TestNG is a testing framework designed to simply a broad range of testing needs, from unit testing (testing a class in isolation of the others) to integration testing (testing entire systems made of several classes, several packages and even several external frameworks, such as application servers).

Writing a test is typically a three-step process:

- Write the business logic(Method) of your test and insert TestNG annotations in your code.
- Add the information about your test (e.g. the class name, the groups you wish to run, etc...) in a testng.xml file or in build.xml.
- Run TestNG

Installation Steps

1. Go to eclipse

2. Select menu item help

3. Select Eclipse marketplace

4. Search for TestNG

5. Find TestNG for eclipse

6. Click on install

7. Click on confirm

8. Accept license and click on finish

9. Restart eclipse

Way2:

1. Go to eclipse

2. Select menu item help

3. Select install new software

4. Click on Add- https://testng.org/testng-eclipse-update-site

5. Enter name and URL and OK

6. Select TestNG

7. Click on Next

8. Click on Next

9. Accept license

10. Confirm

11. Restart eclipse

1. Download TestNG jar from maven repository

2. And add to current project in Eclipse

https://mvnrepository.com/artifact/org.testng/testng

Adding the TestNG Library into the project.

1. Right Click on the Project
2. Build Path
3. Configure Build Path
4. Libraries (Tab)
5. Go to "Add Library" and click the button.
6. Add the 'TestNG' Library and click Ok/Next.
7. TestNG Library will be added to your project.

   Restart the project

ANNOTATIONS

```
@BeforeSuite
@AfterSuite

@BeforeClass
@AfterClass
@BeforeTest
@AfterTest

@BeforeMethod
@AfterMethod

@Test
```

Example1:

@BeforeClass: The annotated method will be run before the first test method in the current class is invoked.

@AfterClass: The annotated method will be run after all the test methods in the current class have been run.

@Test: **M**arks a class or a method as part of the test.

```java
package TestNGExamples;

import org.testng.Reporter;
import org.testng.annotations.AfterClass;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.Test;

public class Ex1
{
    @AfterClass
    public void method1()
    {
        System.out.println("Method1");
    }
    @BeforeClass
    public void method2()
    {
        System.out.println("Method2");
    }
    @Test
    public void method3()
    {
        System.out.println("Method3");
        Reporter.log("TestNG Framework");
    }
    @Test
    public void method4()
    {
        System.out.println("Method4");
        Reporter.log("TestNG Framework");
    }
}
```

```java
package TestNGExamples;

import org.testng.Reporter;
import org.testng.annotations.AfterClass;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.Test;

public class Ex1
{
    @AfterClass
    public void method1()
    {
        System.out.println("Method1");
    }
    @BeforeClass
    public void method2()
    {
        System.out.println("Method2");
    }
    @Test(priority=2)
    public void method3()
    {
        System.out.println("Method3");
        Reporter.log("TestNG Framework");
    }
    @Test(priority=1)
    public void method4()
    {
        System.out.println("Method4");
        Reporter.log("TestNG Framework");
    }
}
```

Example 3:

@BeforeMethod: The annotated method will be run before each test method.

@AfterMethod: The annotated method will be run after each test method.

```java
packageTestNGExamples;

importorg.testng.Reporter;
importorg.testng.annotations.AfterMethod;
importorg.testng.annotations.BeforeMethod;
importorg.testng.annotations.Test;

publicclass Ex1
{
    @AfterMethod
    publicvoid method1()
    {
        System.out.println("Method1");
    }
    @BeforeMethod
    publicvoid method2()
    {
        System.out.println("Method2");
    }
    @Test(priority=2)
    publicvoid method3()
    {
        System.out.println("Method3");
        Reporter.Log("TestNG Framework");
    }
    @Test(priority=1)
    publicvoid method4()
    {
        System.out.println("Method4");
        Reporter.Log("TestNG Framework");
    }
}
```

Example1

```
package TestNG;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.testng.Reporter;
import org.testng.annotations.AfterClass;
import org.testng.annotations.BeforeClass;
import org.testng.annotations.Test;
public class TC2
{
        WebDriver Brow;
        WebDriverWait wait;
        @BeforeClass
        public void SetUp()
        {
                System.setProperty("webdriver.chrome.driver", "D:\\D-Drive\\FromC\\chromedriver.exe");
                Brow=new ChromeDriver();
                wait=new WebDriverWait(Brow, 30);
                Brow.manage().window().maximize();
        }

        @AfterClass
        public void Shutdown()
        {
                Brow.close();
                Brow.quit();
        }

        @Test
        public void VerifyOrangeHRM()
        {
                Brow.get("http://apps.qaplanet.in/hrm/login.php");
                wait.until(ExpectedConditions.titleIs("OrangeHRM - New Level of HR Management"));
                //verify home page
                if(Brow.getTitle().equals("OrangeHRM - New Level of HR Management"))
                {
                        Reporter.log("Home Page displayed");
                }
                //create object for UN,PWD
                WebElement UN=Brow.findElement(By.name("txtUserName"));
                WebElement PWD=Brow.findElement(By.name("txtPassword"));
                //verify UN,PWD
                if(UN.isDisplayed()&&PWD.isDisplayed())
                {
                        Reporter.log("UN,PWD are exists");
                }
                //type UN,PWD
                String username="qaplanet1";
                UN.sendKeys(username);
                PWD.sendKeys("lab1");
```

```
                    //click on Login
                    Brow.findElement(By.name("Submit")).click();
                    wait.until(ExpectedConditions.titleIs("OrangeHRM"));
                    //verify home page
                    if (Brow.getTitle().equals("OrangeHRM"))
                    {
                            Reporter.log("OrangeHRM Page displayed");
                    }
                    //Get welcome Text
                    String WelText=Brow.findElement(By.xpath("//*[@id='option-menu']/li[1]")).getText();
                    //Verify welcome text
                    if (WelText.equals("Welcome "+username))
                    {
                            Reporter.log("Welcome "+username+" displayed");
                    }
                    //click on Logout
                    Brow.findElement(By.linkText("Logout")).click();
                    wait.until(ExpectedConditions.titleIs("OrangeHRM - New Level of HR Management"));
                    //verify home page
                    if(Brow.getTitle().equals("OrangeHRM - New Level of HR Management"))
                    {
                            Reporter.log("Signoff sucessfull and Home Page displayed");
                    }
            }
}
```

Assert Commands:

```
packageTestNGExamples;
importstaticorg.testng.Assert.*;
publicclassAssertcommands {

    publicvoid method1()
    {

            /*
            assertEquals(actual, expected);
            assertNotEquals(actual1, actual2);

            assertTrue(condition);
            assertFalse(condition);

            assertSame(actual, expected);
            assertNotSame(actual, expected);

            assertNull(object);
            assertNotNull(object);
```

```
        */

    }


}
```

===
Example2
===
```java
packageTestNG;
importorg.openqa.selenium.By;
importorg.openqa.selenium.WebDriver;
importorg.openqa.selenium.WebElement;
importorg.openqa.selenium.chrome.ChromeDriver;
importorg.openqa.selenium.firefox.FirefoxDriver;
importorg.openqa.selenium.support.ui.ExpectedConditions;
importorg.openqa.selenium.support.ui.WebDriverWait;
importorg.testng.Reporter;
importorg.testng.annotations.*;
import static org.testng.Assert.*;
public class TC1
{
        WebDriver Brow;
        WebDriverWait wait;
        @BeforeClass
        public void Config()
        {
                System.setProperty("webdriver.chrome.driver",
"D:\\D-Drive\\FromC\\chromedriver.exe");
                Brow=new ChromeDriver();
                wait=new WebDriverWait(Brow, 30);
                Brow.manage().window().maximize();
        }

        @AfterClass
        public void Shutdown()
        {
                Brow.close();
                Brow.quit();
        }

        @Test
        public void VerifyOrangeHRM()
        {
```

```
        Brow.get("http://apps.qaplanet.in/qahrm/login.php");
        wait.until(ExpectedConditions.titleIs("OrangeHRM - New Level of HR Management"));
        //verify home page
        assertEquals(Brow.getTitle(), "OrangeHRM - New Level of HR Management");
        Reporter.log("Home Page displayed");
        //create object for UN,PWD
        WebElement UN=Brow.findElement(By.name("txtUserName"));
        WebElement PWD=Brow.findElement(By.name("txtPassword"));
        //verify UN,PWD
        assertTrue(UN.isDisplayed()&&PWD.isDisplayed());
        Reporter.log("UN,PWD are exists");
        //type UN,PWD
        String username="qaplanet1";
        UN.sendKeys(username);
        PWD.sendKeys("lab1");
        //click on Login
        Brow.findElement(By.name("Submit")).click();
        wait.until(ExpectedConditions.titleIs("OrangeHRM"));
        //verify home page
        assertEquals(Brow.getTitle(), "OrangeHRM");
        Reporter.log("OrangeHRM Page displayed");
        //Get welcome Text
        String WelText=Brow.findElement(By.xpath("//*[@id='option-menu']/li[1]")).getText();
        //Verify welcome text
        assertEquals(WelText, "Welcome "+username);
        Reporter.log("Welcome "+username+" displayed");
        //click on Logout
        Brow.findElement(By.linkText("Logout")).click();
        wait.until(ExpectedConditions.titleIs("OrangeHRM - New Level of HR Management"));
        //verify home page
        assertEquals(Brow.getTitle(), "OrangeHRM - New Level of HR Management");
        Reporter.log("Signoff sucessfull and Home Page displayed");
    }
}
```

TestNG Suite:

- A suite is represented by one XML file. It can contain one or more tests and is defined by the `<suite>` tag.

- A test is represented by <mark>`<test>`</mark> and can contain one or more TestNG classes.
- A TestNG class is a Java class that contains at least one TestNG annotation. It is represented by the <mark>`<class>`</mark> tag and can contain one or more test methods.
- A test method is a Java method annotated by <mark>`@Test`</mark> in your source.

<mark>Navigation for creating XML file</mark>
<mark>---</mark>
1.Right click on package -> New ->Click on File -> Enter filename.xml ->Click on finish

<mark>Suite Creation by calling individual classes</mark>

```xml
<suitename="HRM Automation"><!-- User defined name -->
<testname="PIM"><!-- User defined name -->
<classes>
<classname="TestNG.TC1"/><!--Packagename.classname -->
<classname="TestNG.TC2"/><!--Packagename.classname -->
</classes>
</test>

<!--<test name="Admin">
<classes>
<class name="TestNG.EX1"/>
<class name="TestNG.Ex2"/>
</classes>
</test>    -->
</suite>
```

==

<mark>Suite Creation By Calling Package</mark>

```xml
<suitename="HRM Automation"><!-- User defined name -->
<testname="Admin"><!-- User defined name -->
<packages>
<packagename="TestNG"/><!--Packagename -->
</packages>
</test>
</suite>
```