TestNG Assertions

What is Assertion?

Asserts help us to verify the conditions of the test and decide whether the 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 fail. It happens due to the use of the 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();
    }
}
```