**TESTNG:**

* + Unit test framework
  + Open Source, Free JAR Files
  + **Java unit testing framework**
  + **TDD – Test Driven Development – We can also design test cases in Agile Methodology**

**Purpose :**

* + Design test cases in a systematic way
  + HTML reports
  + Different annotations
  + **Priority/Sequence**
  + Dependency
  + Grouping
  + **Data Provider** – Very Important

**Install TestNg in Eclipse:**

<http://beust.com/eclipse/>

**In eclipse –> help-> install new software -> Work with -> copy the above url -> choose the TestNg ->Click next-> click licence agreement - > After install eclipse ask you to restart-> Click restart.**

**Then add TestNg dependencies..**

**Example :**

Public class TestNgBasics

{

**Each and every annotation is associated with some method.**

**// Pre-Conditions Annotations -🡪 Starting with @Before**

**@BeforeSuite** // 1

Public void setup()

**{**

System.out.println(“Set Up”)

}

**@BeforeTest** //2

Public void logIn()

{

System.out.println(“Login Method”);

}

**@BeforeClass** **//3**

Public void launchBrowser()

{

System.out.println(“Launch Chrome Browser”);

}

**@BeforeMethod //4**

Public void enterURL()

{

System.out.println(“Enter URL”);

}

**//Test Cases - > Starting with @test**

**@Test //5**

Public void googleSearch()

{

System.out.println(“Google Search”)

}

//Post Conditions -> Starting with @After

**@AfterMethod //6**

Public void logOut()

{

System.out.println(“Logout App”);

}

**@AfterClass //7**

Public void closeBrowser()

{

System.out.println(“Close Browser”);

}

**@AfterTest //8**

Public void deleteAllCookies()

{

System.out.println(“Logout Method”);

}

**@AfterSuite //9**

Public void testReport()

**{**

System.out.println(“HTML Report Generation”)

}

}

**Annotation Order:**

1. Before Suite
2. Before Test
3. Before Class
4. Before Method
5. Test
6. After Method
7. After Class
8. After Test
9. After Suite

If we have more than one Test then the order/sequence of execution will be

* **@Before Method**
* **@Test -1**
* **@After Method**
* **@Before Method**
* **@Test -2**
* **@After Method**
* **@Before Method**
* **@Test -3**
* **@After Method etc…**

**Features :**

* Priority
* Groups
* dependsOnMethods
* invocationCount
* invocationTimeOut
* expectedExceptions

**Example 2:**

Public class GoogleTest

{

//Initialize web driver

WebDriver driver;

//1 //4 //7

@BeforeMethod

Public void setup()

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

driver.get(“http://www.google.com”);

}

//2

@Test

Public void googleTitleTest()

{

String title=driver.getTitle();

System.out.println(title);

}

//5

@Test

Public void googleLogoTest()

{

boolean b=driver.findElement(By.xpath(“//\*[@id=’hplogo’]”)).isDisplayed();

}

//8

@Test

Public void mailLinkTest()

{

boolean c=driver.findElement(by.linkText(“Gmail”)).isDisplayed();

}

//3 //6 //9

@AfterMethod

Public void tearDown()

{

driver.quit();

}

}

**In the above example we have three Test cases, Framework randomly pick up the test cases if we are not giving any priority…**

**Example 3:**

Public class GoogleTest

{

//Initialize web driver

WebDriver driver;

//1 //4 //7

@BeforeMethod

Public void setup()

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

driver.get(“http://www.google.com”);

}

//2

@Test(priority=1)

Public void googleTitleTest()

{

String title=driver.getTitle();

System.out.println(title);

}

//5

@Test(priority=2)

Public void googleLogoTest()

{

boolean b=driver.findElement(By.xpath(“//\*[@id=’hplogo’]”)).isDisplayed();

}

//8

@Test(priority=3)

Public void mailLinkTest()

{

boolean c=driver.findElement(by.linkText(“Gmail”)).isDisplayed();

}

//3 //6 //9

@AfterMethod

Public void tearDown()

{

driver.quit();

}

}

**Once execution completes, refresh the project..**

It will create TestReport-> Under that -> index.html-> right click here->properties-> copy the location->open any browser->paste the copied location..

You will get the report automatically.

**GROUPING:**

**Example 4:**

Public class GoogleTest

{

//Initialize web driver

WebDriver driver;

//1 //4 //7

@BeforeMethod

Public void setup()

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

driver.get(“http://www.google.com”);

}

//2

@Test(priority=1, groups=”Title”)

Public void googleTitleTest()

{

String title=driver.getTitle();

System.out.println(title);

}

//5

@Test(priority=2,groups=”Link Test”)

Public void googleLogoTest()

{

boolean b=driver.findElement(By.xpath(“//\*[@id=’hplogo’]”)).isDisplayed();

}

//8

@Test(priority=3, groups=”Title”)

Public void mailLinkTest()

{

boolean c=driver.findElement(by.linkText(“Gmail”)).isDisplayed();

}

//3 //6 //9

@AfterMethod

Public void tearDown()

{

driver.quit();

}

}

In the above we will get the test cases based on **groups.** In the report you will get it in reports.

**Example 5 : dependsOnMethods**

Public class TestNGFeatures

{

@Test

Public void loginTest()

{

System.out.prinltn(“Login Test”);

Int i=9/0;

}

@Test(**dependsOnMethods**=”loginTest”)

**//If we depend on some other method we will give dependsOnMethod keyword and give the particular method name, then that particular method is passed then concern method will be executes..**

Public void HomePageTest()

{

System.out.prinltn(“Home Test”);

}

}

**Example 6: InvocationCount**

**//**IF we want to execute the particular test cases into more than one time then we will go for invocation count.

Public class InvocationCountTest

{

@Test(invocationCount=10)

Public void sum()

{

Int a=10;

Int b=20;

Int c=a+b;

System.out.prinltn(c);

}

}

**Example 7: invocationTimeOut & expectedExceptions**

**//**If we have infinite loop, then we can go for

Public class ExceptionTimeOut

{

@Test(invocationTimeOut=2)

Public void infiniteLoopTest()

{

Int i=1;

While(i==1)

System.out.println(i);

}

//We will not use this in testing, we will mark it as failed cases, but we need to know the features.

@Test(expectedExceptions=NumberFormatException.class)

Public void test1()

{

String x=”100A”;

Integer.parseInt(x);

}

}

**EXAMPLE 8: Assertion**

Public class GoogleTest

{

//Initialize web driver

WebDriver driver;

@BeforeMethod

Public void setup()

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

driver.get(“http://www.google.com”);

}

@Test()

Public void googleTitleTest()

{

String title=driver.getTitle();

System.out.println(title);

**//Validating the cases**

Asser.assertEquals(title, “Google”, “Title is not matched”);

// If it is not matched it will produce the assertion error.

}

@Test()

Public void googleLogoTest()

{

boolean b=driver.findElement(By.xpath(“//\*[@id=’hplogo’]”)).isDisplayed();

Assert.assertTrue(b);

Assert.assertEquals(b,true);

}

@AfterMethod

Public void tearDown()

{

driver.quit();

}}}

**Src->rc->other->file->next->textng.xml->finish->create xml file.**

**<**!DOCTYPE suite SYSTEM “<http://testng.org/testng-1.0.dtd>”>

<suite name=”TestNG Session Test Automation Suite”>

<test name=”Different testing Feature Test”>

<classes>

<class name = “com.test.GoogleTest”/>

<class name = “com.test.GoogleTest1”/>

<class name = “com.test.GoogleTest2”/>

</classes>

</test>

</suite>

**Right click testing.xml-> run as-> TestngSuite**

**PASSING PARAMETER USING TESTNG.XML**

Public class ParameterTest

{

@Test

@parameters({“url”, “emailId”})

Public void yahooLogin(String url, String emailId)

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

driver.get(url);

driver.findElement(By.xpath(“//\*[@id=’login-username’]”)).clear();

driver.findElement(By.xpath(“//\*[@id=’login-username’]”)).sendKeys(emailId);

driver.findElement(By.xpath(“//\*[@id=’login-signin’]”)).click();

}

}

**Create another testing.xml.**

**<**!DOCTYPE suite SYSTEM “<http://testng.org/testng-1.0.dtd>”>

<suite name=”TestNG Session Test Automation Suite”>

<test name=”Different testing Feature Test”>

<parameter name=”url” value=”<https://login.yahoo.com/>”/>

<parameter name=”emailId” value=[test@yahoo.com](mailto:test@yahoo.com)/>

<classes>

<class name = “com.test.ParameterTest”/>

</classes>

</test>

</suite>

RightClick -> TestNg suite

**Another Example :**

Public class ParameterTest

{

@Test

@parameters({“browser”,“url”, “emailId”})

Public void yahooLogin(String browser, String url, String emailId)

{

If(browser.equals(“chrome”)

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

}

Else if(browser.equals(“firefox”)

{

System.setProperty(“webdriver.gecko.driver”, “Path”);

driver=new FirefoxDriver();

}

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

driver.get(url);

driver.findElement(By.xpath(“//\*[@id=’login-username’]”)).clear();

driver.findElement(By.xpath(“//\*[@id=’login-username’]”)).sendKeys(emailId);

driver.findElement(By.xpath(“//\*[@id=’login-signin’]”)).click();

}

}

**<**!DOCTYPE suite SYSTEM “<http://testng.org/testng-1.0.dtd>”>

<suite name=”TestNG Session Test Automation Suite”>

<test name=”Different testing Feature Test”>

<parameter name=”browser” value =”firefox”/>

<parameter name=”url” value=”<https://login.yahoo.com/>”/>

<parameter name=”emailId” value=[test@yahoo.com](mailto:test@yahoo.com)/>

<classes>

<class name = “com.test.ParameterTest”/>

</classes>

</test>

</suite>

**DATA PROVIDER – DATA DRIVEN FRAMEWORK WITH TESTNG (@dataProvider annotation)**

**Application->page->different fields->fill all these fields with different test data**

**@Test(dataprovider=”getData”)**

Test case – LoginTest(Username, password)

@dataprovider

getData()

{

Data 1

Data 2

Data 3

Data 4

Data 5

}

Excel ->testdata.xlsx

**Example :**

Public class Test

{

WebDriver driver;

@BeforeMethod

Public void setup()

{

System.setProperty(“webdriver.chrome.driver”, “Path”);

driver=new ChromeDriver();

driver.get(“https://scgi.half.ebay.com/ws/eBayISAPI.dll?RegisterEnterInfo&usage=2943&ru=”);

driver.manage.window.maximize();

driver.manage.deleteAllCookies();

driver.manage().timeouts().pageLoadTimeouts(40,TimeUnit.SECONDS);

driver.manage().timeouts().implicitlyWait(30,TimeUnit.SECONDS);

}

@DataProvider

Public Iterator<Object[]> getTestData()

{

ArrayList<Object[]> testData=TestUtil.getDataFromExcel();

return testData.iterator();

}

@Test(dataProvider=”getTestData”)

Public void test(String firstName, String lastName, String address1, String address2, String city, String state,String zipcode, String email)

{

Driver.findElement(By.xpath(“//\*[@id=’firstname’)”)).sendKeys(firstName);

Driver.findElement(By.xpath(“//\*[@id=’lastname’)”)).sendKeys(lastName);

Driver.findElement(By.xpath(“//\*[@id=’address1’)”)).sendKeys(address1);

Driver.findElement(By.xpath(“//\*[@id=’address2’)”)).sendKeys(address2);

Driver.findElement(By.xpath(“//\*[@id=’city’)”)).sendKeys(city);

Select select=new Select(driver.findElement(By.xpath(“//\*[@id=’state’]”)));

Select.selectByVisibleText(state);

Driver.findElement(By.xpath(“//\*[@id=’zip’)”)).sendKeys(zipcode);

Driver.findElement(By.xpath(“//\*[@id=’email’)”)).sendKeys(email);

Driver.findElement(By.xpath(“//\*[@id=’retype\_email’)”)).sendKeys(email);

}

@AfterMethod

Public void tearDown()

{

driver.quit();

}

}

**Create another package and class**

Public class TestUtil

{static XLs\_Reader reader;

Public static ArrayList<Object[]> getDataFromExcel()

{

ArrayList<Object[]> myData=new ArrayList<Object[]>();

try

{

reader= new Xls\_Reader(”path”);

}

catch(Exception e)

{

e.printStackTrace();

}

for(int rowCount=2; rowCount<=reader.getRowCount(“Sheet Name”);rowCount++)

{

String firstName=reader.getCellData(“Sheet NAme”, “firstName”, rowCount);

String lastName=reader.getCellData(“Sheet NAme”, “lastName”, rowCount);

String address1=reader.getCellData(“Sheet NAme”, “address1”, rowCount);

String address2=reader.getCellData(“Sheet NAme”, “firstName”, rowCount);

String city=reader.getCellData(“Sheet NAme”, “lastName”, rowCount);

String state=reader.getCellData(“Sheet NAme”, “firstName”, rowCount);

String zipcode=reader.getCellData(“Sheet NAme”, “lastName”, rowCount);

String email=reader.getCellData(“Sheet NAme”, “lastName”, rowCount);

Object ob[] = {firstName, lastName, address1, address2, city, state, zipcode, email};

myData.add(ob);

}

return myData;

}

}