

Real time Selenium Interview Questions and Answers

☛ What is Automation Testing?

Ans: Automation testing is a process in which software tools execute pre-scripted tests on a software application before it is released into production. Special software is used to control the test execution, actual outcomes and predicted outcomes comparison, the test preconditions setting up, and other test control and test reporting functions.

Selenium Grid is a part of the Selenium Suite that specializes on running multiple tests across different browsers, operating systems, and machines in parallel.

☛ What is the Limitation of Selenium?

Ans-Some limitations of Selenium Automation tool are as follows:

1. It does not support and non-web-based applications, it only supports web-based applications.
2. You need to know at least one of the supported languages very well in order to automate your application successfully.
3. No inbuilt reporting capability so you need plugins like JUnit and TestNG for test reports.

☛ How many types of Webdriver APIs are available in Selenium?

The list of driver classes could be used for the browser automation.

ChromeDriver, FirefoxDriver, EdgeDriver, SafariDriver , OperaDriver HtmlUnitDriver, InternetExplorerDriver, IOSDriver, RemoteWebDriver AndroidDriver,

☛ Have you worked on different browsers? Have you ever performed Cross browser testing?

Ans: Yes, I have worked on different browsers like Mozilla, Chrome, and Edge performed cross browser testing demo. Every month a new browser is coming into market and it became very important to test our web application on different browser. Selenium supports Cross browser testing.

☛ How can we launch different browsers in Selenium WebDriver?

We should create an instance of a driver of a particular browser:

```
WebDriver driver = new FirefoxDriver();
WebDriver driver = new ChromeDriver();
WebDriver driver = new SafariDriver();
WebDriver driver = new EdgeDriver();
WebDriver driver = new InternetExplorerDriver();
```

☛ How can we maximize browser window in Selenium?

Ans: driver.manage().window().maximize(); //command is used to maximize browser window in Selenium

☛ What kinds of test types are supported by Selenium?

1. Functional Testing 2. Regression Testing 3. Sanity Testing 4. Smoke Testing 5. Responsive Testing 6. Cross Browser Testing 7. UI testing (black box) 8. Integration Testing

☛ How many test cases you have automated per day?

Ans- It totally depends on your manual test cases. Sometimes we can automate 3-4 test cases per day which contain limited operation and some validation. Some test cases may take 1 day or more than one day as well. It totally depends on test case complexity.

☛ Give an example of the languages supported by WebDriver.

Ans: Java, C#, Python, JavaScript and Ruby, are all supported directly by the development team. There are also PHP and Perl WebDriver implementations.

☛ Diffrence between findElement and FindElements?

Ans- findElement () will return only single WebElement and if that element is not located or we use some wrong selector then it will throw NoSuchElementException exception.

WebElement element = driver.findElements(By.xpath("//div[@id='example']/ul//li"));
findElements() will return List of WebElements – for this we need to give locator in such a way that it can find multiple elements and will return you list of webelements then using List we can iterate and perform our operation.

```
List elementList = driver.findElements(By.xpath("//div[@id='example']/ul//li"));
```

☛ Can we find all links on a web page?

Ans: As all links are of anchor tag 'a', so we can find all of them on a web page by locating elements of tagName 'a':

```
List links = driver.findElements(By.tagName("a"));
System.out.println("All Links: "+ links);
```

☛ Can Selenium handle Windows based pop-up?

Ans: Windows pop-ups cannot be handled by using Selenium. Because it supports only web application testing.

☛ What are different locators available in Selenium?

Ans: There are 8 types of locators are available in selenium that are as follows:

id, name, ClassName, css-selector, TagName, linkText, partialLinkText and xpath.

☛ What is the difference between / and // in XPATH?

Ans- “/” It's starts search selection from root element in document. (absolute path) “//” It start selection from anywhere in XML document. (relative path)

☛ Can you please explain XPATH and CSS technique? How to handle dynamic changing elements?

Ans: CSS Selector: CSS mainly used to provide style rules for the web pages and we can use for identifying one or more elements in the web page using css. If you start using css selectors to identify elements, you will love the speed when compared with XPath. CSS selector is always the best possible way to locate complex elements in the page.

XPath Selector: XPath is designed to allow the navigation of XML documents, with the purpose of selecting individual elements, attributes, or some other part of an XML document for specific processing There are two types of xpath

1. Native Xpath, it is like directing the xpath to go in direct way. like

Example: html/head/body/table/tr/td

Here the advantage of specifying native path is, finding an element is very easy as we are mention the direct path. But if there is any change in the path (if some thing has been added/removed) then that xpath will break.

2. Relative Xpath. In relative xpath we will provide the relative path, it is like we will tell the xpath to find an element by telling the path in between. Advantage here is, if at all there is any change in the html that works fine, until unless that particular path has changed.

Finding address will be quite difficult as it need to check each and every node to find that path. Example: //table/tr/td

☛ How can the user get a text of a web element?

Ans: User can retrieve the text of the specified web element by using get command. It doesn't require any parameter but returns a string value.

```
String Text = driver.findElement(By.id("Some Text")).getText();
```

☛ How a text written in a text field could be cleared?

Ans: A text written in a text field could be deleted by using the clear() method.

☛ How to check a CheckBox in Selenium?

Ans: The same click() method could be used for checking checkbox as well as for clicking buttons or radio buttons.

☛ How to verify checkbox (any element) is enable/disabled/ checked/Unchecked/ displayed/ not displayed?

Ans: We have different Boolean methods for enable / disable, checked / unchecked and displayed / not displayed that are as follows:

1. There's a method "isEnabled()", that checks whether a WebElement is enabled or not. You can use the below code to check for that; boolean enabled = driver.findElement(By.xpath("//xpath of the checkbox")).isEnabled();

2. To check whether the checkbox is checked/selected or not, you can use "isSelected()" method, which you can use like this; boolean checked = driver.findElement(By.xpath("//xpath of the checkbox")).isSelected();

☛ Explain the meaning of assertion in Selenium and what are the types of assertion?

Ans: Assertion is used as a verification point. It verifies that the application state conforms to the expectation. The types of assertion are “assert”, “verify” and “waifFor”.

☛ Could cookies be deleted in Selenium?

Ans: driver.manage().deleteAllCookies(); //command is used for deleting all cookies

☛ How to perform right click using Selenium WebDriver?

Ans: The next Actions class is used to perform right click:

```
Actions act = new Actions(driver); // where driver is WebDriver type
```

```
act.moveToElement(webElement).perform();
act.contextClick().perform();
```

☛ How to work with dropdown?

Ans- WebDriver's support classes called “Select”, which provides useful methods for interacting with select options. User can perform operations on a select dropdown and also de-select operation using the below methods. We can select or deselect option in dropdown by using following methods.

```
Syntax: Select Se=new Select(element);
Se.selectByIndex(index);
Se.selectByvalue(value);
Se.selectByVisibleText(text);
```

We can also deselect the item using same thing that is just above method like.

☛ Have you worked with Web table (Calendar)? If yes, then what was your approach.

Ans- Yes. First need to analysis its web page html code for this element. To find which type of calendar is, then you can decide you can solve this calendar by using selenium Webdriver or using JavaScript executer. It all depends on the scenario the code. Now a day, there would be no. of new type of calendar are using by dev teams. We can't handle these by using selenium but using JavaScript executer we get solution.

☛ Can you tell me some navigation commands?

Ans: To access the navigation's method, just type driver.navigate().. The intelligence feature of eclipse will automatically display all the public methods of Navigate Interface.

Command - driver.navigate().to(appUrl);

It does exactly the same thing as the driver.get(appUrl) method. Where appUrl is the website address to load. It is best to use a fully qualified URL.

forward() : void – This method does the same operation as clicking on the Forward Button of any browser. It neither accepts nor returns anything.

Command - driver.navigate().forward();

Takes you forward by one page on the browser's history.

`back() : void` – This method does the same operation as clicking on the Back Button of any browser. It neither accepts nor returns anything.

Command - `driver.navigate().back();`

Takes you back by one page on the browser's history.

`refresh() : void` – This method Refresh the current page. It neither accepts nor returns anything.

Command - `driver.navigate().refresh();`

☛ How do perform drag and drop using Selenium WebDriver?

Ans: The next Actions class is used to perform drag and drop:

`Actions builder = new Actions(driver);`

`Action dragAndDrop = builder.clickAndHold(SourceElement)`

`moveToElement(TargetElement)`

`release(TargetElement).build().dragAndDrop.perform();`

☛ How to check if an element is visible on the page?

Ans: The return method type is logical. If it returns true then element is visible otherwise it is not. `isDisplayed()` method could be used for it:

`driver.findElement(By.id("id_of_element")).isDisplayed();`

☛ How to check if a button is enabled on the page?

An: `isEnabled()` method could be used for it:

`driver.findElement(By.id("id_of_element")).isEnabled();`

☛ Can you write the code to double click an element in Selenium?

Ans: Code to double click an element in Selenium:

`Actions action = new Actions(driver);`

`WebElement element=driver.findElement(By.id("elementId"));`

`action.doubleClick(element).perform();`

☛ How to mouse hover an element in Selenium?

Ans: Code to mouse hover over an element in Selenium:

`Actions action = new Actions(driver);`

```
WebElement element=driver.findElement(By.id("elementId"));
action.moveToElement(element).perform();
```

❖ What kind of keyboard operations can be performed in Selenium?

Ans: Selenium lets to perform different kinds of keyboard operations, such as:

- .pressKey("non-text keys")(KeyDown) is used for keys like control, function keys etc that are non-text

- .releaseKey("non-text keys")(KeyUp) is used in conjunction with key press event to simulate releasing a key from keyboard event
- .sendKeys("sequence of characters") is used for passing character sequence to an input or textbox element.

❖ Difference between Quit and Close?

Ans: driver.close and driver.quit are two different methods for closing the browser session in Selenium WebDriver.

- o driver.close – It closes the the browser window on which the focus is set.
- o driver.quit – It basically calls driver.dispose method which in turn closes all the browser windows and ends the WebDriver session gracefully. You should use driver.quit whenever you want to end the program. It will close all opened browser window and terminates the WebDriver session. If you do not use driver.quit at the end of program, WebDriver session will not close properly and files would not be cleared off memory. This may result in memory leak errors.

❖ What is Page Load Timeout?

Ans: When automation script run on the browser. Sometimes scripts are faster than the web application that time scripts looking for an element but it can't be found because the web page not loaded completely and throws an element not found or element not visible exception. To eliminate these kind of exception and ensuring script run smoothly for this we mention or set page load time out. Ex: driver.manage().timeouts().pageLoadTimeout(10, TimeUnit.SECONDS);

❖ Can you explain implicit wait, explicit wait and fluent wait?

Ans- Implicit Wait: Selenium WebDriver has borrowed the idea of implicit waits from Watir. This means that we can tell Selenium that we would like it to wait for a certain amount of time before throwing an exception that it cannot find the element on the page. We should note that implicit waits will be in place for the entire time the browser is open. This means that any search for elements on the page could take the time the implicit wait is set for.

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

```
WebDriverWait wait = new WebDriverWait(driver, 10);
```

```
WebElement           element      =  
wait.until(ExpectedConditions.elementToBeClickable(By.id("someid")));
```

Fluent Wait: Each FluentWait instance defines the maximum amount of time to wait for a condition, as well as the frequency with which to check the condition. Furthermore, the user may configure the wait to ignore specific types of exceptions whilst waiting, such as NoSuchElementExceptions when searching for an element on the page.

```
Wait wait = new FluentWait(driver);
```

☞ Write a code to wait for a particular element to be visible on a page. Write a code to wait for an alert to appear?

We can write a code such that we specify the XPath of the web element that needs to be visible on the page and then ask the WebDriver to wait for a specified time. Look at the sample piece of code below:

1. `WebDriverWait wait=new WebDriverWait(driver, 20);`
2. `Element = wait.until(ExpectedConditions.visibilityOfElementLocated(By.xpath(" <xpath> ")));`

Similarly, we can write another piece of code asking the WebDriver to wait until an error appears like this:

1. `WebDriverWait wait=new WebDriverWait(driver, 20);`
2. `Element = wait.until(ExpectedConditions.alertIsPresent());`

☞ What is JavaScript Executor and where you have used JavaScript executor?

Ans- JavascriptExecutor it is an interface. It Indicates that a driver can execute JavaScript, providing access to the mechanism to do so. There were lots of scenarios' their we need

- java-script should be executing for some element that are as follows:
1. when element is not clickable using locators then we can have used JavaScript.
 2. While working with frames we used JavaScript.
 3. The most recently while working with ck-editor I used JavaScript executers.
 4. For the bootstrap calendar when the conditions for using selenium command it can't be possible that time I used JavaScript executer etc.

Syntax: JavascriptExecutor js = (JavascriptExecutor) driver;
js.executeScript(Script,Arguments);

Examples: 1. How to generate Alert Pop window in selenium?

```
JavascriptExecutor js = (JavascriptExecutor)driver;  
Js.executeScript("alert('hello world');");
```

☛ How to capture Screenshot in Selenium? Can we capture screenshot only when test fails?

Ans- For taking screenshots Selenium has provided TakesScreenShot interface in this interface you can use getScreenshotAs method which will capture the entire screenshot in form of file then using FileUtils we can copy screenshots from one location to another location.

Ex: // Take screenshot and store as a file format

```
File src= ((TakesScreenshot)driver).getScreenshotAs(OutputType.FILE);  
FileUtils.copyFile(src, new File("C:/selenium/error.png"));
```

☛ How to scroll in Selenium Webdriver?

Ans- Selenium support auto scroll to find an element but sometimes we need to scroll based on requirement like scroll up and down. We can perform this using Java Script. In this video, we will discuss How to Scroll page up and down in Selenium Webdriver. Ex: WebDriver
driver = new FirefoxDriver(); JavascriptExecutor jse = (JavascriptExecutor)driver;
jse.executeScript("window.scrollBy(0,250)", "");

☛ How to upload files in Selenium? Have you ever used AutoIT?

Ans-We can upload file in web application by using directly sending path in sendKeys. But at sometimes selenium path could not accept or upload the things, for this we used AutoIT

tool. 1-AutoIt is freeware automation tool that can work with desktop application too. 2-It uses a combination of keystrokes, mouse movement and window/control manipulation in order to automate tasks in a way not possible or reliable with other languages (e.g. VBScript and SendKeys).

☞ What is Actions class in Selenium (How to perform Mouse Hover, Keyboard events, DragAndDrop etc?)

Ans-In Webdriver, handling keyboard events and mouse events (including actions such as Drag and Drop or clicking multiple elements With Control key) are done using the advanced user interactions API . It contains Actions and Action classes which are needed when performing these events. For all advance activity in Selenium Webdriver we can perform easily using Actions class like Drag and Drop, mouse hover, right click, clickandhold, releasemouse many more. We have predefined method called dragAndDrop(source, destination) which is method of Actions class.

To use mouse actions, we need to use current location of the element and then perform the action. The following are the regularly used mouse and keyboard events: Method :clickAndHold() Purpose: Clicks without releasing the current mouse location Method :contentClick() Purpose: Performs a context-click at the current mouse location.

Method: doubleClick() Purpose: Performs a double click at the current mouse location
Method: dragAndDrop(source,target) Parameters: Source and Target Purpose: Performs click and hold at the location of the source element and moves to the location of the target element then releases the mouse.

Method : dragAndDropBy(source,x-offset,y-offset) Parameters: Source, xOffset - horizontal move, y-Offset - vertical move Offset. Purpose: Performs click and hold at the location of the source element moves by a given off set, then releases the mouse.

Method: keyDown(modifier_key) Parameters: Modifier_key (keys.ALT or Keys.SHIFT or Keys.CONROL) Purpose: Performs a modifier key press, doesn't release the modifier key.

Method: keyUp(modifier_key) Parameters: Modifier_key (keys.ALT or Keys.SHIFT or Keys.CONROL) Purpose: Performs a key release.

☞ What is Headless testing?

Ans- A browser, which does not have any GUI it means which runs in background. If you run your programs in Firefox, Chrome, Edge and different browser then you can see how the browser is behaving but in headless browsers, you cannot.

```
// Declaring and initialize HtmlUnitWebDriver  
WebDriver driver = new HtmlUnitDriver();  
  
ChromeOptions options = new ChromeOptions();  
options.addArguments("--headless");  
  
FirefoxOptions options = new FirefoxOptions();  
options.setHeadless(true);  
  
EdgeOptions options = new EdgeOptions();  
options.addArguments("--headless");
```

☛ Have you created any framework? Which framework you have used?

Ans. Yes. I have created Data-Driven Framework and added some functionalities of Hybrid framework and Page object model.

☛ Which framework you have used and why?

Ans- I have created Data-Driven Framework with some capabilities of Page object model framework. After analyzing condition of project I recommend myself to make data driven framework. And after sometime added some functionalities. As per what I need. And the most important thing is that it easier maintain and create.

☛ What is POM (Page Object Model) and what is the need of it?

Ans- Page Object Model Framework has now a days become very popular test automation framework in the industry and many companies are using it because of its easy test maintenance and reduces the duplication of code. The main advantage of Page Object Model is that if the UI changes for any page, it doesn't require us to change any tests, we just need to change only the code within the page objects (Only at one place). Many other tools which are using selenium, are following the page object model.

☛ What are the challenges you have faced while automating your application?

Ans- Challenges faced that are as follows:

- Frequently changing UI. It always need to make changes in code most of the time.

- Stuck somewhere while running automation scripts in chrome browser getting error that element is not visible, element not found.
- New kind of element like ck-editor, bootstrap calendar and dynamic web tables. But get the solution always.
- Reused of test scripts.

☛ What could be the cause of Selenium WebDriver test to fail?

Ans: There are some causes of Selenium WebDriver test to fail:

- SeleniumWebDriver element waiting to access did not appear on the web page and the operation timed out
- SeleniumWebDriver is trying to access not created element
- SeleniumWebDriver cannot locate the element, because the locator has been changed

☛ What is a Data-driven framework?

Ans: The Data Driven test design framework follows a design paradigm where test logic is fixed but varies the test data. The data itself can be in different repositories like a simple .csv file, .json file or .xls sheet, or database and can add the tests merely updating those external files or DB (instead of placing in test code itself).

☛ What is a Keyword-driven framework?

Ans: The keyword driven framework is a methodology where actions or steps are treated as keywords. These keywords (like click, move, type etc.,) are stored in some external repositories along just like data (in .csv/.json/.xls/DB).

☛ What is the Hybrid framework?

Ans: The combination of data driven and keyword driven framework is called the hybrid. Here the operations/instructions/keywords in a separate repository (.csv/.xls/.json/DB) and data is in separate (.csv/.xls/.json/db from data provider) and the tests/driver would read both and perform the actual tests automatically. In this design, we get the best of both methodologies, and it is kind of practical in most of the automation cases.

☛ What are the different type of exception available in Selenium? Have you faced any exception while automation?

Ans- Yes. I have faced lots of exception. List are as follows:

1. ElementNotSelectableException
2. ElementNotVisibleException
3. NoSuchElementException
4. NoSuchElementException
5. NoSuchElementException
6. TimeoutException
7. Element not visible at this point

☛ What is Alert window / JavaScript Alert and How to handle alert in Selenium Webdriver?

Ans: There are two types of alerts that we would be focusing on majorly:

1. Windows based alert pop ups
2. Web based alert pop ups

As we know that handling windows based pop ups is beyond WebDriver's capabilities, thus we would exercise some third party utilities to handle window pop ups. Handling pop up is one of the most challenging piece of work to automate while testing web applications. Owing to the diversity in types of pop ups complexes the situation even more. Generally JavaScript popups are generated by web application and hence they can be easily controlled by the browser. Alert is an interface. There below are the methods that are used

```
Alert alert = driver.switchTo().alert();           //open alert, prompt or confirmation
alert.accept();                                //Will Click on OK button.
alert.dismiss();                               // Will click on Cancel button.
alert.getText();                             //will get the text which is present on the Alert.
alert.sendKeys();                           //Will pass the text to the prompt popup
```

☛ Have you ever worked on frames? In addition, how to handle frames in Selenium?

Ans: Yes. In Selenium to work with iFrames, we have different ways to handle frame depending on the need. Please look at the below ways of handling frames.

```
driver.switchTo().frame(int arg0);
```

Select a frame by its (zero-based) index. That is, if a page has multiple frames (more than 1), the first frame would be at index "0", the second at index "1" and so on.

```
driver.switchTo().frame(WebElement frameElement);
```

☛ How can you switch back from a frame?

Ans: defaultContent() method is used to switch back from a frame.

☛ What is TestNG?

Ans: TestNG is a testing framework inspired from JUnit and NUnit, but introducing some new functionalities that make it more powerful and easier to use. TestNG is an open source automated testing framework; where NG means Next Generation. TestNG is similar to JUnit (especially JUnit 4), but it is not a JUnit extension. It is inspired by JUnit. TestNG Features Supports annotations.

1. TestNG uses more Java and OO features.
2. Supports testing integrated classes (e.g., by default, no need to create a new test class instance for every test method).
3. Separates compile-time test code from run-time configuration/data info.
4. Flexible runtime configuration.
5. Introduces 'test groups'. Once you have compiled your tests, you can just ask TestNG to run all the "front-end" tests, or "fast", "slow", "database" tests, etc.
6. Supports Dependent test methods, parallel testing, load testing, and partial failure.
7. Flexible plug-in API.
8. Support for multi threaded testing.

☛ What is the difference between getWindowHandles() and getWindowHandle()?

Ans: You can get the browser address using these commands. But if you use getWindowHandle(), you'll get the address of the current browser where the control is and return type is a string. So, if you use getWindowHandles(), you will get the address of all the open browser and its return type is an iterator.

☛ Why you have used TestNG in your framework?

Ans: 1. WebDriver has no native mechanism for generating reports.

2. TestNG can generate the report in a readable format

3. TestNG simplifies the way the tests are coded 4.

There is no more need for a static main method in our tests.

5. Uncaught exceptions are automatically handled by TestNG without terminating the test prematurely. These exceptions are reported as failed steps in the report.

☞ What are different annotation present in TestNG?

Ans: @BeforeSuite @AfterSuite

@BeforeClass @AfterClass

@BeforeTest @AfterTest

@BeforeGroups @AfterGroups

@BeforeMethod @AfterMethod

@DataProvider

@Test

☞ What is priority feature in TestNG? In addition, how we can use this?

Ans: 1. In TestNG "Priority" is used to schedule the test cases. When there are multiple test cases, we want to execute test cases in order.

2. In order to achieve, we use need to add annotation as @Test(priority=??). The default value will be zero for priority.

3. If we define priority as "priority=", these test cases will get executed only when all the test cases which don't have any priority as the default priority will be set to "priority=0".

@Test(priority=1), @Test(priority=2)

☞ What is testng.xml file in TestNG?

Ans: In testng.xml file we can specify multiple name (s) which needs to be executed. In a project there may be many classes, but we want to execute only the selected classes. We can pass class names of multiple packages also. If say suppose, we want to execute two classes in one package and other class from some other package. The below is the example testng.xml which will execute the class names that are specified.

☞ How to group test cases in TestNG?

Ans: TestNG allows us to perform sophisticated groupings of test methods. Using TestNG can we can execute only set of groups while excluding another set. This gives us the maximum flexibility in divide tests and doesn't require us to recompile anything if you want to run two different sets of tests back to back. Groups are specified in testng.xml file and

can be used either under the or tag. Groups specified in the tag apply to all the tags underneath.

☛ How to execute multiple test cases in Selenium?

Ans: TestNG provides an option to execute multiple tests in a single configuration file (testng.xml). It allows to divide tests into different parts and group them in a single tests. We can group all the tests related to database into one group, Regression tests in one group. And all the test cases related to Unit test cases into one group and so on. In testng.xml file we can specify multiple name (s) which needs to be executed. In a project there may be many classes, but we want to execute only the selected classes. We can pass class names of multiple packages also. If say suppose, we want to execute two classes in one package and other class from some other package.

☛ How to execute parallel test cases in Selenium?

Ans: TestNG provides an ability to run test methods, test classes and tests in parallel. By using parallel execution, we can reduce the 'execution time' as tests are started and executed simultaneously in different threads. In testNG we can achieve parallel execution by two ways. One with testng.xml file and we can Configure an independent test method to run in multiple threads. First let us look at basic example for Parallel Execution of Test Methods using testng.xml. We will create a class with Two test methods and try to execute in different threads.

☛ What is Data provider in TestNG?

Ans-An important features provided by TestNG is the DataProvider feature. It helps you to write data-driven tests, which essentially means that same test method can be run multiple times with different data-sets. Please note that DataProvider is the second way of passing parameters to test methods (first way we already discussed in @Parameters example). It helps in providing complex parameters to the test methods as it is not possible to do this from XML. To use the DataProvider feature in your tests you have to declare a method annotated by @DataProvider and then use the said method in the test method using the 'dataProvider' attribute in the Test annotation.

```
@DataProvider(name = "data-provider")
```

☛ How to disable particular test case?

Ans-Just add an attribute enabled=false in test declaration annotation.

Ex: @Test(enabled=false)

☛ How to generate reports in TestNG?

Ans- We just need to run an annotated TestNG annotation scripts and refresh the project you can see the test-output folder is generated in project explorer. Just click on to it, and then click on to the emailable-report.html you can view the testNG report in HTML format

☛ Can you please explain what is apache maven?

Ans- Apache Maven: Apache Maven is a software project management and comprehension tool. Based on the concept of a project object model (POM), Maven can manage a project's build, reporting and documentation from a central piece of information.

☛ What is CI (Continuous integration) and what are different tools available in market.

Ans- Continuous Integration (CI) is a development practice that requires developers to integrate code into a shared repository several times a day. Each check-in is then verified by an automated build, allowing teams to detect problems early.

Jenkins GitHub Azure DevOps TeamCity Bitbucket Pipelines

☛ How to integrate Jenkins with Selenium?

Ans- 1. Open your web browser and then Navigate to Below URL <http://jenkins-ci.org> this is the official website of Jenkins.

2. Now download Jenkins.war file and save it.

3. Go to location where Jenkins.war is available.

4. Step 2- Open Command prompt known as CMD and navigate till project home directory and Start Jenkins server Start- cmd> Project_home_Directory> java -jar jenkins.war

5. Open any browser and type the url <http://localhost:8080>

6. Click on > Manage Jenkins

7. Click on Configure System, Navigate to JDK section and Click on Add JDK button, Uncheck Install automatically check box so Jenkins will only take java which we have mentioned above.

8. Give the name as JAVA_HOME and Specify the JDK path

9. Part 3- Execute Selenium build using Jenkins

10. Part 4-Schedule your build in Jenkins for periodic execution

☛ How to schedule test cases for nightly execution?

Ans- Open Task Scheduler by clicking the Start button Picture of the Start button, clicking Control Panel, clicking System and Security, clicking Administrative Tools, and then double-clicking Task Scheduler. Administrator permission required If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

☛ How to read write excel files using Apache POI.

Ans: Basics of APACHE POI There are two main prefixes which you will encounter when working with Apache POI:

- HSSF: denotes the API is for working with Excel 2003 and earlier.
- XSSF: denotes the API is for working with Excel 2007 and later. And to get started the Apache POI API, you just need to understand and use the following 4 interfaces:
 - Workbook: high level representation of an Excel workbook. Concrete implementations are: HSSFWorkbook and XSSSSFWorkbook.
 - Sheet: high level representation of an Excel worksheet. Typical implementing classes are HSSFSheet and XSSFSheet.
 - Row: high level representation of a row in a spreadsheet. HSSFRow and XSSFRow are two concrete classes.
 - Cell: high level representation of a cell in a row. HSSFCell and XSSFCell are the typical implementing classes.

☛ Why and how will you use an Excel Sheet in your project?

The reason we use Excel sheets is because it can be used as data source for tests. An excel sheet can also be used to store the data set while performing DataDriven Testing. These are the two main reasons for using Excel sheets.

When you use the excel sheet as data source, you can store the following:

- Application URL for all environments: You can specify the URL of the environment in which you want to do the testing like: development environment or testing environment or QA environment or staging environment or production/ pre-production environment.

- User name and password credentials of different environments: You can store the access credentials of the different applications/ environments in the excel sheet. You can store them in encoded format and whenever you want to use them, you can decode them instead of leaving it plain and unprotected.
- Test cases to be executed: You can list down the entire set of test cases in a column and in the next column, you can specify either Yes or No which indicates if you want that particular test case to be executed or ignored.

When you use the excel sheet for DataDriven Test, you can store the data for different iterations to be performed in the tests. For example while testing a web page, the different sets of input data that needs to be passed to the test box can be stored in the excel sheet.

❖ What is Selendroid?

Ans-Selendroid can be used to test already built apps. Those Android apps (apk file) must exist on the machine, where the selendroid-standalone server will be started. The reason for this is that a customized selendroid-server for the app under test (AUT) will be created. Both apps (selendroid-server and AUT) must be signed with the same certificate in order to install the apks on the device.

❖ What is Appium?

Ans- Appium aims to automate any mobile app from any language and any test framework, with full access to back-end APIs and DBs from test code. Write tests with your favorite dev tools using all the above programming languages, and probably more (with the Selenium WebDriver API and language-specific client libraries).

Cucumber Framework Interview Questions & Answers

1) What is Cucumber? Why is it used?

Cucumber is a testing tool based on Behavior Driven Development (BDD) framework. It is used to run functional tests written in plain text and develop test cases for software functionality. It plays a supporting role in automated testing. In other words, we can say that "Cucumber is a software tool used by the testers to develop test cases for the testing of behavior of the software." The main aim of the Behavior Driven Development framework is to make various project roles such as Business Analysts, Quality Assurance, Developers, etc., understand the application without diving deep into the technical aspects.

2) What language is used by Cucumber?

Gherkin is the language that is used by the Cucumber tool. It is a simple English representation of the application behavior. Gherkin language uses several keywords to describe the behavior of applications such as Feature, Scenario, Scenario Outline, Given, When, Then, etc.

3) What is meant by a feature file?

A feature file must provide a high-level description of an Application Under Test (AUT). The first line of the feature file must start with the keyword 'Feature' followed by the description of the application under test. A feature file may include multiple scenarios within the same file. A feature file has the extension .feature.

4) What are the various keywords that are used in Cucumber for writing a scenario?

Mentioned below are the keywords that are used for writing a scenario:

- Given When Then And

5) What is the purpose of a Scenario Outline in Cucumber?

Scenario outline is a way of parameterization of scenarios. This is ideally used when the same scenario needs to be executed for multiple sets of data, however, the test steps remain the same. Scenario Outline must be followed by the keyword 'Examples', which specify the set of values for each parameter.

6) What programming language is used by Cucumber?

Cucumber tool provides support for multiple programming languages such as Java, .Net, Ruby etc. It can also be integrated with multiple tools such as Selenium, Capybara, etc.

7) What is the purpose of the Step Definition file in Cucumber?

A step definition file in Cucumber is used to segregate the feature files from the underlying code. Each step of the feature file can be mapped to a corresponding method on the Step Definition file. While feature files are written in an easily understandable language like, Gherkin, Step Definition files are written in programming languages such as Java, .Net, Ruby, etc.

8) What are the major advantages of the Cucumber framework?

- Cucumber is an open-source tool.
- Plain Text representation makes it easier for non-technical users to understand the scenarios.
- It bridges the communication gap between various project stakeholders such as Business Analysts, Developers, and Quality Assurance personnel.
- Automation test cases developed using the Cucumber tool are easier to maintain and understand as well.
- Easy to integrate with other tools such as Selenium and Capybara.

9) Provide an example of a feature file using the Cucumber framework.

Following is an example of a feature file for the scenario ‘Login into the application’:

Feature: Login to the application under test. Scenario:

1. Login to the application.
2. Open the Chrome browser and launch the application.
3. When the user enters the username onto the UserName field.
4. And User enters the password into the Password field.
5. When the user clicks on the Login button.
6. Then validate if the user login is successful.

10) Provide an example of a Scenario Outline using the Cucumber framework.

The following is an example of a Scenario Outline keyword for the scenario ‘Upload a file’. The number of parameter values to be included in the feature file is based on the tester’s choice.

- Scenario Outline: 1. Upload a file
2. Given that the user is on upload file screen.
 3. When a user clicks on the Browse button.
 4. And user enters <filename> onto the upload textbox.
 5. And user clicks on the enter button.
 6. Then verify that the file upload is successful.

Example:

|filename| |file1| |file2|

11) What is the purpose of the Behaviour Driven Development (BDD) methodology in the real world?

BDD is a methodology to understand the functionality of an application through simple plain text representation. The main aim of the Behavior Driven Development framework is to make various project roles such as Business Analysts, Quality Assurance, Developers, and Support Teams understand the application without diving deep into the technical aspects.

12) What is the limit for the maximum number of scenarios that can be included in the feature file?

A feature file can contain a maximum of 10 scenarios, but the number can vary from project to project and from one organization to another. But it is generally advisable to limit the number of scenarios included in the feature file.

13) What is the use of Background keyword in Cucumber?

Background keyword is used to group multiple given statements into a single group.

This is generally used when the same set of the given statement is repeated in each Scenario of the feature file.

14) What symbol is used for parameterization in Cucumber?

Pipe symbol (|) is used to specify one or more parameter values in a feature file.

15) What is the purpose of Examples keyword in Cucumber?

Examples keyword is used to specify values for each parameter used in the scenario. Scenario Outline keyword must always be followed by the keyword Examples.

16) What is the file extension for a feature file?

File Extension for a feature file is .feature. A feature file is ideally written in a notepad file and is saved with the extension feature.

17) Provide an example of a step definition file in Cucumber.

Step definition corresponding to the step “Open Chrome browser and launch the application” may look like the code mentioned below:

```
@Given("^Open Chrome browser and launch the application$")  
public void openBrowser()  
{  
    driver = new ChromeDriver();  
    driver.manage().window().maximize();  
    driver.get("www.facebook.com");  
}
```

18) What is the purpose of the Cucumber Options tag?

Cucumber Options tag is used to provide a link between the feature files and step definition files. Each step of the feature file is mapped to a corresponding method on the step definition file. Below is the syntax of Cucumber Options tag:

```
@CucumberOptions(features="Features",glue={"StepDefinition"})
```

19) How can Cucumber be integrated with Selenium WebDriver?

Cucumber can be integrated with the Selenium Webdriver by downloading the necessary JAR files.

Given below are the list of JAR files that are to be downloaded for using Cucumber with Selenium web driver:

- cucumber-core-1.2.2.jar
- cucumber-java-1.2.2.jar
- cucumber-junit-1.2.2.jar

- cucumber-jvm-deps-1.0.3.jar
- cucumber-reporting-0.1.0.jar
- gherkin-2.12.2.jar

20) When is Cucumber used in real-time?

Cucumber tool is generally used in real-time to write acceptance tests for an application. It is generally used by non-technical people such as Business Analysts, Functional Testers, etc.

21) What is the use of Behavior Driven Development in Agile methodology?

The advantages of Behavior Driven Development are best realized when non-technical users such as Business Analysts use BDD to draft requirements and provide the same to the developers for implementation.

In Agile methodology, user stories can be written in the format of feature file and the same can be taken up for implementation by the developers.

22) Explain the purpose of keywords that are used for writing a scenario in Cucumber.

- “Given” keyword is used to specify a precondition for the scenario.
- “When” keyword is used to specify an operation to be performed.
- “Then” keyword is used to specify the expected result of a performed action.
- “And” keyword is used to join one or more statements together into a single statement.

23) What is the name of the plugin that is used to integrate Eclipse with Cucumber?

Cucumber Natural Plugin is the plugin that is used to integrate Eclipse with Cucumber.

24) What is the meaning of the TestRunner class in Cucumber?

TestRunner class is used to provide the link between the feature file and the step definition file. The next question provides a sample representation of how the TestRunner class will look like. A TestRunner class is generally an empty class with no class definition.

25) Provide an example of the TestRunner class in Cucumber.

```
Package com.sample.TestRunner  
import org.junit.runner.RunWith;  
import cucumber.api.CucumberOptions;  
import cucumber.api.junit.Cucumber;
```

```
@RunWith(Cucumber.class)  
@CucumberOptions(features="Features",glue={"StepDefinition"})  
public class Runner  
{    }
```

26) What is the starting point of execution for feature files?

When integrated with Selenium, the starting point of execution must be from the TestRunner class.

27) What do you understand by cucumber dry run?

Cucumber dry run is used to compile cucumber features files and step definitions. It is run to find any compilation errors. If it finds anyone, it will show when we use dry run.

28) Should any code be written within the TestRunner class?

No code should be written under the TestRunner class. It should include the tags @RunWith and @CucumberOptions.

29) What is the use of features property under the Cucumber Options tag?

Features property is used to let the Cucumber framework identify the location of the feature files.

30) What is the use of glue property under the Cucumber Options tag?

Glue property is used to let the Cucumber framework identify the location of step definition files.

31)What are the two build management tools that can be integrated with Cucumber?

Following are the two build management tools that can be integrated with Cucumber:

- Gradle
- Maven

32)What If You Don't Use The Cucumber Keywords In Test Steps?

Please note that it's not mandatory to write keywords in test steps.

For example, we can build a test step like the one shown in the next line.

e.g.- We are testing using cucumber.

33) What is the main aim of the Behavior Driven Development (BDD) framework?

The main aim of the Behavior Driven Development framework is to make various project roles such as Business Analysts, Quality Assurance, Developers, etc., understand the application without diving deep into the technical aspects. maximum number of steps that are to be written within a scenario are 3-4 steps.

34) What are the two files required to execute a Cucumber test scenario?

Following are the two files required to execute a Cucumber test scenario:

- Features
- Step Definition

35) What do you understand by a feature file?

A feature file is used to provide a high-level description of an Application Under Test (AUT). The first line of the feature file must start with the keyword 'Feature' followed by the description of the application under test. A feature file may include multiple scenarios within the same file, and the extension of the feature file must be ".feature."

37) What is the difference between Selenium and Cucumber?

Selenium and Cucumber are both open-source testing tools, and both are used for functional testing. But there are some differences between them.

Following are some critical differences between Selenium and Cucumber:

- Selenium is a web browser automation tool for web apps, while Cucumber is an automation tool for behavior-driven development that can be used with Selenium (or Appium).
- Selenium is used for automated UI testing, while Cucumber is used for acceptance testing.
- Selenium is preferred by technical teams (SDET/programmers), while Cucumber is typically preferred by non-technical teams (business stakeholders and testers).
- Selenium can work independently of Cucumber. Cucumber depends on Selenium or Appium for step-definition implementation.
- In Selenium, the script creation is complex, while Cucumber is simpler than Selenium.

38) Why we have to use Cucumber with Selenium?

Cucumber and Selenium are both testing frameworks and prevalent technologies. Many organizations use Selenium for functional testing. Along with Selenium, these organizations

integrate Cucumber with Selenium as Cucumber makes it easy to read and understand the application flow. The most significant benefit of using Cucumber with Selenium is that it facilitates developers to write test cases in simple feature files easily understood by managers, non-technical stakeholders, and business analysts. It provides the facility to write tests in a human-readable language called Gherkin. The Selenium-Cucumber framework supports programming languages such as Java, .NET, PHP, Python, Perl, etc.

39) How can you use the Options tag in the Cucumber framework?

In the Cucumber framework, the Options tag is a part of the TestRunner file and comes in the form of an annotation called `@CucumberOptions`. It contains two parameters feature and glue.

- Feature parameter: The feature parameter is used to specify the path of the feature file.
- Glue parameter: The glue parameter is used to specify the path of the step definition file.

See the code implementation of TestRunner file with Option tag:

```
import org.junit.runner.RunWith;  
import cucumber.api.CucumberOptions;  
import cucumber.api.junit.Cucumber;  
  
@RunWith(Cucumber.class)  
@CucumberOptions(  
    features = "src/test/java/features ",  
    glue = {"stepDefinitions"})  
  
public class TestRunner {  
}
```

We have to import `org.junit.runner.RunWith` for the `@RunWith` annotation and `cucumber.api.CucumberOptions` for the `@CucumberOptions` annotation.

40) What Are Cucumber Tags? And Why Do We Use Them?

Cucumber tags help in filtering the scenarios. We can tag the scenarios and then run them based on tags.

We can add tags to scenarios with `<@>` symbol.

We can use the following command to run a cucumber tagged scenario.

cucumber features -t @<tag_name>

Example: cucumber features -t @test

GIT and GITHUB Interview Questions & Answers

Q1) What is GIT?

ANS: Git is an open-source distributed version control system and source code management (SCM) system with an insistence to control small and large projects with speed and efficiency.

Q2) What is a repository in Git?

ANS: A repository consists of a list named .git, where git holds all of its metadata for the catalog. The content of the .git file is private to Git.

Q3) What are the advantages of using GIT?

- Data repetition and data replication is possible
- It is a much applicable service
- For one depository you can have only one directory of Git
- The network performance and disk application are excellent
- It is effortless to collaborate on any project
- You can work on any plan within the Git

Q4) Why do we require branching in GIT?

ANS: With the help of branching, you can keep your branch, and you can also jump between the different branches. You can go to your past work while at the same time keeping your recent work intact.

Q5) What is the purpose of 'git config'?

ANS: The 'Git config' is a great method to configure your choice for the Git installation. Using this command, you can describe the repository behavior, preferences, and user information.

Q6) What is a 'conflict' in git?

ANS: A 'conflict' appears when the commit that has to be combined has some change in one place, and the current act also has a change at the same place. Git will not be easy to predict which change should take precedence.

Q7) What is the difference between git pull and git fetch?

ANS: Git pull command pulls innovation or commits from a specific branch from your central repository and updates your object branch in your local repository. Git fetch is also used for the same objective, but it works in a slightly different method. When you behave a git fetch, it pulls all new commits from the desired branch and saves it in a new branch in your local repository. If you need to reflect these changes in your target branch, git fetch should be followed with a git merge. Your target branch will only be restored after combining the target branch and fetched branch.

To make it simple for you, remember the equation below:

Git pull = git fetch + git merge

Q8) How to resolve a conflict in Git?

ANS: If you need to resolve a conflict in Git, edit the list for fixing the different changes, and then you can run "git add" to add the resolved directory, and after that, you can run the 'git commit' for committing the repaired merge.

Q9) What is the purpose of the git clone?

ANS: The git clone command generates a copy of a current Git repository. To get the copy of a central repository, 'cloning' is the simplest way used by programmers.

Q10) What is git pull origin?

ANS: pull is a get and a consolidation. 'git pull origin master' brings submits from the master branch of the source remote (into the local origin/master branch), and then it combines origin/master into the branch you currently have looked out.

Q11) What does git commita?

ANS: Git commits "records changes to the storehouse" while git push "updates remote refs along with contained objects" So the first one is used in a network with your local repository, while the latter one is used to communicate with a remote repository.

Q12) Explain what is commit message?

ANS: Commit message is a component of git which shows up when you submit a change. Git gives you a content tool where you can enter the adjustments made to a commit.

Q13) What is the distinction between Git and Github?

 Git	 GitHub
Software	Service
Version control	Git repository hosting
Maintained by Linux	Maintained by Microsoft
Open-Source	Free or paid membership
No user management	Built-in user management
Locally installed	Hosted on the web
Minimal external tool configuration	Active marketplace for tool integration
Little to no competition	High competition

Q14) In Git, how would you return a commit that has just been pushed and made open?

ANS: There can be two answers to this question and ensure that you incorporate both because any of the below choices can be utilized relying upon the circumstance: Remove or fix the bad document in another commit and push it to the remote repository. This is a unique approach to correct a mistake. Once you have necessary changes to the record, commit it to the remote repository for that I will utilize.

```
git submit -m "commit message."
```

Make another commit that fixes all changes that were made in the terrible commit. to do this, I will utilize a command.

```
git revert <name of bad commit>
```

Q15) What does the committed item contain?

ANS: Commit item contains the following parts; you should specify all the three present below: A set of records, representing to the condition of a task at a given purpose of time References to parent commit objects An SHA1 name, a 40 character string that uniquely distinguishes the commit object.

Q16) Describing branching systems you have utilized?

ANS: Feature Branching: >A component branch model keeps the majority of the changes for a specific element within a branch. >At the point when the item is throughout tested and approved by automated tests, the branch is then converted into master.

Task Branching: >In this model, each assignment is actualized on its branch with the undertaking key included in the branch name. >It is anything but difficult to see which code actualizes which task, search for the task key in the branch name.

Release Branching: >Once the create branch has procured enough features for a discharge, you can clone that branch to frame a Release branch. >Making this branch begins the following discharge cycle so that no new features can be included after this point, just bug fixes, documentation age, and other release-oriented assignments ought to go in this branch. >When it is prepared to deliver, the release gets converged into master and labeled with a form number. >Likewise, it should be converged once again into creating a branch, which may have advanced since the release was started.

Q17) Explain the difference between `git merge` and `git rebase` and when you would use each?

ANS: 'git merge' merges changes from one branch into another, keeping distinct branch histories. It forms merge commits that directly show where branches came together. 'git rebase' reforms history by using commits from one branch onto another, causing a linear sequence of commits. Prefer 'merge' to keep distinct branch timelines and use 'rebase' for enhancing commit history before merging branches.

Q18) What language is used in GIT?

ANS: Git is mainly developed using the C programming language. The core features and commands of Git, containing its data structures and algorithms, are applied in C. This choice of language confirms productivity, speed, and portability across distinct operating systems and platforms.

Q19) How do you handle large files with Git?

ANS: To handle large files in Git, use Git LFS (Large File Storage). It tracks large files separately from your repository, storing them on a remote server. This prevents bloating your repository size and secures improved performance while operations like cloning and fetching.

Q20) Mention the various Git repository hosting functions.

ANS: Pikacode Visual Studio Online GitHub GitEnterprise
SourceForge.net

CI/CD and Jenkins Interview Questions & Answers

Q #1) What is Jenkins?

Answer: Jenkins is a free open-source Continuous Integration tool and automation server to monitor continuous integration and delivery. It is written in Java. It is known as an automated Continuous Delivery tool that helps to build and test the software system with easy integration of changes to the system. Jenkins follows Groovy Scripting. Also, it enables developers to continuously check in their code and also analyze the post-build actions. The automation testers can use to run their tests as soon as the new code is added or code is modified.

Q #2) What are the features of Jenkins?

Answer: 1. Free open source. 2. Easy installation on various operating systems. 3. Build Pipeline Support. 4. Workflow Plugin. 5. Test harness built around JUnit. 6. Easy upgrades. 7. Rapid release cycle. 8. Easy configuration setup. 9. Extensible with the use of third-party plugins.

Q #3) What are the advantages of Jenkins? Why we use Jenkins?

Answer: Build failures are cached during the integration stage. Notifies the developers about build report status using LDAP (Lightweight Directory Access Protocol) mail server. Maven release project is automated with simple steps. Easy bug tracking. Automatic changes get updated in the build report with notification. Supports Continuous Integration in agile development and test-driven development.

Q #4) What is Continuous Integration in Jenkins?

Answer: Continuous integration is the process of continuously checking-in the developer's code into a version control system and triggering the build to check and identify bugs in the written code. In software development, multiple developers work on different software modules. While performing integration testing all the modules are being integrated together. It is considered as the development practice to integrate the code into the source repository. Whenever the programmer/developer makes any change to the current code, then it automatically gets integrated with the system running on the tester's machine and makes the testing task easy and speedy for the system testers.

Continuous Integration comprises of:

- Development and Compilation
- Database Integration
- Unit Testing
- Production Deployment
- Code Labelling
- Functional Testing
- Generating and Analyzing Reports

Q #5) What is the difference between Hudson and Jenkins?

Answer: There is no difference between Hudson and Jenkins. Hudson was the former name of Jenkins, after going through several issues the name was changed to Jenkins.

Q #6) Which command is used to start Jenkins?

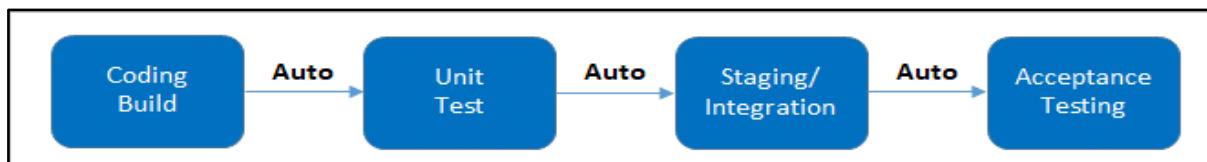
Answer: You can follow the below-mentioned steps to start Jenkins:

1. Open Command Prompt
2. From the Command Prompt browse the directory where Jenkins.war resides
3. Run the command given below: D:\>Java -jar Jenkins.war

Q #7) What is the difference between Continuous Integration, Continuous Delivery, and Continuous Deployment?

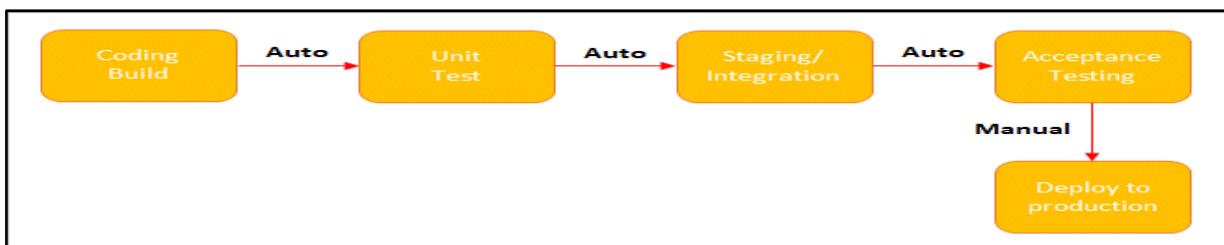
Answer: The diagrammatic representation given below can elaborate on the differences between Continuous Integration, Continuous Delivery, and Continuous Deployment more precisely.

Continuous Integration:



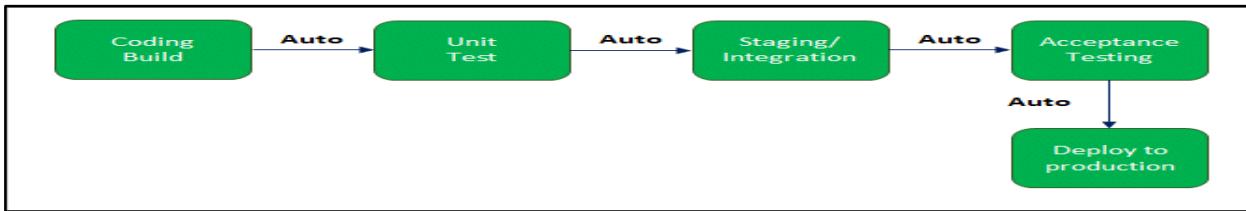
(It involves keeping the latest copy of the source code at a commonly shared hub where all the developers can check to fetch out the latest change in order to avoid conflict.)

Continuous Delivery:



(Manual Deployment to Production. It does not involve every change to be deployed.)

Continuous Deployment:



(Automated Deployment to Production. Involves every change to be deployed automatically.)

Q #8) What is Jenkins Pipeline? What is a CI CD pipeline?

Answer: The pipeline can be defined as the suite of plugins supporting the implementation and integration of continuous delivery pipelines in Jenkins.

Continuous integration or continuous delivery pipeline consists of build, deploy, test, release pipeline. The pipeline feature saves a lot of time and error in maintaining the builds. Basically, a pipeline is a group of build jobs that are chained and integrated in sequence.

Q #9) What is SCM? Which SCM tools are supported in Jenkins?

Answer: SCM stands for Source Control Management. SCM module specifies the source code location. The entry point to SCM is being specified as jenkins_jobs.scm. The job specified with 'scm' attribute accepts multiple numbers of SCM definitions.

Q #10) Which CI Tools are used in Jenkins?

Answer: Jenkins supported the following CI tools: 1. Jenkins 2. GitLab CI 3. Travis CI 4. CircleCI 5. Codeship 6. Go CD 7. TeamCity 8. Bamboo

Q #11) Which commands can be used to start Jenkins manually?

Answer: You can use the following commands to start Jenkins manually: 1. (Jenkins_url)/restart: To force restart without waiting for build completion. 2. (Jenkin_url)/safeRestart: Waits until all the build gets completed before restarting.

Q #12) How to make sure that your project build does not break in Jenkins?

Answer: You need to follow the below-mentioned steps to make sure that the Project build does not break: 1. Clean and successful installation of Jenkins on your local machine with all unit tests. 2. All code changes are reflected successfully. 3. Checking for repository synchronization to make sure that all the differences and changes related to config and other settings are saved in the repository.

Q #13) How will you define Post in Jenkins?

Answer: Post is a section that contains several additional steps that might execute after the completion of the pipeline. The execution of all the steps within the condition block depends upon the completion status of the pipeline. The condition block includes the following conditions – changed success, always, failure, unstable and aborted.

Q #14) What are Parameters in Jenkins?

Answer: Parameters are supported by the Agent section and are used to support various use-cases pipelines. Parameters are defined at the top-level of the pipeline or inside an individual stage directive.

Q #15) How can you secure Jenkins?

Answer: Securing Jenkins is a little lengthy process, and there are two aspects of securing Jenkins: (i) Access Control which includes authenticating users and giving them an appropriate set of permissions, which can be done in 2 ways. □ Security Realm determines a user or a group of users with their passwords. □ Authorization Strategy defines what should be accessible to which user. In this case, there might be different types of security based on the permissions granted to the user such as Quick and simple security with easy setup, Standard security setup, Apache front-end security, etc. (ii) Protecting Jenkins users from outside threats.

Q #16) How to create a backup and copy files in Jenkins?

Answer: In Jenkins, all the settings, build logs and configurations are stored in the JENKINS_HOME directory. Whenever you want to create a backup of your Jenkins you can back up JENKINS_HOME directory frequently. It consists of all the job configurations and slave node configurations. Hence, regularly copying this directory allows us to keep a backup of Jenkins. You can maintain a separate backfile and copy it whenever you need the same. If you want to copy the Jenkins job, then you can do so by simply replicating the job directory.

Q #17) How does Jenkins fit in with DevOps?

Answer: DevOps refers to software development practice that sort of blends & synchronizes the process of software development (Dev) with IT operations (Ops). Thus creating the whole development cycle feasible & shorter by constantly building fixes, builds, updates &

features. Jenkins plays an imperative role as it helps in this integration by automating the build, test as well as deployment process.

Q #18) How do you integrate GIT with Jenkins?

Answer: •Once you are at Jenkins Dashboard click on the “Manage Jenkins” button.

- Click on Manage Plugins
- On the Plugin page, select the GIT Plugin.
- Install the Git plugin and restart your Jenkins.
- Once you install the plugins, go to Manage Jenkins on your Jenkins dashboard. You will see your plugins listed among the rest.

Q #19) How Jenkins can be used for testing in different environments?

Answer: •Jenkins checks the Git repository at periodic intervals for any changes made in the source code.

•Each builds requires a different testing environment which is not possible for a single Jenkins server. To perform testing in different environments, Jenkins uses various Slaves as shown in the below diagram.

•Jenkins Master requests these Slaves to perform testing and generate test reports.

Q #20) Differentiate between Maven, Ant, and Jenkins?

Maven	Ant	Jenkins
Build automation and project management tool	Build automation tool	Continuous Integration/Continuous Delivery (CI/CD) tool
Dependency management, build lifecycle handling	Dependency management, build lifecycle handling	Dependency management, build lifecycle handling
Limited flexibility due to standard conventions	Limited flexibility due to standard conventions	Limited flexibility due to standard conventions

Supports CI/CD via Jenkins or other CI tools	Supports CI/CD via Jenkins or other CI tools	Supports CI/CD via Jenkins or other CI tools
--	--	--

"Job preparation is not just about resumes and interviews; it's about believing in yourself. You've got this!"

"Research, practice, and confidence—these are your keys to success. Prepare well, and the right job will find you."

Yours sincerely,

Krishna N.