**SELENIUM CONCEPTS**

1. **Different types of waits or synchronization in selenium webdriver**

**Conditional Synchronization:**

We specify a condition along with timeout value, so that tool waits to check for the condition and then come out if nothing happens.

**Unconditional Synchronization:**  
In this we just specify timeout value only. We will make the tool to wait until certain amount of time and then proceed further.

**Implicit Wait:**

An implicit wait is to tell Web Driver to poll the DOM for a certain amount of time when trying to find an element or elements if they are not immediately available.

**Explicit Wait:**

We need to define a wait statement for certain condition to be satisfied until the specified timeout period. If the Webdriver finds the element within the timeout period the code will get executed.

1. **How to handle multiple windows in selenium webdriver**

import java.util.concurrent.TimeUnit;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

public class Multi {

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

System.setProperty("webdriver.chrome.driver","C:\\Selenium\\chromedriver.exe");

WebDriver driver = new ChromeDriver();

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

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

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

driver.findElement(By.linkText("Gmail")).click();

System.out.println(driver.getCurrentUrl());

driver.navigate().back();

System.out.println(driver.getCurrentUrl());

Thread.sleep(30000);

driver.navigate().forward();

System.out.println("Forward");

Thread.sleep(30000);

driver.navigate().refresh();

}

}

**How to save screen shots using selenium webdriver**

import java.io.IOException;

import org.apache.commons.io.FileUtils;

import org.openqa.selenium.OutputType;

import org.openqa.selenium.TakesScreenshot;

import java.io.File;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

import org.testng.annotations.Test;

public class Screenshot {

@Test

public void TestJavaS1()

{

System.setProperty("webdriver.chrome.driver","C:\\Selenium\\chromedriver.exe");

WebDriver driver = new ChromeDriver();

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

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

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

try {

FileUtils.copyFile(src, new File("C:/Selenium/error.png"));

}

catch (IOException e)

{

System.out.println(e.getMessage());

}

}

}

**What is desired capabilities in selenium web driver?**

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

**import** org.openqa.selenium.ie.InternetExplorerDriver;

**import** org.openqa.selenium.remote.DesiredCapabilities;

**public** **class** UsingDesireCapabilityMethods {

**public** **static** **void** main(String[] args) {

DesiredCapabilities desirecapabilities = DesiredCapabilities.*internetExplorer*();

desirecapabilities.setBrowserName("IE");

desirecapabilities.getBrowserName();

String version =desirecapabilities.getVersion();

System.***out***.println("version of the IE using: "+version);

System.*setProperty*("webdriver.ie.driver","C:\\selenium\\IEDriverServer.exe");

WebDriver driver = **new** InternetExplorerDriver(desirecapabilities);

driver.get("http://Facebook.com/index.php");

}

}

**how to launch webpage using chrome driver?**

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

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

**public** **class** Testcase1 {

**public** **static** **void** main(String[] args) {

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

WebDriver driver = **new** ChromeDriver();

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

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

}

}

**How to set language while opening website**

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

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

**public** **class** SetLanguage {

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

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

ChromeOptions options = **new** ChromeOptions();

options.addArguments("--lang=te");

ChromeDriver driver = **new** ChromeDriver(options);

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

}

}

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

**import** org.openqa.selenium.By;

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

**import** org.openqa.selenium.support.ui.Select;

**public** **class** UploadDropdwn {

**public** **static** **void** main(String[] args) {

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

ChromeDriver driver = **new** ChromeDriver();

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

Select month = **new** Select( driver.findElement(By.*id*("month")));

month.selectByVisibleText("Mar");

Select day =**new** Select( driver.findElement(By.*id*("day")));

day.selectByIndex(6);

Select year = **new** Select(driver.findElement(By.*id*("year")));

year.selectByValue("2016");

}

}

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

**import** org.openqa.selenium.By;

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

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

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

**import** java.util.concurrent.\*;

**public** **class** VerifyLogin

{

**public** **static** **void** main(String[] args)

{

//initialize Chrome driver

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

WebDriver driver = **new** ChromeDriver();

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

//Open gmail

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

// Enter userd id

WebElement element = driver.findElement(By.*id*("Email"));

element.sendKeys("vxg81551@ucmo.edu");

//wait 5 secs for userid to be entered

driver.manage().timeouts().implicitlyWait(5, TimeUnit.***SECONDS***);

//Submit button

element.submit();

//Enter Password

WebElement element1 = driver.findElement(By.*id*("Passwd"));

element1.sendKeys("sattiraju114");

//wait 5 secs for userid to be entered

driver.manage().timeouts().implicitlyWait(5, TimeUnit.***SECONDS***);

//Submit button

element1.submit();

}

}

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

**import** org.openqa.selenium.By;

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

**import** org.openqa.selenium.support.ui.Select;

**public** **class** UploadDropdwn {

**public** **static** **void** main(String[] args) {

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

ChromeDriver driver = **new** ChromeDriver();

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

Select month = **new** Select( driver.findElement(By.*id*("month")));

month.selectByVisibleText("Mar");

Select day =**new** Select( driver.findElement(By.*id*("day")));

day.selectByIndex(6);

Select year = **new** Select(driver.findElement(By.*id*("year")));

year.selectByValue("2016");

}

}

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

**import** org.openqa.selenium.By;

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

**public** **class** Checkbox{

**public** **static** **void** main(String[] args) {

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

ChromeDriver driver = **new** ChromeDriver();

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

driver.findElement(By.*id*("Email")).sendKeys("gvrmahi@gmail.com");

driver.findElement(By.*id*("next")).click();

// steps to find checkbox checked

**boolean** ischecked;

ischecked = driver.findElement(By.*id*("PersistentCookie")).isSelected();

System.***out***.println(" CheckBox checked? : "+ischecked);

driver.close();

}

}

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

**import** java.util.Set;

**import** java.util.concurrent.TimeUnit;

**import** org.openqa.selenium.By;

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

**import** org.openqa.selenium.firefox.FirefoxDriver;

**import** com.gargoylesoftware.htmlunit.javascript.host.Iterator;

**public** **class** Parent{

**public** **static** **void** main(String[] args) {

WebDriver driver = **new** FirefoxDriver();

System.*setProperty*("webdriver.gecko.driver", "C:\\Selenium \\geckodriver.exe");

driver.manage().timeouts().implicitlyWait(20,TimeUnit.***SECONDS***);

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

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

driver.findElement(By.*xpath*("//\*@1d='signipanel']/span/a")).click();

driver.findElement(By.*xpath*("//\*@1d='signin']/div[6]/button")).click();

Set<String> set1 = driver.getWindowHandles();

Iterator win1=(Iterator) set1.iterator();

String parent=(String) win1.next();

String child= (String) win1.next();

driver.switchTo().window(child);

}}

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

**import** java.io.IOException;

**import** java.net.HttpURLConnection;

**import** java.net.MalformedURLException;

**import** java.net.URL;

**import** java.util.ArrayList;

**import** java.util.List;

**import** java.io.IOException;

**import** java.net.HttpURLConnection;

**import** java.net.URL;

**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** Links {

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

**int** workingLinks =0;

**int** nonWorkingLinks =0;

System.*setProperty*("webdriver.gecko.driver", "C:\\Selenium\\geckodriver.exe");

WebDriver driver = **new** FirefoxDriver();

driver.get("http://youtube.com");

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

//storing all the existing links using tag name "a"

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

**for**(WebElement e : listOfLinks)

{

//getting the URl and saving in URL class

URL u = **new** URL(e.getAttribute("href"));

//opening each connection

HttpURLConnection urlconnection = (HttpURLConnection)u.openConnection();

urlconnection.connect();

// 200 is the Http response when links work fine

**if**(urlconnection.getResponseCode()==200)

{

workingLinks++; //increasing the count when link works

}

**else**

{

nonWorkingLinks++; //increasing the count when link fails

}

urlconnection.disconnect();

}

System.***out***.println("Total Number of Links: "+listOfLinks.size());

System.***out***.println("No of working links: "+workingLinks);

System.***out***.println("No of non working Links: "+nonWorkingLinks);

driver.close();

}

}

**Write code on how to use JavaScript executor?**

JavascriptExecutor js = (JavascriptExecutor)driver;

Js.executeScript("alert('hello world');");

**Difference between assert and verify?**

**import** org.openqa.selenium.By;

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

**import** org.openqa.selenium.firefox.FirefoxDriver;

**public** **class** AssertVerify {

// assert class can be found in testng and there is no verify in testng

**public** **void** testMethod() {

WebDriver driver = **new** FirefoxDriver();

System.*setProperty*("webdriver.gecko.driver", "C:\\Selenium\\geckodriver.exe");

driver.get("https://en.wikipedia.org/wiki/Rothschild\_family");

String heading= driver.findElement(By.*id*("firstHeading")).getText();

// assert will stop the execution if it fails.

Assert.assertEquals(heading, "Rothschild family");

driver.close();

}

}

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

**import** org.openqa.selenium.By;

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

**public** **class** CloseQuit {

**public** **static** **void** usingClose() {

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

ChromeDriver driver = **new** ChromeDriver();

driver.get("http://automationpractice.com/index.php");

driver.findElement(By.*xpath*(".//\*[@id='social\_block']/ul/li[2]/a")).click();

//doesn't close child pages

driver.close();

}

**public** **static** **void** usingQuit(){

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

ChromeDriver driver = **new** ChromeDriver();

driver.get("http://automationpractice.com/index.php");

driver.findElement(By.*xpath*(".//\*[@id='social\_block']/ul/li[2]/a")).click();

// closes all the pages

driver.quit();

}

**public** **static** **void** main(String[] args) {

*usingClose*();

*usingQuit*();

}

}

**Common exceptions in selenium?**

**import** org.openqa.selenium.By;

**import** org.openqa.selenium.NoSuchElementException;

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

**import** org.openqa.selenium.firefox.FirefoxDriver;

**public** **class** ExceptionInSelenium {

**public** **static** **void** main(String[] args) {

System.*setProperty*("webdriver.gecko.driver", "C:\\Selenium\\geckodriver.exe");

/\*They are many execptions in selenium and can be caught using try catch block

\* all the exceptions can be caught using catch(exeception e) below is an example of NoSuchElementException

\* \*/

WebDriver driver = **new** FirefoxDriver();

driver.get("http://automationpractice.com/index.php");

**try**{ // actual id = search\_query\_top

driver.findElement(By.*id*("query\_top")).sendKeys("this will not work");

}

**catch**(NoSuchElementException e)

{

System.***out***.println( "execption found and caught. This way it will not stop the execution of the program");

}

driver.close();

}

}

**Write code for right click in selenium**

**import** org.openqa.selenium.By;

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

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

**import** org.openqa.selenium.firefox.FirefoxDriver;

**import** org.openqa.selenium.interactions.Actions;

**public** **class** RightClick {

**public** **static** **void** main(String[] args) {

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

ChromeDriver driver = **new** ChromeDriver();

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

Actions action = **new** Actions(driver);

action.contextClick(driver.findElement(By.*xpath*(".//\*[@id='content']/div/div/div")));

action.perform();

}

}

**What are the limitations in selenium WebDriver?**

We can’t test the desktop based applications.

We can test mobile applications but we need to use the Appium for that.

We can’t automate the CAPTCHA, Flash, Silverlight Components, Applet Controls, Native window dialogs.

**Installing/Configure selenium**

Step1: First we need to download the eclipse

Step2: Download the selenium Web Driver (Selenium Standalone server jar)

Step3: Download the latest version

Step4: Save the Selenium standalone server jar and link eclipse with selenium.

Step5: Open the eclipse->Create New Project-> Right click on the created Project->Build path->Configure build path-> In java Build path-> Libraries -> Add External JARS->Go to downloads and open Selenium Standalone server jar and click on Okay

**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.

The most popular selectors are the CSS selectors due to performance and simplicity reasons.

To inspect an element you just have to open the desired web page, right-click the desired element and click on Inspect Element. A new panel will open showing the desired element. Also you can inspect other elements by clicking on the cursor in the top left side of the Developer Tools or Firebug panels and hovering page elements.

Locating Elements with Selenium WebDriver, findElement() method returns and WebElement and findElements() returns a list of WebElements.

By ID: IN java : driver.findElement(By.id(“element id”))

By CLASS: In Java: driver.findElement(By.ClassName(“element class”))

By NAME: In Java: driver.findElement(By.name(“element name”))

By TAGNAME: In Java: driver.findElement(By.tagName(“element html tag name”))

By CSS Selector: In Java: driver.findElement(By.cssSelector(“css selector”))

By Link: In Java: driver.findElement(By.link(“link text”))

By xPath: In Java: driver.finfElement(By.xpath(“xpath expression”))

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

Finding elements by ID is usually going to be the fastest option, because at its root, it eventually calls down to driver.findElement(By.id), which is optimized by many browsers.

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

Location path specifies the location of node in XML document. This path can be absolute or relative. If location path starts with root node or with '/' then it is an absolute path. Following are few of the example locating the elements using absolute path.

**/class/student** − select student nodes within class root node.

<xsl:for – each select = ”/class/Student”>

**/class/student/firstname** − select firstname of a student node within class root node.

**<p>**

**<xsl : value of select =”/class/student/firstname”/>**

**</p>**

Relative path in xpath:

For Relative Xpath the path starts from the middle of the HTML DOM structure. Its start with the double forward slash (//), which means it can search the element anywhere at the webpage.

Relative Xpath: //\*[@class=’feature –box ]//\*[ text ()=’Testing’]