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## Advance Selenium + Core Java Interview Ques

### 1. What are the Challenges with Selenium Automation?

No Support for Non-Web Automation

Timeout or Sync Issues

Test Execution Slowness in Internet Explorer

Limited Reporting

### 2. What are new Selenium 4 features?

- WebDriver is developed completely by W3C Standardization
- The Selenium IDE support for Chrome is available now
- Selenium Grid - The hubs and nodes are smooth to setup and handle now. Once a Selenium server is started, the grid will act both as a hub and node.
- Taking screenshots at the Element level, Section level and Page Level is possible now.
- Support of Relative Locators

### 3. What is difference between WebDriver.findElement vs WebElement.findElement ?

#### **driver.findElement():**

It is for finding the element from the entire page using the given selector.

#### **WebElement.findElement():**

First, it generates the WebElement, and then the child elements of the given element are searched based on the given selector.

### 4. What is the difference between Page Object Model and Page Factory?

#### **Page Object Model (POM):**

POM is a Selenium design pattern; we can see it as a repository where we store all the WebElements. This has become very popular in industry these days, because it is very easy to manage, reusability of code and eliminates duplication of code.

The key benefit if UI changes in the future, then we can update WebElements to Page Classes in POM or Object Repository accordingly

### **Page Factory:**

Page Factory in Selenium WebDriver is an integrated concept or API. Here we follow again the same principle of keeping repository objects or page classes separate from test classes.

Here we use @FindBy to find elements and to initialize WebElements using initElements process.

## **5. What are all the locators that support selenium?**

**Name:** Same as ID although it is not unique

**CSS Selector:** Works on element tags and attributes

**XPath:** Searches elements in the DOM, Reliable but slow

**Class name:** Uses the class name attribute

**TagName:** Uses HTML tags to locate web elements

**LinkText:** Uses anchor text to locate web elements

**Partial Link Text:** Uses partial link text to find web elements

**ID-**

## 6. How To Overcome StaleElementReferenceException in Selenium

The reference to an element is now "stale"; the element will no longer appear on the page's DOM. In simple words, when you started interacting with it, the element you located using the findElement method disappeared.

Adding exception handling to your action and, if the exception is stale, try to locate the element after a simple wait for 500 milliseconds and repeat these actions until the action or max iterations have been successful.

## 7. Different Between XPath and CSS Selector?

- XPath is slower than CSS, whereas CSS Selector is faster than XPath.
- XPath supports text though CSS Selector does not allow Text.
- XPath can move in both forward and backward directions

## 8. How to access the CSS selector using the nth element?

Here is a syntax for using the CSS selector to access the nth attribute: `<type>:nth-child(n)`

Ex: `tr:nth-child(2)`

## 9. How to handle alerts in Selenium WebDriver?

WebDriver provides an API to handle alert dialogs. Alerts cannot be inspected if there is no Alert in the screen, you will get 'NoAlertPresentException'

The Alert interface contains a number of APIs to execute different actions.

The following list:

`Alert alert = driver.switchto().alert();`

`alert.accept();` This is equivalent to the OK button action on the dialog

`alert.dismiss();` This is equivalent to clicking on the CANCEL action button

`alert.sendKeys("String");` This will allow to type in some text into the alert

`alert.getText();` This will return the text that appears on the dialog

## 10. What are the different exceptions you faced in Selenium WebDriver?

- `WebDriverException`
- `NoSuchElementException`
- `NoSuchFrameException`

- NoAlertPresentException
- NoSuchWindowException
- ElementNotVisibleException
- ElementNotInteractableException
- SessionNotCreatedException
- TimeoutException
- InvalidSelectorException
- IllegalStateException
- StaleElementReferenceException

## **11. What is a framework? What are the different types of frameworks available?**

A framework is a charter of rules and best practices for the systemic resolution of a problem.

There are different kinds of automation frameworks:

- Data-Driven Testing Framework
- Keyword Driven Testing Framework
- Hybrid Testing Framework
- Behavioural Driven Framework

## **12. How to run Tests in Headless Mode with Chrome?**

```
ChromeOptions chromeOptions = new ChromeOptions();
```

```
// chromeOptions.addArguments("--no-sandbox");  
chromeOptions.addArguments("--headless");  
driver = new ChromeDriver(chromeOptions)
```

### 13. How to handle windows-based alerts/popups in selenium?

Selenium only supports web applications and does not provide a way to automate Windows-based applications. However, the following approaches can help.

- Use the Robot class (Java-based) utility to simulate the keyboard and mouse actions. That is how you can handle the window based pop.
- Autolt Integration with Selenium help to automate Window Based Popups

### 14. What are Listeners in Selenium?

Listeners is an interface that modifies the behavior of the system. Listeners allow customization of reports and logs.

Listeners mainly comprise of two types, namely

- WebDriver listeners

- TestNG listeners

### 15. What are the differences between StringBuffer and StringBuilder?

StringBuffer is *synchronized*, i.e., thread safe. It means two threads can't call the methods of StringBuffer simultaneously.

StringBuilder is *non-synchronized*, i.e., not thread safe. It means two threads can call the methods of StringBuilder simultaneously.

### 16. What are the advantages of selenium in automation testing world?

- It is an open source platform free to use. This method does not need to be allotted budget
- It works on systems such as Windows, Linux and Mac, as it is compatible across systems
- It works on almost all common browsers including Chrome, Firefox, Edge, Internet Explorer and Safari, since it is compatible with cross-browser testing
- It supports Java, Python, Perl, PHP, C #, Ruby programming languages
- Selenium Grid concepts allow parallel execution



- Continuous integration With Jenkins and Hudson we will achieve daily execution
- It provide a wide base of users and support communities because this is an open platform

### 17. What is soft and hard assertion in selenium?

**Soft Assertion:** Soft Assert will not throw an exception when an assert fails, and after the assert assertion will continue with the next step.

**Hard Assertion:** Hard Assert throws an Assert Exception immediately when an assert statement fails and test suite continues with next @Test.

### 18. What is the purpose of static methods and variables?

The methods or variables defined as static are shared among all the objects of the class. The static is the part of the class and not of the object. The static variables are stored in the class area, and we do not need to create the object to access such variables. Therefore, static is used in the case, where we need to define variables or methods which are common to all the objects of the class.

<https://www.javatpoint.com/static-keyword-in-java>

## 19. Usage of This and Super Keywords in Java?

### **This:**

- This keyword is used to initialize class level variables in the constructor using local variables
- This keyword can only be used for constructor
- We can use more than one **This** Keyword within the Constructor at a time.

### **Super:**

We can use super keyword to access the data member or field of parent class. It is used if parent class and child class have same fields.

The super keyword can also be used to invoke parent class method

super is used to invoke parent class constructor

<https://www.javatpoint.com/super-keyword>

## 20. Difference Between Array and ArrayList?

Array is a fixed length data structure whereas ArrayList is a variable length Collection class. We cannot change length of array once created in Java but ArrayList can be changed.

```
int[] integerList = new int[10];  
ArrayList<Integer> integerList= new ArrayList<Integer>();  
integerList.add(1);  
inter
```

## 21. Difference between abstract class and interface?

### **Interface:**

- 1) Interface contains only abstract methods
- 2) Access Specifiers for methods in interface must be public
- 3) Variables defined must be public, static, final
- 4) To implement an interface we use implements keyword

### **Abstract Class:**

- 1) Abstract class can contain abstract methods, concrete methods or both
- 2) Except private we can have any access specifier for methods in abstract class.
- 3) Except private variables can have any access specifiers
- 5) To implement an interface we use implements keyword

## 22. Difference between HashMap and Hashtable

HashMap is **non synchronized**. It is not-thread safe and can't be shared between many threads without proper synchronization code.

Hashtable is **synchronized**. It is thread-safe and can be shared with many threads.

HashMap **allows one null key and multiple null values**.  
Hashtable **doesn't allow any null key or value**.

## 23. Difference between final, finally and finalize

<https://www.javatpoint.com/difference-between-final-finally-and-finalize>

## 24. When should I use Selenium Grid?

Selenium Grid can be used to execute same or different test scripts on multiple platforms and browsers concurrently so as to achieve distributed test execution, testing under different environments and saving execution time remarkably.

## 25. How many objects will be created in the following code?

1. String s1="Welcome";

2. String s2="Welcome";
3. String s3="Welcome";

Only one object will be created using the above code because strings in Java are immutable.

Each time you create a string literal, the JVM checks the "string constant pool" first. If the string already exists in the pool, a reference to pooled instance is returned. If the string doesn't exist in the pool, a new string instance is created and placed in the pool. String objects are stored in a special memory area known as the **string constant pool**