**SELENIUM CONCEPTS:**

1. **what are limitations in selenium webdriver?**

1. It does not support and non web-based applications, it only supports web based applications.  
2. Its an open source tool so in case of any technical issues you need to rely on the selenium community forums to get your issue resolved.

3. You need to know at least one of the supported language very well in order to automate your application successfully.  
4. No inbuilt reporting capability so you need plugins like JUnit and TestNG for test reports.  
5. Lot of challenges with IE browser.

* **installing/configure selenium**

Selenium with Java

Step 1 - Install Java on your computer

## Step 2 - Install Eclipse IDE

## Step 3 - Download the Selenium Java Client Driver

## Step 4 - Configure Eclipse IDE with WebDriver

## Download Selenium

## 1) Open url : http://www.seleniumhq.org/download/

## 2) select java language click on download

## 3) extract folder - copy folder paste in c driver

## 4) mozilla fire fox download

## 5) Adding Add on features to mozilla

## fire Bug -- open mozilla - type firebug for firefox - click on add

## Firepath-- Open Mozilla - type firepath for firefox

## Selenium IDE-- Open Mozilla - type the selenium ide for firefox

## what are different ways of locating elements in selenium

Selenium WebDriver API supports different possibilities to identify elements: by ID, by CLASS, by NAME, by CSS selector, by XPath, by TAG name. Also you define your custom selector in order to interact with the elements.

**1. By ID:**

in Java: driver.findElement(By.id("element id"))

**2. By CLASS:**

in Java: driver.findElement(By.className("element class"))

**3. By NAME:**

in Java: driver.findElement(By.name("element name"))

**4. By TAGNAME:**

in Java: driver.findElement(By.tagName("element html tag name"))

**5. By CSS Selector:**

in Java: driver.findElement(By.cssSelector("css selector"))

**6. By Link:**

in Java: driver.findElement(By.link("link text"))

**7. By XPath:**

in Java: driver.findElement(By.xpath("xpath expression"))

* **which is fastest way to identify elements in web page?**

The most efficient way and preferred way to locate an element on a web page is **By ID**.

**ID** will be the unique on web page which can be easily identified.

IDs are the safest and fastest locator option and should always be the first choice even when there are multiple choices, It is like an Employee Number or Account which will be unique.

* **what is absolute path and relative path in xpath?**

Absolute path : When the xpath starts from html , then it become absolute xpath.

html/body/div[5]/div[2]/div/div[2]/div[2]/h2[1]

Relative path **:** and a relative xpath finds the closed id to the dom element and generates xpath starting from that element.

.//\*[@id='answers']/h2[1]/a[1]

* **different types of waits or synchronization in selenium webdriver**

When implementing time synchronization for waiting with Selenium Web Driver technology, we can use two types of waits:

**Implicit Wait**

**Explicit Wait**

**Implicit Wait :** In Implicit Wait, we define a code to wait for a certain amount of time when trying to find an element or elements. If the Web Driver cannot find it immediately because of its availability, the WebDriver will wait. The default setting is zero. Once we set a time, the Web Driver waits for the period of the WebDriver object instance.

For example:

### public void ImplicitWait(int waitSeconds)

### {

### WebDriver driver = new FirefoxDriver(); driver.Manage().Timeouts().ImplicitlyWait(TimeSpan.FromSeconds(waitSeconds)); driver.Url = "http://www.seleniummaster.com"; IWebElement elementToWait = driver.FindElement(By.Id("theElementId"));

### }

**Explicit Wait :** In Explicit Wait, we write a code to define a wait statement for certain condition to be satisfied until the wait reaches its timeout period. If WebDriver can find the element before the defined timeout value, the code execution will continue to next line of code. Therefore, it is important to setup a reasonable timeout seconds according to the system response.

For example:

public void ExplicitWait(int timeouseconds

{IWebDriver driver = new FirefoxDriver();  
driver.Url = "http://www.seleniummaster.com";  
WebDriverWait wait = new WebDriverWait(driver, TimeSpan.FromSeconds(timeouseconds));  
IWebElement elementToWait = wait.Until<IWebElement>((d) =>  
    {  
        return d.FindElement(By.Id("theElementId"));  
    });

### }

* **how to save screenshots using selenium webdriver**

Its very important to take screenshot when we execute a test script. When we execute huge number of test scripts, and if some test fails, we need to check why the test has failed.

It helps us to debug and identify the problem by seeing the screen shot.

In selenium webdriver, we can take the screen shot using the below command.

**File scrFile = ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);**

Check the framework example of  [Taking ScreenShot for ONLY Failed Tests using TestNG](http://seleniumeasy.com/testng-tutorials/how-to-take-screenshot-for-only-failed-tests-using-webdriver)  
The below example explains how to take the screen shot when the test fails.

import java.io.File;

import org.apache.commons.io.FileUtils;

import org.openqa.selenium.By;

import org.openqa.selenium.OutputType;

import org.openqa.selenium.TakesScreenshot;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.firefox.FirefoxDriver;

import org.testng.annotations.Test;

    public class takeScreenShotExample{

        public WebDriver driver;

      @Test

      public void openBrowser() throws Exception {

      driver = new FirefoxDriver();

      driver.manage().window().maximize();

      driver.get("http://www.google.com");

      try{

                //the below statement will throw an exception as the element is not found, Catch block will get executed and takes the screenshot.

      driver.findElement(By.id("testing")).sendKeys("test");

                   //if we remove the below comment, it will not return exception and screen shot method will not get executed.

      //driver.findElement(By.id("gbqfq")).sendKeys("test");

      }

      catch (Exception e){

      System.out.println("I'm in exception");

//calls the method to take the screenshot.

      getscreenshot();

       }

      }

      public void getscreenshot() throws Exception

      {

              File scrFile = ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);

           //The below method will save the screen shot in d drive with name "screenshot.png"

              FileUtils.copyFile(scrFile, new File("D:\\screenshot.png"));

      }

}

* **how to handle multiple windows in selenium webdriver**

When we have multiple windows in test automation, all we need to do is switching the focus from one window to another. Let us understand the same in the following way:

Window A has a link "Link1" and we need to click on the link (click event).

Window B displays and we perform some actions.

The entire process can be fundamentally segregated into following steps :

Step 1 : Clicking on Link1 on Window A

A new Window B is opened.

Step 2 : Save reference for Window A

Step 3 : Create reference for Window B

Step 3 : Move Focus from Window A to Window B

Window B is active now

Step 3 : Perform Actions on Window B

Complete the entire set of Actions

Step 4 : Move Focus from Window B to Window A

Window A is active now

Let us understand the same with a small coding example.

**import**java.util.List;  
**import**org.junit.After;  
**import**org.junit.Before;  
**import**org.junit.Test;  
**import**org.openqa.selenium.By;  
**import**org.openqa.selenium.WebDriver;  
**import**org.openqa.selenium.WebElement;  
**import**org.openqa.selenium.firefox.FirefoxDriver;  
  
  
**public class**MultipleWindowsHandle {  
  
     
     WebDriver driver;    
     @Before    
     **public void**setup() **throws**Exception {    
     driver=**new**FirefoxDriver();    
     String URL="http://www.seleniummaster.com";     
     driver.get(URL);    
     driver.manage().window().maximize();    
     }    
     @Test    
     **public void**test() **throws**Exception {     
     // Opening site    
     driver.findElement(By.xpath("//img[@alt='SeleniumMasterLogo']")).click();    
     // Storing parent window reference into a String Variable    
     String Parent\_Window = driver.getWindowHandle();      
      // Switching from parent window to child window     
     **for**(String Child\_Window : driver.getWindowHandles())    
     {    
     driver.switchTo().window(Child\_Window);    
     // Performing actions on child window    
     driver.findElement(By.id("dropdown\_txt")).click();    
     List  dropdownitems=driver.findElements(By.xpath("//div[@id='DropDownitems']//div"));    
     **int**dropdownitems\_Size=dropdownitems.size();    
     System.out.println("Dropdown item size is:"+dropdownitems\_Size);    
     ((WebElement) dropdownitems.get(1)).click();    
     driver.findElement(By.xpath("//\*[@id='anotherItemDiv']")).click();    
     }    
     //Switching back to Parent Window    
     driver.switchTo().window(Parent\_Window);    
     //Performing some actions on Parent Window    
     driver.findElement(By.className("btn\_style")).click();    
     }    
      @After    
      **public void**close() {    
      driver.quit();    
      }     
     }

* **How to lanuch webpage using chrome driver**

In WebDriver, We launch FireFox and Internet Explorer by using

***WebDriver driver = new FirefoxDriver(); //this line would launch Firefox  
WebDriver driver = new InternetExplorerDriver(); //this line would launch IE browser***

But when we write below line like FireFox and IE

**WebDriver driver = new ChromeDriver();**  
Then It throws Error and Here I am pasting Error Trace shown in Eclipse

java.lang.IllegalStateException: The path to the driver executable must be set by the webdriver.chrome.driver system property; for more information, see http://code.google.com/p/selenium/wiki/ChromeDriver. The latest version can be downloaded from http://code.google.com/p/chromedriver/downloads/list

But there is one way to resolve this Error and this could be done by using this

1- Download zip file of chromedriver for Windows from [here](http://code.google.com/p/chromedriver/downloads/detail?name=chromedriver_win_26.0.1383.0.zip&can=2&q=)2- Unzip downloaded Chromedriver for Windows and find the absolute path of chromedriver.exe  
3- Now set Property of System by using this line  
**System.setProperty(“webdriver.chorme.driver**,**"path of the exe file\\chromedriver.exe");  
and after this line write your traditional line to launch the browser like this  
WebDriver driver =new ChromeDriver();**

## Sample Program for Launch Chrome Browser using Selenium Webdriver :

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

public class TestChrome {

public static void main(String[] args) {

System.setProperty("webdriver.chrome.driver", "path of the exe file\\chromedriver.exe");

// Initialize browser

WebDriver driver=new ChromeDriver();

// Open facebook

driver.get("http://www.facebook.com");

// Maximize browser

driver.manage().window().maximize();

}

}

* **what is desired capabilities in selenium webdriver**

The desired capability is a series of key/value pairs that stores the browser properties like browsername, browser version, the path of the browser driver in the system, etc. to determine the behaviour of the browser at run time.

* Desired capability can also be used to configure the driver instance of Selenium WebDriver.
* We can configure driver instance like FirefoxDriver, ChromeDriver, InternetExplorerDriver by using desired capabilities.

Desired Capabilities are more useful in cases like:

* In mobile application automation, where the browser properties and the device properties can be set.
* In Selenium grid when we want to run the test cases on a different browser with different operating systems and versions.

**Different types of Desired Capabilities Methods :**

Here we will see a different type of desired capabilities methods and see how to use one of this method "setCapability Method".

getBrowserName()

public java.lang.String getBrowserName()

setBrowserName()

public void setBrowserName(java.lang.String browserName)

getVersion()

public java.lang.String getVersion()

setVersion()

public void setVersion(java.lang.String version)

getPlatform()

public Platform getPlatform()

setPlatform()

public Platform getPlatform()

getCapability Method

The getCapability method of the Desired Capabilities class can be used to get the capability that is in use currently in the system.

public java.lang.Object getCapability(java.lang.String capabilityName)

setCapabilityMethod

The setCapability() method of the Desired Capabilities class can be used to set the device name, platform version, platform name, absolute path of the app under test (the .apk file of the app(Android) under test), app Activity (in Android) and appPackage(java).

**"setCapability method" in java has the below declarations:**

setCapability : public void setCapability(java.lang.String capabilityName,boolean value)

setCapability :public void setCapability(java.lang.String capabilityName,java.lang.String value)

setCapability :public void setCapability(java.lang.String capabilityName,Platform value)

setCapability :public void setCapability(java.lang.String key,java.lang.Object value)

* **How to set language while opening website**

**Internationalization** is a process of designing a software application so that it can be adapted to various languages and regions without any changes

**Localization** is a process of adapting internationalized software for a specific region or language by adding local specific components and translating text.

If we want to check whether our application is properly internationalized , then we will manually change the language preferences in the browser itself.But if we want to check the same using WebDriver then we have to change the user language preferences.

**Using Firefox Browser :**

FirefoxProfile profile = new FirefoxProfile();  
//setting the locale french : ‘fr’  
profile.setPreference(“intl.accept\_languages”,”fr”);  
driver = new FirefoxDriver(profile);  
driver.get(“[http://google.co.in&#8221](#8221););

**Using Chrome Browser :**

System.setProperty("webdriver.chrome.driver", "driver/chromedriver.exe");

ChromeOptions options = new ChromeOptions();  
options.addArguments(“–lang= sl”);  
ChromeDriver driver = new ChromeDriver(options);  
driver.get(“[http://google.co.in&#8221](#8221););

* **How to handle windows based popups (upload and dropdown)**

There are many cases, where a application displays multiple windows when you open a website. Those are may be advertisements or may be a kind of information showing on popup windows. We can handle multiple windows using Windows Handlers in selenium webdriver.

**Step 1:** After opening the website, we need to get the main window handle by using driver.getWindowHandle();  
The window handle will be in a form of lengthy alpha numeric  
**Step 2:** We now need to get all the window handles by using driver.getWindowHandles();  
**Step 3:** We will compare all the window handles with the main Window handles and perform the operation the window which we need.

The below example shows how to handle multiple windows and close all the child windows which are not need. We need to compare the main window handle to all the other window handles and close them.

package com.pack;

import java.util.Set;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.firefox.FirefoxDriver;

import org.testng.Assert;

import org.testng.annotations.Test;

public class WindowExamples {

static WebDriver driver;

@Test

public void test\_CloseAllWindowsExceptMainWindow() {

driver = new FirefoxDriver();

// It will open Naukri website with multiple windows

driver.get("[http://www.naukri.com/"](http://www.naukri.com/%22));

// To get the main window handle

String windowTitle= getCurrentWindowTitle();

String mainWindow = getMainWindowHandle(driver);

Assert.assertTrue(closeAllOtherWindows(mainWindow));

Assert.assertTrue(windowTitle.contains("Jobs - Recruitment"), "Main window title is not matching");

}

public String getMainWindowHandle(WebDriver driver) {

return driver.getWindowHandle();

}

public String getCurrentWindowTitle() {

String windowTitle = driver.getTitle();

return windowTitle;

}

//To close all the other windows except the main window.

public static boolean closeAllOtherWindows(String openWindowHandle) {

Set<String> allWindowHandles = driver.getWindowHandles();

for (String currentWindowHandle : allWindowHandles) {

if (!currentWindowHandle.equals(openWindowHandle)) {

driver.switchTo().window(currentWindowHandle);

driver.close();

}

}

driver.switchTo().window(openWindowHandle);

if (driver.getWindowHandles().size() == 1)

return true;

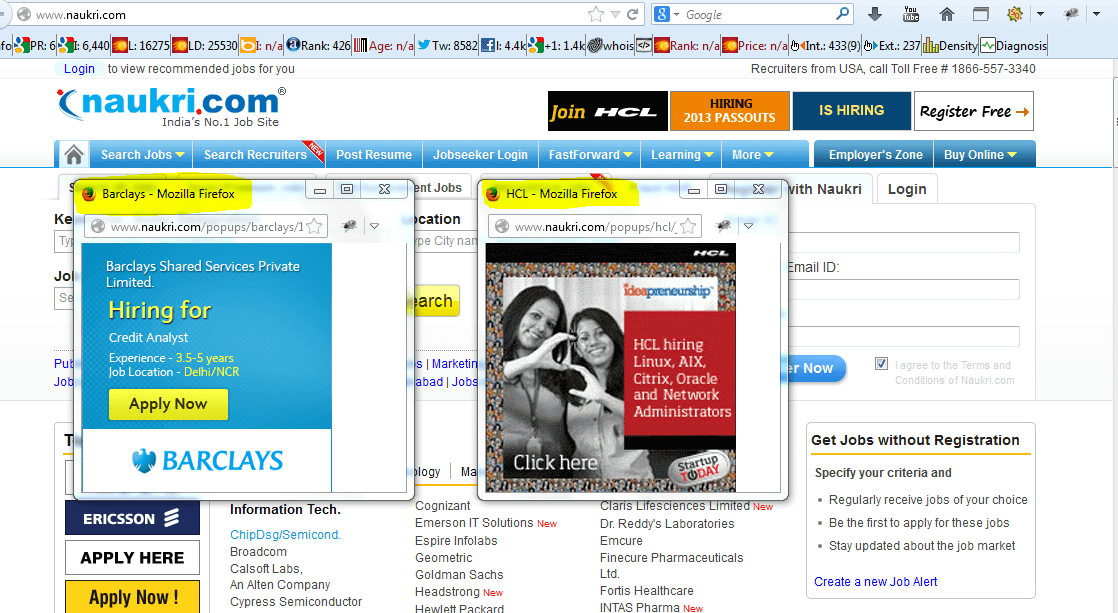
else

return false;

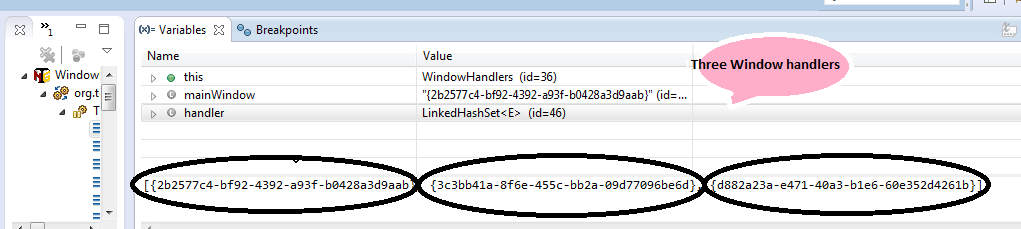
}

}

The below image will show you the multiple windows that open in the application. It has now open total of three windows (One is main window and other two are child windows)



The below image will show the multiple window handlers for child windows and main window. We will have all the window handles in one set and we use each of them to compare and perform operation on the required window.



**The below is the output of the program :**

{2b2577c4-bf92-4392-a93f-b0428a3d9aab}  
Naukri.com – Jobs – Jobs in India – Recruitment – Job Search – Employment – Job Vacancies  
it is the main window  
Naukri.com – Jobs – Jobs in India – Recruitment – Job Search – Employment – Job Vacancies  
Barclays  
Naukri.com – Jobs – Jobs in India – Recruitment – Job Search – Employment – Job Vacancies  
HCL  
Naukri.com – Jobs – Jobs in India – Recruitment – Job Search – Employment – Job Vacancies

* **write code to verify any application login page is working or not**

**(u should write code to use textbox, button click events)**

We will create a Project called “Gmail” , Package as “login”, Class as “Login1”. Now we will write the code as below

package login;

import java.util.concurrent.TimeUnit;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.firefox.FirefoxDriver;

public class Login1 {

public static void main(String[] args) {

**// Create a new instance of the Firefox driver**

WebDriver driver = new FirefoxDriver();

**//  Wait For Page To Load**

**// Put a Implicit wait, this means that any search for elements on the page**

**could take the time the implicit wait is set for before throwing exception**

driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);

**// Navigate to URL**

driver.get("https://mail.google.com// Maximize the window.

driver.manage().window().maximize();

**// Enter UserName**

driver.findElement(By.id("Email")).sendKeysER NAME");

**// Enter Password**

driver.findElement(By.id("Passwd")).sendKeys("YOUR Wait For Page To Load

driver.manage().timeouts().implicitlyWait(60, TimeUnit.SECONDS);

**// Click on 'Sign In' button**

driver.findElement(By.id("signIn")).clickk on Compose Mail.

driver.findElement(By.xpath("//divss='z0']/div")).click();

**// Click on the image icon present in the top right navigational Bar**

driver.findElement(By.xpath("//divss='gb\_1 gb\_3a gb\_nc gb\_e']/div/a")).click();

**//Click on 'Logout' Button**

driver.findElement(By.xpath("//\*[@id='gb\_71']")).click();

**//Close the browser.**

driver.close();

}

}

* **how to select items from dropdown/select box**

# Using the Select Utility Class:

<select id="mySelectID">

<option value="Value">Option</option>

<option value="NotValue">Not Option</option>

</select>

## Select by option name

Java:

WebElement mySelectElm = driver.findElement(By.id("mySelectID"));

Select mySelect= new Select(mySelectElm);

selMySelect.selectByVisibleText("Option");

## Select by option value

Java:

WebElement mySelectElm = driver.findElement(By.id("mySelectID"));

Select mySelect= new Select(mySelectElm);

selMySelect.selectByValue("Value");

## Select by index

Java:

WebElement mySelectElm = driver.findElement(By.id("mySelectID"));

Select mySelect= new Select(mySelectElm);

selMySelect.selectByIndex(0);

## Get the selected option

Java:

WebElement mySelectElm = driver.findElement(By.id("mySelectID"));

Select mySelect= new Select(mySelectElm);

WebElement option = mySelect.getFirstSelectedOption();

System.out.println(option.getText()); //prints "Option"

## Get the list of options

Java:

WebElement mySelectElm = driver.findElement(By.id("mySelectID"));

Select mySelect= new Select(mySelectElm);

List<WebElement> options = mySelect.getOptions();

for (WebElement option : options) {

System.out.println(option.getText()); //Prints "Option", followed by "Not Option"

}

* **How to know if checkbox is checked or not in webpage?**

We can use the below methods to check or uncheck web checkbox.

**//Checking**

public void CheckingChkbox(WebElement chkbx1){  
boolean checkstatus;  
checkstatus=chkbx1.isSelected();  
if (checkstatus==true){  
System.out.println("Checkbox is already checked");   
}  
else  
{  
chkbx1.click();  
System.out.println("Checked the checkbox");  
}  
}  
   
**//Unchecking**

public void UnCheckingChkbox(WebElement chkbx1){  
boolean checkstatus;  
checkstatus=chkbx1.isSelected();  
if (checkstatus==true) {  
chkbx1.click();  
System.out.println("Checkbox is unchecked");  
}  
else  
{  
System.out.println("Checkbox is already unchecked");   
}  
}

**Tell me code to pass values from parent window to child window**

**Ex: write code**

* **write code to find out if all links are working or not**

import java.util.ArrayList;

import java.util.List;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.WebElement;

import org.openqa.selenium.firefox.FirefoxDriver;

public class FindBrokenLinks {

public static void main(String[] args) throws InterruptedException {

WebDriver driver = new FirefoxDriver();

driver.get("https://www.xyz.com/");

Thread.sleep(5000L);

int size = driver.findElements(By.tagName("a")).size();

System.out.println(size);

List<String> Linkarray = new ArrayList<String>();

List<WebElement> Linklist = driver.findElements(By.tagName("a"));

for (WebElement link : Linklist) {

String links = link.getText();

Linkarray.add(links );

}

for (String linkToTest : Linkarray){

driver.findElement(By.linkText(linkToTest)).click();

Thread.sleep(15000L);

if(driver.getTitle().contains("Problem")) {

System.out.println("Fail");

}

else

{

System.out.println("pass");

}

driver.navigate().back();

Thread.sleep(5000L);

}

driver.close();

}

}

* **write code on how to use javascriptexecutor?**

[JavaScriptExecutor](http://selenium.googlecode.com/git/docs/api/java/org/openqa/selenium/JavascriptExecutor.html" \t "_blank) is an interface which provides mechanism to execute Javascript through selenium driver. It provides “executescript” & "executeAsyncScript" methods, to run JavaScript in the context of the currently selected frame or window.

**Package:**

import org.openqa.selenium.JavascriptExecutor;

**Methods**

Name: executeAsyncScript(java.lang.String script, java.lang.Object... args)

Description: Execute an asynchronous piece of JavaScript in the context of the currently selected frame or window.

Name: executeScript(java.lang.String script, java.lang.Object... args)

Description: Executes JavaScript in the context of the currently selected frame or window.

**Syntax:**

JavascriptExecutor js = (JavascriptExecutor) driver;

js.executeScript(Script,Arguments);

script - The JavaScript to execute

Arguments - The arguments to the script.(Optional)

The list of Scenario’s below you can handle

**Alert Pop window Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

Js.executeScript("alert('JavascriptExecutor');");

**Click a button in Selenium WebDriver using JavaScript Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

js.executeScript("arguments[0].click();", element);

**Refresh browser window using Javascript Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

js.executeScript("history.go(0)");

**Get innertext of the entire web page in Selenium Webdriver Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

String sText = js.executeScript("return document.documentElement.innerText;").toString();

**Get Web page title Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

String sText = js.executeScript("return document.title;").toString();

**Handle Scroll on Web page Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

//Vertical scroll - down by 50 pixels

js.executeScript("window.scrollBy(0,50)");

**Click on a SubMenu which is only visible on mouse hover on Menu Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

//Hover on Automation Menu on the MenuBar

js.executeScript("$('ul.menus.menu-secondary.sf-js-enabled.sub-menu li').hover()");

**Navigate to one page to other page Code:**

JavascriptExecutor js = (JavascriptExecutor)driver;

js.executeScript("window.location = 'https://www.google.com/'");

* **difference between assert and verify?**

When an “assert” fails, the test will be aborted.

Where if a “verify” fails, the test will continue executing and logging the failure.

So when Assertion fails all test steps after that line of code are skipped :(

To resolve this we write this command in try catch block :)

Example 1 :

[sourcecode language="java"]

package testWordpress;

import org.testng.Assert;

import org.testng.annotations.Test;

public class AssertionsTest {

@Test

public void testMultiply() {

System.out.println(&quot;Before Error &quot;);

Assert.assertEquals(21, multiply(10, 5));

System.out.println(&quot;After Error &quot;);

}

public int multiply(int x, int y) {

return x / y;

}

}

[/sourcecode]

System.out.println(“After Error “); will never executed. :(

Please check eclipse console to conform.

We can resolve this problem by using Try-Catch block.

How?

Lets check out following code

[sourcecode language="java"]

package testWordpress;

import org.testng.Assert;

import org.testng.annotations.Test;

public class AssertionsTest {

@Test

public void testMultiply() {

System.out.println(&quot;Before Error &quot;);

try{

Assert.assertEquals(21, multiply(10, 5));

}catch(Throwable t){

// recovered

// java code to fail the test

System.out.println(&quot;After Error &quot;);

}

}

public int multiply(int x, int y) {

return x / y;

}

}

**difference between driver.close and driver.quit methods?**

driver.close and driver.quit are two different methods for closing the browser session in Selenium WebDriver.

**driver.close** – It closes the the browser window on which the focus is set.

**driver.quit** – It basically calls driver.dispose method which in turn closes all the browser windows and ends the WebDriver session gracefully.

***Close Method***:- In the below code, we open the "About Us" page in new window and we used Close method at the end, still this browser window is not closed.Thus only the Home page is closed as selenium was having focus on that page.

import java.util.concurrent.TimeUnit;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.WebElement;

import org.openqa.selenium.firefox.FirefoxDriver;

import org.openqa.selenium.interactions.Actions;

public class CloseVSQuit {

public static void main(String[] args) {

WebDriver selenium = new FirefoxDriver();

System.out.println("Launching Browser");

//Opening the URL

selenium.get("http://www.uftHelp.com");

//Implicit wait for the browser to launch

selenium.manage().timeouts().implicitlyWait(20, TimeUnit.SECONDS);

//Opening a "ABout-us" page in new window of browser

WebElement element =selenium.findElement(By.id("contact-Us"));

Actions oAction=new Actions(selenium);

oAction.contextClick(element).perform();

oAction.sendKeys("w").perform();

System.out.println("About Us Page is opened but not Closed");

//Closing the browser window using Close method

selenium.close();

}

}

**Quit Method**:- All the opened windows are closed,which was opened by selenium.

import java.util.concurrent.TimeUnit;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.WebElement;

import org.openqa.selenium.firefox.FirefoxDriver;

import org.openqa.selenium.interactions.Actions;

public class CloseVSQuit {

public static void main(String[] args) {

WebDriver selenium = new FirefoxDriver();

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WebElement element =selenium.findElement(By.id("contact-Us"));

Actions oAction=new Actions(selenium);

oAction.contextClick(element).perform();

oAction.sendKeys("w").perform();

System.out.println("All the opened browsers are closed");

//Closing the browser window using Quit method

selenium.quit();

}

}

* **common exceptions in selenium?**

***NoSuchElementException***

This exception occurs when WebDriver is unable to identify the elements during run time. Due to wrong selector or selector, which is, not exist.

Example:-

driver.findElement(By.id("invalidid")).sendKeys("Mukesh");

***ElementNotVisibleException***

This Exception occurs when the element presence is in DOM, it is not visible.

Example:-

Hidden Elements, which has presence in DOM and it, is not visible. Visibility means the height and

width should be greater than zero. Hidden Elements are defined in HTML using of type=”hidden”.

driver.findElement(By.id("hiddenid")).sendKeys("Mukesh");

***NoSuchFrameException***

This Exception occurs when the driver is switching to an invalid frame, which is not available.

Example:-

driver.switchTo().frame(invalidindex);

(or)

driver.switchTo().frame("frame\_z");

//frame\_z is the name of the invalid frame

For frames indexing starts from Zero. Try to access the frame by providing invalid index.

***NoAlertPresentException***

This Exception occurs when the driver is switching to an invalid Alert, which is not available.

Example:-

driver.switchTo().alert().accept();

//Execute this command on browser without invoking the alert.

***NoSuchWindowException***

This Exception occurs when the driver is switching to an invalid Window, which is not available.

Example:-

driver.switchTo().window("invalidwindowname");

***WebDriverException***

This Exception occurs when the driver is performing the action after immediately closing the browser.

Example:-

driver.close();

driver.findElement(By.id("username")).sendKeys("Mukesh");

***SessionNotFoundException***

This Exception occurs when the driver is performing the action after immediately quitting the browser.

Example:-

driver.quit();

driver.findElement(By.id("username")).sendKeys("Mukesh");

***StaleElementReferenceException***

This Exception occurs when the Element belongs to a different frame than the current one. The user has navigated away to another page.

Example:-

WebElement element=driver.findElement(By.id("username"));// Element is available in parent window

driver.switchTo().window(Child\_Window);//Switch to Child Window

element.sendKeys("Mukesh");//perform the action on the element which is not visible in the child window

* **how to handle Ajax calls in selenium?**

We can able to handle Ajax calls in following ways:

**1) JAVA: Thread.Sleep(<time in ms>);**

this is most commonly used method in java but this is never recommended while doing the automation. so always try to avoid it. only in some exceptional cases use it if you do not find any other alternative.

**2) Explicit Waits :**

An explicit waits is code you define to wait for a certain condition to occur before proceeding further in the code.

Code:

WebDriver driver = new FirefoxDriver();

driver.get("http://somedomain/url\_that\_delays\_loading");

WebElement myDynamicElement = (new WebDriverWait(driver, 10))

.until(ExpectedConditions.presenceOfElementLocated(By.id("myDynamicElement")));

**3) Implicit Waits:**

An implicit wait is to tell WebDriver to poll the DOM for a certain amount of time when trying to find an element or elements if they are not immediately available. The default setting is 0. Once set, the implicit wait is set for the life of the WebDriver object instance.

Code:

WebDriver driver = new FirefoxDriver();

driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);

driver.get("http://somedomain/url\_that\_delays\_loading");

WebElement myDynamicElement = driver.findElement(By.id("myDynamicElement"));

**4) Executing Javascript using Java and applies wait:**

If your application triggers an ajax call, you don’t want to carry on until that call has finished, but how do you know? You might be okay just to use one of the wait conditions above, but this isn’t a very clean approach, and it only works for ajax calls that result in changes to the browser DOM. i.e. it won’t work for calls that simply send data to the server without any changes in the browser html. Wouldn’t it be nice to be more certain when the call was finished? Well, if you are using jQuery to make your ajax calls, you can do so by exploiting the fact that most web driver implementations can run javascript. jQuery keeps a count of how many ajax calls are active in its jquery.active variable. Here’s an example of a helper method to wait for an ajax call to finish:

Code:

public void waitForAjax(int timeoutInSeconds) {

System.out.println("Checking active ajax calls by calling jquery.active");

try {

if (driver instanceof JavascriptExecutor) {

JavascriptExecutor jsDriver = (JavascriptExecutor)driver;

for (int i = 0; i< timeoutInSeconds; i++)

{

Object numberOfAjaxConnections = jsDriver.executeScript("return jQuery.active");

// return should be a number

if (numberOfAjaxConnections instanceof Long) {

Long n = (Long)numberOfAjaxConnections;

System.out.println("Number of active jquery ajax calls: " + n);

if (n.longValue() == 0L)

break;

}

Thread.sleep(1000);

}

}

else {

System.out.println("Web driver: " + driver + " cannot execute javascript");

}

}

catch (InterruptedException e) {

System.out.println(e);

}

}

**5) Using FluentWait :**

Selenium webdriver provides FluentWait option to handle uncertain waits. The advantage of this approach is that element polling mechanism is configurable. The code example below waits for 3 second and polls for a textarea every 100 milliseconds.

FluentWait<By> fluentWait = new FluentWait<By>(By.tagName("TEXTAREA")); \\ define element for which you want to poll

fluentWait.pollingEvery(300, TimeUnit.MILLISECONDS); \\ it will ping for every 3 sec

fluentWait.withTimeout(1000, TimeUnit.MILLISECONDS); \\ max time out

fluentWait.until(new Predicate<By>() {

public boolean apply(By by) {

try {

return browser.findElement(by).isDisplayed();

} catch (NoSuchElementException ex) {

return false;

}

}

});

browser.findElement(By.tagName("TEXTAREA")).sendKeys("text to enter");

**6) Using WebdriverWait:**

Another approach is to use ExpectedCondition and WebDriverWait strategy. The code below waits for 20 seconds or till the element is available, whichever is the earliest.

public ExpectedCondition<WebElement> visibilityOfElementLocated(final By by) {

return new ExpectedCondition<WebElement>() {

public WebElement apply(WebDriver driver) {

WebElement element = driver.findElement(by);

return element.isDisplayed() ? element : null;

}

};

}

public void performSomeAction() {

..

..

Wait<WebDriver> wait = new WebDriverWait(driver, 20);

WebElement element = wait.until(visibilityOfElementLocated(By.tagName("a")));

..

}

we have webtable, need to click on second row from table.

when we click on child will be populated. first column in primary column for each row.

tell me steps to verify child form has proper data or not

Ex:

How to assign the value to textbox other than sendkeys method?

Selenium grid, how to execute scripts on multiple browser