**5 Step by Step Instructions to run first basic Selenium Program**

1. Install Java and Set Java Home Path in System variables
2. Install Eclipse and Create new Maven Project with Selenium Dependencies
3. Understand creation of WebDriver object and its related classes
4. Run the First Selenium WebDriver Program with Browser Invocation
5. Different ways of setting Browser Driver executable files.

**What can Kind of Interview Questions I can expect from above Concepts?**

1. **What is Interface in Java?**

An interface is a group of related methods with empty bodies.

Its class responsibility to implement the methods declared in the Interface

When class agreed to implement the interface, they must need to provide implementation/bodies to all the defined methods in Interface

In simple terms, Interface enforces the Contract to class to follow.

2. **WebDriver is an Interface which provides Set of Browser Automation methods with empty bodies (Abstract methods)**

Classes like ChromeDriver, FirefoxDriver, MicrosoftEdgeDriver , SafariDriver etc implement the WebDriver Interface

and provide their own implementation to the WebDriver methods

3. **We need to create the object of the class to access the methods present in the class.**

ChromeDriver driver = new ChromeDriver ();

driver object here has access to all the methods of Chrome driver

WebDriver driver = new ChromeDriver ();

driver object here has access to the methods of Chrome driver which are defined in web Driver Interface

Selenium Web Driver Locators

* As part of Automation, Selenium Performs actions (such as click, typing) on the Page HTML Elements.
* The Locators are the way to identify an *HTML* element on a web page.   
  Selenium WebDriver uses any of the below locators to identify the element on the page and performs the Action

ID

Xpath

CSS Selector

name

Class Name

Tag Name

Link Text

Partial Link Text

<input type="text" placeholder="Username" id= “inputUsername” value=" ">

Input -> tag name

Red-> attribute   
Green-> attribute associated value.

**Css Selector-**

* **Class name -> tagname.classname ->** Button.signInBtn -> CSS version: .error
* **Id -> tagname#id** -> input#inputUsername
* **Tagname[attribute=’value’]**

<input type="text" placeholder="Username” value=" ">

Input [placeholder=’ Username’]

* **//Tagname[@attribute=’value’]:nth-child(index) - Child items**
* **Parenttagname childtagname**
* **input[type\*='pass'] – CSS**
* **tagname**

**Xpath –**

* **//Tagname[@attribute=’value’]**

**//input[@**placeholder=’ Username’’]

**<input type="text" placeholder="Name">**

**//input[@**placeholder=’ **Name’**]

* **//Tagname[@attribute=’value’][index] 🡪 xpath way**
* **//parentTagname/childTagname**
* **//button[contains(@class,'submit')] – Regular expression**
* **//tagname**
* **//header/div/button[1]/following-sibling::button[1]**
* **//header/div/button[1]/parent::div**

Interview Question -

**Core Java Basics needed to Get started with Automation –**

* **Variables & Data types in Java**
* **Working with Arrays**
* **Loops & Conditions**
* **Strings and its functions**
* **Importance of Array Lists**
* **Array list operations and conversion of Array to List**
* **Declaring Methods**
* **Accessing Methods in class & Static keyword**

**Get homepage:**

driver.get("https://rahulshettyacademy.com/locatorspractice");

**FindElement:**

driver.findElement(By.*id*("inputUsername")).sendKeys(name); //to type something

driver.findElement(By.*name*("inputPassword")).sendKeys(password); //to type something

driver.findElement(By.*className*("signInBtn")).click(); // to click

**Wait**

Thread.*sleep*(1000); //wait for next page

driver.manage().timeouts().implicitlyWait(Duration.*ofSeconds*(5)); //something

to show

//Implicit wait is given globally relates to all the lines

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

//Explicit wait impacting the given lines

WebDriverWait wait = **new** ~~WebDriverWait~~(driver, 5);

wait.until(ExpectedConditions.*visibilityOfElementLocated*(By.*cssSelector*("input.promoCode")));

**Split:**

// Please use temporary password 'rahulshettyacademy' to Login.

String[] passwordArray= passwordText.split("'");//split the text into 2 part

String password = passwordArray[1].split("'")[0];

**ALERT**

driver.findElement(By.*cssSelector*("[id='alertbtn']")).click();

//context switched from browser to alert

System.***out***.println(driver.switchTo().alert().getText());

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

driver.switchTo().alert().dismiss(); //cancel

**Window Load and Maximize**

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

driver.get("http://google.com"); //components loads => fully load

driver.navigate().to("https://rahulshettyacademy.com"); //=> not fully load

driver.navigate().back();//back icon is selected

driver.navigate().forward();//forward icon is selecte

**Assertion**

Assert.*assertEquals*(driver.findElement(By.*tagName*("p")).getText(), "You are successfully logged in.");

Assert.*assertEquals*(driver.findElement(By.*cssSelector*("div[class='login-container'] h2")).getText(), "Hello " + name + ",");

**Clear the Field**

driver.findElement(By.*xpath*("//input[@type='text'][2]")).clear(); //clear the field

**Following Sibling**

System.***out***.println(driver.findElement(By.*xpath*("//header/div/button[1]/following-sibling::button[1]")).getText());

**Back to Parent**

//back to parent from sibling //header/div/button[1]/parent::div

System.***out***.println(driver.findElement(By.*xpath*("//header/div/button[1]/parent::div/button[2]")).getText());

**WebElement Static DropDown**

//select dropdown with select tag, nature of Select

WebElement staticDropdown = driver.findElement(By.*id*("ctl00\_mainContent\_DropDownListCurrency"));

Select dropdown = **new** Select(staticDropdown); //Select class has several methods

dropdown.selectByIndex(3);

System.***out***.println(dropdown.getFirstSelectedOption().getText());

dropdown.selectByVisibleText("AED");

System.***out***.println(dropdown.getFirstSelectedOption().getText());

dropdown.selectByValue("INR");

System.***out***.println(dropdown.getFirstSelectedOption().getText());

**WebElement Updated DropDown**

driver.get("https://rahulshettyacademy.com/dropdownsPractise/"); //get site

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

Thread.*sleep*(1000);

System.***out***.println(driver.findElement(By.*id*("divpaxinfo")).getText());

**int** i = 1;

**while**(i<5) {

driver.findElement(By.*id*("hrefIncAdt")).click(); //5 adults selected

i++;

}

**GetAttribute**

**Checkbox**

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

Assert.*assertFalse*(driver.findElement(By.*cssSelector*("input[id\*='SeniorCitizenDiscount']")).isSelected());

System.***out***.println(driver.findElement(By.*cssSelector*("input[id\*='SeniorCitizenDiscount']")).isSelected());

driver.findElement(By.*cssSelector*("input[id\*='SeniorCitizenDiscount']")).click();

//check if checkbox is selected

System.***out***.println(driver.findElement(By.*cssSelector*("input[id\*='SeniorCitizenDiscount']")).isSelected());

Assert.*assertTrue*(driver.findElement(By.*cssSelector*("input[id\*='SeniorCitizenDiscount']")).isSelected());

//count the number of checkboxes --> what is common locator for the elements to be selected

System.***out***.println(driver.findElements(By.*cssSelector*("input[type='checkbox']")).size());

**AutoSuggestiveDropDown**

driver.get("https://www.rahulshettyacademy.com/dropdownsPractise"); //URL in the browser

driver.findElement(By.*id*("autosuggest")).sendKeys("ind"); //provide input

Thread.*sleep*(1000);

//store all the options in a list

List<WebElement> options =driver.findElements(By.*cssSelector*("li[class='ui-menu-item'] a"));

**for**(WebElement option :options) {

**if**(option.getText().equalsIgnoreCase("India")) { //use get text to get the final value

option.click();

**break**;

}

}

**Shopping Cart ( LIST**

**int** j=0;

//expected array

String [] veggiesSelected= {"Cucumber", "Brocolli", "Beetroot", "Tomato"};

driver.get("https://rahulshettyacademy.com/seleniumPractise/");

Thread.*sleep*(3000);

//list of webelements

List<WebElement> products = driver.findElements(By.*cssSelector*("h4.product-name"));

**for**(**int** i=0; i<products.size(); i++) {

String [] name = products.get(i).getText().split("-"); //all product names

String formattedname = name[0].trim();

//format the name

//convert array to arraylist

List itemNeededList = Arrays.*asList*(veggiesSelected);

**if**(itemNeededList.contains(formattedname)) {

j++;

//click on add Cart driver.findElements(By.*xpath*("//div[@class='productaction']/button")).get(i).click();

**if**(j==veggiesSelected.length) {

**break**;

}

}

}

**Actions – Mouse & Keyboard Events**

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

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

WebElement move = driver.findElement(By.*cssSelector*("a[id='nav-link-accountList']"));

action.moveToElement(driver.findElement(By.*id*("twotabsearchtextbox"))).click().keyDown(Keys.***SHIFT***).sendKeys("hello").doubleClick().build().perform();

//moves to specific element /(tick in mobiles)

action.moveToElement(move).contextClick().build().perform(); //right click

**IFRAME with Actions**

driver.get("https://jqueryui.com/droppable/");

//via index

System.***out***.println(driver.findElements(By.*tagName*("iframe")).size());

driver.switchTo().frame(0); //may change the number of frames so should not be used

//via Webelement

//driver.switchTo().frame(driver.findElement(By.cssSelector("iframe.demo-frame")));

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

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

WebElement source = driver.findElement(By.*id*("draggable"));

WebElement target = driver.findElement(By.*id*("droppable"));

action.dragAndDrop(source,target).build().perform();

driver.switchTo().defaultContent(); // getting outside the frame to the normal page

**WindowHandles**

//provide the info about the windows

Set<String> windows = driver.getWindowHandles(); //[parentid, childid]

Iterator<String> it = windows.iterator();

String parentId = it.next(); //grab zero index in the set

String childId = it.next(); //grab first index in the set ==> moves to the child page

driver.switchTo().window(childId);

System.***out***.println(driver.findElement(By.*cssSelector*(".im-para.red")).getText());

String emailId = driver.findElement(By.*cssSelector*(".im-para.red")).getText().split("at")[1].trim().split(" ")[0];

driver.switchTo().window(parentId);

driver.findElement(By.*id*("username")).sendKeys(emailId);

**Links in Footer and Header**

WebElement footerDriver = driver.findElement(By.*id*("gf-BIG")); //will focus only on the header

System.***out***.println(footerDriver.findElements(By.*tagName*("a")).size());

//Give me the links in 1 column of the footer section - limit webdriver scope

WebElement columnDriver = footerDriver.findElement(By.*xpath*("//table/tbody/tr/td[1]/ul"));

System.***out***.println(columnDriver.findElements(By.*tagName*("a")).size());

//Click on each link in the column and check if the pages are opening(links are working)

**for**(**int** i=1;i<columnDriver.findElements(By.*tagName*("a")).size();i++){ //how many links are present

String clickOnLinkTab = Keys.*chord*(Keys.***CONTROL***, Keys.***ENTER***); //open in separate tabs via control and enter

columnDriver.findElements(By.*tagName*("a")).get(i).sendKeys(clickOnLinkTab); //first is retrieved

Thread.*sleep*(5000L);

}//open all the tabs

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

Iterator<String> it = abc.iterator();

**while**(it.hasNext()) {

driver.switchTo().window(it.next()); //grab zero index in the set

System.***out***.println(driver.getTitle());

}

}

**Calendar**

driver.get("https://www.path2usa.com/travel-companions");

//April 14

driver.findElement(By.*xpath*(".//\*[@id='travel\_date']")).click(); //click calendar field

//select months from parent

**while**(!driver.findElement(By.*cssSelector*("[class='datepicker-days'] [class='datepicker-switch']")).getText().contains("June")) {

driver.findElement(By.*cssSelector*("[class='datepicker-days'] th[class='next']")).click();

}

List<WebElement> days = driver.findElements(By.*className*("day"));

//grab common attribute // put into a list and iterate over

**int** count = driver.findElements(By.*className*("day")).size();

**for**(**int** i=0; i<count; i++) {

String text = driver.findElements(By.*className*("day")).get(i).getText();

**if**(text.equals("21")){

driver.findElements(By.*className*("day")).get(i).click();

**break**;

}

}

**Scrolling**

JavascriptExecutor js = (JavascriptExecutor) driver;

//Scroll on the page

js.executeScript("window.scrollBy(0,500)"); //

Thread.*sleep*(3000);

//Scroll within a table

js.executeScript("document.querySelector('.tableFixHead').scrollTop=5000");

**Table Grid -102 Lecke – Debugging- Summary Total**

List<WebElement> values = driver.findElements(By.*cssSelector*(".tableFixHead td:nth-child(4)"));

**int** sum = 0;

**for**(**int** i=0; i<values.size(); i++) {

sum = sum +Integer.*parseInt*(values.get(i).getText());

}

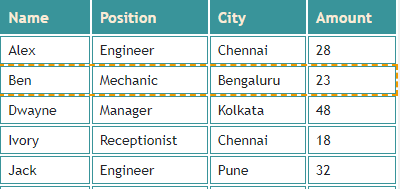
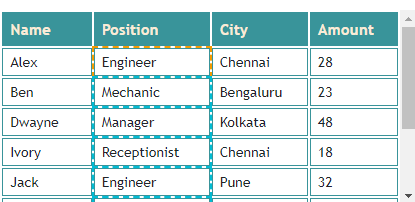
System.***out***.println(sum);

driver.findElement(By.*cssSelector*(".totalAmount")).getText();

**int** total = Integer.*parseInt*(driver.findElement(By.*cssSelector*(".totalAmount")).getText().split(":")[1].trim());

Assert.*assertEquals*(sum, total);

td:nth-child(2) ================= tr:nth-child(2) (Vertical vs Horizontal)



**Broken Link with Status**

driver.get("https://rahulshettyacademy.com/AutomationPractice/");

//make a list of the links

List<WebElement> links = driver.findElements(By.*cssSelector*("li[class='gf-li'] a"));

SoftAssert ass = **new** SoftAssert();

**for**(WebElement link: links) {

//Step 1 - GetAttribute tied to url

String url = link.getAttribute("href");

//Java methods will call the URL and get the status

HttpURLConnection conn = (HttpURLConnection)**new** URL(url).openConnection();

conn.setRequestMethod("HEAD");

conn.connect(); //start the connection

//if Status code >400 then that url is not working

**int** responseCode = conn.getResponseCode();

System.***out***.println(responseCode);

ass.assertTrue(responseCode<400, "The link with text "+ link.getText() +" is broken with the code " + responseCode);

// Assert.assertTrue(false); //hard assertion

}

ass.assertAll(); //to report the errors

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

**take screenshot from google site**

File src = ((TakesScreenshot)driver).getScreenshotAs(OutputType.***FILE***); //casting the driver object

//put the screenshot to the desktop

FileUtils.copyFile(src, **new** File("C:\\Users\\Eszti\\Java Spring\\eclipse\\screenshot.png"));

}

**POP\_UP BLOCK**

ChromeOptions options = **new** ChromeOptions(); //FireforOptions-EdgeOptions

//!!! Fontos!!!

options.setExperimentalOption("excludeSwitches", Arrays.asList("disable-popup-blocking")); //stop pop-up for locations!!!!

options.setAcceptInsecureCerts(**true**);

**WEBTABLE**

driver.get("https://rahulshettyacademy.com/seleniumPractise/#/offers");

driver.findElement(By.*id*("search-field")).sendKeys("Rice");

//click on the column

List<WebElement> veggies = driver.findElements(By.*xpath*("//tr/td[1]"));

//5 Results

List<WebElement> filteredList = veggies.stream().filter(veggie->veggie.getText().contains("Rice")).collect(Collectors.toList());

//1 compare the size

Assert.*assertEquals*(veggies.size(),filteredList.size());

**Height & Width – Dimensions**

//Get Height & Width

System.out.println(name.getRect().getDimension().getHeight());

System.out.println(name.getRect().getDimension().getWidth());

**Window and Tab of children**

driver.get("https://rahulshettyacademy.com/angularpractice");

driver.switchTo().newWindow(WindowType.***TAB***); //open new tab & window WindowType.Window & WindowType.Tab

Set<String> handles = driver.getWindowHandles(); //[parentid, childid]

Iterator<String> it = handles.iterator();

String parentId = it.next(); //grab zero index in the set

String childId = it.next(); //grab first index in the set ==> moves to the child page

driver.switchTo().window(childId); //activate 2nd tab

driver.get("https://rahulshettyacademy.com/");

String courseName = driver.findElements(By.*cssSelector*("a[href\*='https://courses.rahulshettyacademy.com/p']")).get(1).getText();

driver.switchTo().window(parentId);

driver.findElement(By.*cssSelector*("[name='name']")).sendKeys(courseName);

**Above, Below, toRightOf, toLeftOf**

driver.get("https://rahulshettyacademy.com/angularpractice");

WebElement nameEditBox = driver.findElement(By.*cssSelector*("[name='name']"));

System.out.println(driver.findElement(*with*(By.*tagName*("label")).above(nameEditBox)).getText());

WebElement dateofBirth = driver.findElement(By.*cssSelector*("[for='dateofBirth']"));

driver.findElement(*with*(By.*tagName*("input")).below(dateofBirth)).click();

WebElement iceCreamLabel = driver.findElement(By.*xpath*("//label[text()='Check me out if you Love IceCreams!']"));

driver.findElement(*with*(By.*tagName*("input")).toLeftOf(iceCreamLabel)).click();

WebElement rdbtn = driver.findElement(By.*id*("inlineRadio1"));

System.out.println(driver.findElement(*with*(By.*tagName*("label")).toRightOf(rdbtn)).getText());

**PopUp user name and password**

// driver.get("https://the-internet.herokuapp.com");

driver.get("https://admin:admin@the-internet.herokuapp.com");

driver.findElement(By.*linkText*("Basic Auth")).click();