* Selenium Interview Questions:  
    
  Preparing for a Selenium interview? Here are some common questions you might encounter:  
    
  1. How to avoid Stale Element Reference Exception?  
  Stale Element Reference Exception occurs when an element is no longer attached to the DOM. To avoid this:
  + Use explicit waits (WebDriverWait) to ensure the element is present before interacting with it.
  + Refresh the page or re-locate the element if needed.
* 2. Difference between XPath and CSS Selector?  
    Both are used to locate elements:
  + **XPath**: vertical
    - More flexible but slower.
    - Supports complex traversals.
    - Absolute or relative paths.
  + **CSS Selector**: horizontal
    - Faster and simpler.
    - Limited to simple traversals.
    - Mostly based on tag names, classes, and IDs.

3. XPath for Dynamic Element with Fixed and Changing Parts?  
  - Consider: <input type ='text' name ='user123'/>  
  - Given: The value 'user' is fixed, while the last 4 digits change frequently.

* Use XPath like this:
* Contains
* Text()
* Start wit()
* Xpath axis input:: descending
* Index [1]
  + //input[contains(@name, 'user')]
  + //input[text(),name ='user')]

4. Handling Multiple Windows in Selenium:  
  i. Identify the number of windows opened.  
  ii. Move to a child window based on a specific page title condition.  
  iii. Verify expected page titles among child windows and navigate accordingly.

* **i. Identify the number of windows opened:**
  + driver.getWindowHandles() returns a set of window handles.
* **ii. Move to a child window based on a specific page title condition:**
  + Iterate through window handles and switch to the desired one.
* **iii. Verify expected page titles among child windows and navigate accordingly:**
  + Switch to each window and check the title.

5. Page Factory vs. Page Object: Differences?

* **Page Object Pattern**:
  + Organizes web elements and their interactions in a class.
  + Enhances code reusability and maintainability.
* **Page Factory**:
  + An extension of the Page Object pattern.
  + Uses annotations (@FindBy) to initialize elements.
  + Reduces boilerplate code.

6. Downloading Files in Selenium: How?

* Locate the download link/button.
* Set browser preferences to specify download directory.
* Click the link/button to trigger the download.

7. Uploading Files in Selenium WebDriver: How?

* Locate the file input element (<input type="file">).
* Use sendKeys to set the file path.
* Submit the form.

Most Asked Interview Question about CI/CD Pipeline: Let's Break It Down!  
  
Continuous Integration (CI) and Continuous Deployment (CD) pipelines are the backbone of modern software development. Here's an explanation of the process:  
  
1. Continuous Integration (CI):  
  - Developers work on their code locally, making changes and improvements.  
  - As soon as they're ready to integrate their changes into the main codebase, they push their code to a version control system (like Git).  
  - Upon pushing the changes, the CI server (such as Jenkins, Travis CI, CircleCI, etc.) detects the new code and triggers an automated build process.  
  - During the build process, the CI server pulls the latest code from the repository, compiles the code, runs automated tests, and performs other necessary checks.  
  - If any issues are detected during this process (such as failing tests or compilation errors), the CI server notifies the developers immediately, allowing them to address the problems promptly.  
  
2. Continuous Deployment (CD):  
  - Once the CI process is successfully completed and the code passes all tests, it's ready for deployment.  
  - In a CD pipeline, the CI server can automatically deploy the code to various environments (like development, staging, or production) based on predefined rules and configurations.  
  - Deployment can involve various steps such as packaging the application, provisioning infrastructure (if necessary), configuring services, and deploying the application.  
  - Automated deployment ensures consistency and reliability, reducing the risk of errors that may occur during manual deployment processes.  
  - Continuous Deployment pipelines often include additional steps like smoke testing or integration testing in the deployed environment to ensure that the application behaves as expected in its production environment.