe");

           WebDriver driver=**new** ChromeDriver(); // launch the browser

           driver.get("http://newtours.demoaut.com/"); //open URL

           WebElement usernametxt=driver.findElement(By.*name*("userName"));

           WebElement passwordtxt=driver.findElement(By.*name*("password"));

           //This is to check whether the textbox is displayed or not

           //Test will only continue, if the below statement is true

           Assert.*assertTrue*(usernametxt.isDisplayed());

            usernametxt.sendKeys("mercury");

            Assert.*assertTrue*(passwordtxt.isDisplayed());

            passwordtxt.sendKeys("mercury");

            /\*Assert.assertFalse(usernametxt.isDisplayed());

            usernametxt.sendKeys("mercury");

            Assert.assertFalse(passwordtxt.isDisplayed());

            passwordtxt.sendKeys("mercury");\*/

           driver.findElement(By.*name*("login")).click();

           //validation

           String ExpTitle="Find a Flight: Mercury Tours:";

           Assert.*assertEquals*(ExpTitle, driver.getTitle()); // compares both the titles

           driver.close();

}

}

**Soft Assertion**

**Test3:**

**import** org.testng.annotations.Test;

**import** org.testng.asserts.SoftAssert;

**public** **class** Test3 {

       SoftAssert softAssert = **new** SoftAssert();

       @Test

**void** demoTest() {

            softAssert.assertTrue(**true**); // passed

            softAssert.assertEquals("welcome", "Welcome"); // false - failed

            softAssert.assertEquals("selenium", "selenium");// true - passed

            System.***out***.println("Successfully passed!");

            softAssert.assertAll();

      }

}

You can cross-check from the output , that the message appeared there even after one of the assert calls failed.

**Test4:   An Issue In Using The Soft Assertion.**

In this example, you can see that there are multiple test cases. They are using the same Soft assertion object. We added it to highlight the issue which occurs when one test failure makes other tests to fail. It happens due to the use of same assert object which evaluates all occurrences of assert methods despite being in different cases.

**import** org.testng.annotations.Test;

**import** org.testng.asserts.SoftAssert;

**public** **class** Test4 {

      SoftAssert softAssert = **new** SoftAssert();

     @Test

**void** demoTest1() {

           softAssert.assertEquals("welcome", "Wel"); // false - failed

           softAssert.assertAll();

     }

     @Test

**void** demoTest2() {

           softAssert.assertEquals("welcome", "welcome"); // true - passed

           softAssert.assertAll();

     }

}

**Test5:**Right Way To Use The Soft Assertion.

**import** org.testng.annotations.Test;

**import** org.testng.asserts.SoftAssert;

**public** **class** Test5 {

      SoftAssert softAssert1 = **new** SoftAssert();

      SoftAssert softAssert2 = **new** SoftAssert();

      @Test

**void** demoTest1() {

           softAssert1.assertEquals("welcome", "Wel"); // false - failed

           softAssert1.assertAll();

     }

     @Test

**void** demoTest2() {

           softAssert2.assertEquals("welcome", "welcome"); // true - passed

           softAssert2.assertAll();

     }

}