Automation Testing (Selenium)

**1.**What is Selenium?

Selenium is an open-source tool used as a free automation testing suite of tools. And it has more benefits than other testing tools. The tests can be done in any operating system like Mac, Linux and Windows. Selenium can be combined with some tools, such as TESTNG in Selenium and JUNIT.

**2.**What is Selenium WebDriver ?

WebDriver is a programming interface that helps create and run test cases. It makes provision to act on web elements. Unlike RC, WebDriver does not require an additional server and interacts natively with the browser applications.

**3.**Mention the advantages of using Selenium as an automation tool?

Selenium is an automation tool and has some unique benefits that give it a competitive edge over others such as open source, multi-language support, platform support, multi-browser support, framework availability and flexibility, reusability, and integrated and parallel test execution.

### 4. What are the advantages of automation testing?

Automation testing can help to speed up the process of testing by automating repetitive tasks, such as running the same test cases multiple times or across different browsers. Another big advantage is that automation testing can improve the accuracy of your tests. you can eliminate human error and ensure that your tests are always carried out the same way.

### 5.What are the testing types supported by selenium?

Selenium supports Regression testing and Functional testing. Regression testing - It is a full or partial selection of already executed test cases that are re-executed to ensure existing functionalities work fine.The steps involved are

Re-testing: All tests in the existing test suite are executed. It proves to be very expensive and time-consuming.

Regression test selection: Tests are classified as feature tests, integration tests,  and the end to end tests. In this step, some of the tests are selected.

Prioritization of test cases: The selected test cases are prioritized based on business impact and critical functionalities.

Functional testing - Functional Testing involves the verification of every function of the application with the required specification.

### 6. What are the different types of annotations which are used in Selenium?

@Test - This annotation is used to mark a method as a test method

@BeforeMethod - This annotation is used to execute a method before each test method

@AfterMethod - This annotation is used to execute a method after each test method

@BeforeClass - This annotation is used to execute a method before the first test method

### 7.What are the types of waits supported by selenium?

implicit wait - Implicit wait commands Selenium to wait for a certain amount of time before throwing a “No such element” exception.

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

Explicit wait - Explicit wait is used to tell the Web Driver to wait for certain conditions before throwing an "ElementNotVisibleException" exception.

WebDriverWait wait = new WebDriverWait(WebDriver Reference, TimeOut);

Fluent wait - It is used to tell the web driver to wait for a condition, as well as the frequency with which we want to check the condition before throwing an "ElementNotVisibleException" exception

7.Mention the types of navigation commands ?

driver.navigate().to("<https://www.ebay.in/>"); - Navigates to the provided URL

driver.navigate().refresh(); - This method refreshes the current page

driver.navigate().forward(); - This method does the same operation as clicking on the Forward Button of any browser. It neither accepts nor returns anything.

driver.navigate().back(); - This method does the same operation as clicking on the Back Button of any browser. It neither accepts nor returns anything.

### 8.  What is the major difference between driver.close() and driver.quit()?

driver.close()

This command closes the browser’s current window. If multiple windows are open, the current window of focus will be closed.

driver.quit()

 When quit() is called on the driver instance and there are one or more browser windows open, it closes all the open browser windows.

### 9. What makes Selenium such a widely used testing tool? Give reason?

Selenium is easy to use since it’s essentially developed in JavaScript.

Selenium can test web applications against browsers like Firefox, Opera, Chrome, and Safari, to name a few.

The test code can be written in various programming languages like Java, Perl, [Python, and PHP.](https://www.simplilearn.com/tutorials/php-tutorial/php-vs-python)

Selenium is platform-independent, and can be deployed on different Operating systems like Windows, Linux, and Macintosh.

Selenium can be integrated with third-party tools like JUnit and TestNG for test management.

### 10. . What is an exception test in Selenium?

The exception test in Selenium is an exception that you expect will be thrown inside a test class. If you have written a test case in such a way that it should be thrown as an exception, then you can use the test annotation and specify the exception in the parameters.

### 11. What is an alternative option to driver.get() method to open an URL in Selenium Web Driver?

An alternative option to the driver.get() method to open an URL in Selenium Web Driver is to use the driver.navigate().to() method.

### 12. Mention different ways of locating an element in Selenium?

The various ways of locating an element in Selenium are: by ID, by name, by classname, by tagname, by link text, by partial link text, by CSS selector, and by XPath.

### 13.  How can we type text in a textbox using Selenium?

To type text in a textbox using Selenium, first, we need to locate the textbox using any of the locating strategies in Selenium, and then use the sendKeys() method to enter text into the textbox

### 14. How to retrieve CSS properties of an element?

getCssValue() method is used to retrieve [CSS properties](https://www.simplilearn.com/applications-of-css-article) of any web element

General Syntax:

  driver.findElement(By.id(“id“)).getCssValue(“name of css attribute”);

Example:

   driver.findElement(By.id(“email“)).getCssValue(“font-size”);

### 15. What is POM (Page Object Model)?

Every webpage of the application has a corresponding page class that is responsible for locating the web elements and performing actions on them. Page Object Model is a design pattern that helps create object repositories for the web elements. POM improves code reusability and readability. Multiple test cases can be run on the object repository.

### 16. How does Selenium handle Windows-based pop-ups?

Selenium was designed to handle web applications. Windows-based features are not natively supported by Selenium. However, third-party tools like AutoIT, Robot, etc can be integrated with Selenium to handle pop-ups and other Windows-based features.

### 17. How to take screenshots in WebDriver?

TakeScreenshot interface can be used to take screenshots in WebDriver.

getScreenshotAs() method can be used to save the screenshot

File scrFile = ((TakeScreenshot)driver).getScreenshotAs(outputType.FILE);

### 18. What is the difference between getwindowhandles() and getwindowhandle()?

getwindowhandle() method returns the unique identifier of the current browser window, while getwindowhandles() method returns a set of unique identifiers of all the browser windows opened by WebDriver.

### 19. What is a Selenium Maven project?

A Selenium Maven project is a software project that uses Maven to manage the project's dependencies and build process.

### 20. What is an Object Repository?

An Object Repository is a centralized location where testers can store all the web elements, such as buttons, text boxes, and links, used in the test automation framework.

### 21. What is exactly meant by a WebElement in Selenium, and how is it used?

The WebElement is an interface in Selenium which is used to represent an HTML element on a web page. It provides methods to interact with the web elements, such as clicking, entering text, and getting the value. It is used to identify and manipulate the web elements in the automation testing process.

### 22.  Is there a way to type in a textbox without using sendKeys()?

Yes! Text can be entered into a textbox using JavaScriptExecutor

JavascriptExecutor jse = (JavascriptExecutor) driver;

jse.executeScript("document.getElementById(‘email').value=“abc.efg@xyz.com”);

### 23.  How to select a value from a dropdown in Selenium WebDriver?

Select class in WebDriver is used for selecting and deselecting options in a dropdown.

The objects of Select type can be initialized by passing the dropdown webElement as a parameter to its constructor.

WebElement testDrop = driver.findElement(By.id("testingDropdown"));

Select dropdown = new Select(testDrop);

WebDriver offers three ways to select from a dropdown:

1.selectByIndex: Selection based on index starting from 0

   dropdown.selectByIndex(5);

2.selectByValue: Selection based on value

   dropdown.selectByValue(“Books”);

3.selectByVisibleText: Selection of option that displays text matching the given argument

   dropdown.selectByVisibleText(“The Alchemist”);

### 24. What does the switchTo() command do?

switchTo() command is used to switch between windows, frames or pop-ups within the application. Every window instantiated by the WebDriver is given a unique alphanumeric value called “Window Handle”.

Get the window handle of the window you wish to switch to

   String  handle= driver.getWindowHandle();

Switch to the desired window

   driver.switchTo().window(handle);

Alternatively

  for(String handle= driver.getWindowHandles())

   { driver.switchTo().window(handle); }

### 25. How to upload a file in Selenium WebDriver?

You can achieve this by using sendkeys() or Robot class method. Locate the text box and set the file path using sendkeys() and click on submit button

Locate the browse button

   WebElement browse =driver.findElement(By.id("uploadfile"));

Pass the path of the file to be uploaded using sendKeys method

    browse.sendKeys("D:\\SeleniumInterview\\UploadFile.txt");

### 26. What is the difference between single and double slash in Xpath?

Single slash is used to create Xpath with an absolute path i.e. the XPath would be created to start selection from the start node.

/html/body/div[2]/div[1]/div[1]/a

Double slash is used to create Xpath with relative path i.e. the XPath would be created to start selection from anywhere within the document

//div[class="qa-logo"]/a

### 27.Cucumber framework?

Cucumber framework in Selenium allows test scenarios to be written using natural language constructs that describe the expected behavior of the software for a given scenario, making it ideal for user acceptance testing.

28.what is TestNG framework?

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