

Driver Initialization

Firefox (Below v.47)^{Refer Part2-Page58} System.setProperty("webdriver.gecko.driver", "PathTo\\geckodriver.exe");

Download from <https://github.com/mozilla/geckodriver/releases> WebDriver driver = new FirefoxDriver();

Chrome^{Refer Part2-Page59} System.setProperty("webdriver.chrome.driver", System.getProperty("user.dir")+"//BrowserDrivers//chromedriver.exe");

Download from <https://sites.google.com/a/chromium.org/chromedriver/downloads> WebDriver driver = new ChromeDriver();

Internet Explorer^{Refer Part2-Page59} System.setProperty("webdriver.ie.driver", "PathTo\\IEDriverServer.exe");

Download from The Internet Explorer Driver Server at <http://docs.seleniumhq.org/download/> WebDriver driver = new InternetExplorerDriver();

Safari Driver WebDriver driver = new SafariDriver();

Selenium Locators

Locating by ID^{Refer Part2-Page37} driver.findElement(By.id("q")).sendKeys("Selenium 3");

Locating by Name^{Refer Part2-Page37} driver.findElement(By.name("q")).sendKeys("Selenium 3");

Locating by Xpath^{Refer Part2-Page37/38} driver.findElement(By.xpath("//input[@id='q']")).sendKeys("Selenium 3");

Locating Hyperlinks by Link Text^{Refer Part2-Page38/39} driver.findElement(By.LinkText("edit this page")).Click();

Selenium Locators (cont)

Locating by DOM^{Refer Part2-Page39} dom = document.getElementById('signInForm')

Locating by CSS^{Refer Part2-Page40-43} driver.findElement(By.CssSelector("#rightbar > .menu > li:nth-of-type(2) > h4"));

Locating by ClassName^{Refer Part2-Page37} driver.findElement(By.className("profile-header"));

Locating by TagName^{Refer Part2-Page37} driver.findElement(By.tagName("select")).Click();

Locating by LinkText^{Refer Part2-Page37-40} driver.findElement(By.linkText("NextPage")).click();

Locating by PartialLinkText^{Refer Part2-Page37-40} driver.findElement(By.partialLinkText("NextP")).click();

Selenium Exceptions

'Server Exception : sessionId should not be null'^{Refer Part2-Page160} Replace Chrome Driver with Latest Version

ERROR: No sessionId provided^{Refer Part2-Page160} Use Jenkins

UnreachableBrowserException^{Refer Part2-Page160} Registry Key Changes Recommended

Illegal state exception using Selenium 3^{Refer Part2-Page161} Get latest Firefox Gecko Driver

Annotations

TestNG @BeforeSuite @AfterSuite @BeforeTest @AfterTest @BeforeGroups @AfterGroups @BeforeClass @AfterClass @BeforeMethod @AfterMethod

JUnit @After @AfterClass @Before @BeforeClass @Ignore @Test



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Execute Javascript

Executes an asynchronous piece of JavaScript `executeAsyncScript()`

Executes JavaScript `executeScript()`

Code Example:

```
if (driver instanceof JavascriptExecutor) {
    ((JavascriptExecutor)driver).executeScript("alert('hello world');");
}
```

Take screenshot

Capture the screenshot and store `getScreenshotAs`

`getScreenshotAs` — used to Capture the screenshot and store it in the specified location. This method throws `WebDriverException`. `copy()` method from the File Handler class is used to store the screenshot in a destination folder.

Code Example:

```
TakesScreenshot screenShot =(TakesScreenshot)driver;
FileHandler.copy(screenShot.getScreenshotAs(OutputType.FILE),
    new File("path/to/destination/folder/screenshot.png"));
```

Cookies

addCookie `driver.manage().addCookie(new Cookie("foo", "bar"));`

getCookies `driver.manage().getCookies();` // to get all cookies

getCookieNamed `driver.manage().getCookieNamed("foo");`

deleteCookieNamed `driver.manage().deleteCookieNamed("foo");`

deleteCookie `Cookie cookie1 = new Cookie("test2", "cookie2");`
`driver.manage().addCookie(cookie1); driver.manage().deleteCookie(cookie1);` // deleting cookie object

deleteAllCookies `driver.manage().deleteAllCookies();` // deletes all cookies

Page Loading Strategy

normal `ChromeOptions chromeOptions = new ChromeOptions(); chromeOptions.setPageLoadStrategy(PageLoadStrategy.NORMAL);` `WebDriver driver = new ChromeDriver(chromeOptions);`

eager: When setting to eager, Selenium WebDriver waits until `DOMContentLoaded` event fire is returned. `ChromeOptions chromeOptions = new ChromeOptions(); chromeOptions.setPageLoadStrategy(PageLoadStrategy.EAGER);` `WebDriver driver = new ChromeDriver(chromeOptions);`

none: When set to none Selenium WebDriver only waits until the initial page is downloaded. `ChromeOptions chromeOptions = new ChromeOptions(); chromeOptions.setPageLoadStrategy(PageLoadStrategy.NONE);` `WebDriver driver = new ChromeDriver(chromeOptions);`

The `document.readyState` property of a document describes the loading state of the current document. By default, WebDriver will hold off on responding to a `driver.get()` (or) `driver.navigate().to()` call until the document ready state is complete. By default, when Selenium WebDriver loads a page, it follows the normal `pageLoadStrategy`.

Handle alerts: (Web-based alert pop-ups)

driver.switchTo().alert.getText() to retrieve the alert message

driver.switchTo().alert.accept() to accept the alert box

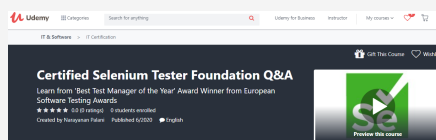
driver.switchTo().alert.dismiss() to cancel the alert box

driver.switchTo().alert.sendKeys("-Text") to send data to the alert box

Find element VS Find elements

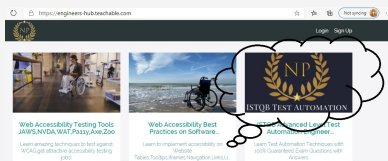
driver.findElement()	When no match has found(0) throws NoSuchElementException when 1 match found returns a WebElement instance when 2+ matches found returns only the first matching web element
driver.findElements()	when no match has found (0) returns an empty list when 1 match found returns a list with one WebElement when 2+ matches found returns a list with all matching WebElements

Selenium Q&A



<https://www.udemy.com/course/certified-selenium-tester-foundation/>

ISTQB Advanced Test Automation Engineering



<https://engineers-hub.teachable.com/p/istqb-advanced-level-test-automation-engineer-professional-training-with-q-a>

Materials

Selenium Certification	https://isqi.org/en/54-certified-selenium--tester-foundation.html
Selenium Certification Q&A	https://engineers-hub.teachable.com/
Part1-Software Automation Testing Secrets Revealed	https://www.amazon.com/Software-Automation-Testing-Secrets-Revealed/dp/1-729432506/
Part2-Software Automation Testing Secrets Revealed	https://www.amazon.com/gp/product/17-29432379/

Materials (cont)

Part3-Software Automation Testing Secrets Revealed	https://www.amazon.com/Advanced-Selenium-Web-Accessibility-Testing/dp/1949449432/
Udemy Course- Selenium	https://engineers-hub.teachable.com/
Udemy Course- ISTQB Test Automation Engineering	https://engineers-hub.teachable.com/
Useful Commands (Credits: Madhan K)	https://medium.com/@madhankumaravelu93/-selenium-cheat-sheet-a-comprehensive-list--of-selenium-commands-fa4c5c9d11ab
Useful Commands (Credits: Bijan Patel)	https://qascript.com/selenium-webdriver-commands-cheat-sheet/

Practice Scripts

Launch Webpage Refer Part2-Page60	<code>driver.get("www.webdriverinselenium.com");</code>
Click Button Refer Part2-Page60	<code>driver.findElement(By.id("submit")).click();</code>
Store Text Refer Part2-Page60	<code>String txtDropdown = driver.findElement(By.ID("select")).getText();</code>
Enter Text Refer Part2-Page61	<code>driver.findElement(By.xpath("//input[@name='FirstName034']")).sendKeys("NarayananPalani");</code>
Handle Alert Refer Part2-Page62	<code>Alert Alertpopup = driver.switchTo().alert();</code>
(Mouse)Click Refer Part2-Page62	<code>driver.findElement(By.xpath("//input[@value='OBJECT NAME']")).click();</code>
Compare Text Refer Part2-Page64	<code>Assert.assertTrue(chkbox12.isSelected());</code>

Practice Scripts (cont)

Disable a Field^{Refer}
Part2-Page64
driver.getElementsByName('<ObjectID>')[0].setAttribute('disabled', "");

Enable a Field^{Refer}
Part2-Page64
driver.getElementsByName('<ObjectID>')[0].removeAttribute('disabled');

Screenshot^{Refer} Part2--
Page64
File snapshot = ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);

FileUtils.copyFile(snapshot, new File("C:\\screen-shot.jpg"));

Print the Title of the Page^{Refer}
Part2-Page68
String pagetitle = driver.getTitle();

System.out.print(pagetitle);

Implicit Wait^{Refer}
Part2-Page69
driver.manage().timeouts().implicitlyWait(10, TimeUnit.SECONDS);

Explicit Wait^{Refer}
Part2-Page70
WebDriverWait wait = new WebDriverWait(driver, 20);

wait.until(ExpectedConditions.textToBePresentInElementLocated(By.xpath("//div[@id='<ObjectID>']"), "Enter Your Personal Details"));

Fluent Wait^{Refer}
Part2-Page70
Wait wait = new FluentWait(driver)

.withTimeout(20, SECONDS)

Sleep^{Refer}
Part2-Page70
Thread.Sleep(10);

Keyboard and Mouse events

keyboard events
keyDown(); keyUp(); sendKeys()

Mouse events
clickAndHold(); contextClick()// — performs the mouse right-click action; doubleClick(); dragAndDrop(source, target); dragAndDropBy(source, xOffset, yOffset); moveByOffset(xOffset, yOffset); moveByElement(); release()

Code Example:

```
Actions builder = new Actions(driver);
Action actions = builder
.moveToElement("login-textbox")
.click()
.keyDown("login-textbox", Keys.SHIFT)
.sendKeys("login-textbox", "hello")
.keyUp("login-textbox", Keys.SHIFT)
.doubleClick("login-textbox")
.contextClick()
.build();
```

actions.perform() ;

Element validation

isEnabled()
determines if an element is enabled or not, returns a boolean.

isSelected()
determines if an element is selected or not, returns a boolean.

isDisplayed()
determines if an element is displayed or not, returns a boolean.

Handle multiple windows and tabs

getWindowHandle()
used to retrieve the handle of the current page (a unique identifier)

getWindowHandles()
used to retrieve a set of handles of the all the pages available

driver.switchTo().window("windowName/handle")
switch to a window

driver.close()
closes the current browser window

driver.quit();
This method Closes all windows opened by the WebDriver.



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Switch Frames

Mentioning the frame index number, the Driver will switch to that specific frame	driver.switchTo.frame(int frameNumber)
Mentioning the frame element or ID, the Driver will switch to that specific frame	driver.switchTo.frame(-string frameNameOrID)
Mentioning the frame web element, the Driver will switch to that specific frame	driver.switchTo.frame(-WebElement frameElement)
Switching back to the main window	driver.switchTo().defaultContent()

Get methods in Selenium

getTitle()	used to retrieve the current title of the webpage
getCurrentUrl()	used to retrieve the current URL of the webpage
getPageSource()	used to retrieve the current page source of the webpage
getText()	used to retrieve the text of the specified web element
getAttribute()	used to retrieve the value specified in the attribute

Navigation

Refresh Page	driver.navigate().refresh()
Navigate forwards in the browser history	driver.navigate().forward()
Navigate backward in the browser history	driver.navigate().back()

Desired Capabilities-Chrome

```
DesiredCapabilities caps = new DesiredCapabilities(); caps.setCapability("browserName", "chrome"); caps.setCapability("browserVersion", "80.0"); caps.setCapability("platformName", "win10");
WebDriver driver = new ChromeDriver(caps); // Pass the capabilities as an argument to the driver object
```

Desired Capabilities-Firefox

```
DesiredCapabilities caps = new DesiredCapabilities(); caps.setCapability("browserName", "firefox"); caps.setCapability("browserVersion", "81.0"); caps.setCapability("platformName", "win10");
WebDriver driver = new FirefoxDriver(caps); // Pass the capabilities as an argument to the driver object
```



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