Handling multiple window?

In order to handle multiple window we have two methods

1. Window handle ()
2. Window handles ()

What is window handle ?

Window handle is unique id that holds the address of window or a tab.

It is approximately consist of almost 40 alpha numeric character.

The main purpose of handles is to keep track of tabs and to switch those tabs.

Important note; when you using link text to find an element then make sure that the spaces before and after the text you removed other wise it will give error. Because developer don’t remove the spaces for his convenient . if they wan new separate window they will use spaces and if they want use same window with many tabs they us without space.

What is synchronization(waqiyaat ka ake saath hona.) ?

In English its mean , arrange the two or more events so that which co-occur at same time.

In selenium its mean bringing the speed of two or more components at the same level.

We are bringing our script and page or element at same level of speed.

Thread.sleep(); -- > is static wait/unconditional wait

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There are three types of waits in selenium

1. Implicit wait
2. Explicit wait
3. Fluent wait

Implicit wait --- > it tells to web driver wait for certain amount of time before throwing an exception(aytraaz). It is global wait.

Implicit wait is a type of wait in Selenium that tells the WebDriver to wait for a certain amount of time  
 before throwing a NoSuchElementException.  
It is applied globally for all elements on which the WebDriver interacts.

Usually implicit wait is set 20 seconds.

Suppose you set 20 seconds time and it find element in 5 seconds the rest of time will be ignored and code will be executed. If it does not find element in 20 seconds then exception error will occur.

It will only be written once and will be applied to the whole session of the execution.

It will only work with single element. It does not work with list of collection elements, ok.

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**Class Selenium -08 Date; 15-Nov-23**

What is explicit wait?

You set the time for single any specific element , it is not used as global.

Syntax explicit waits link

<https://syntaxprojects.com/dynamic-data-loading-demo.php>

chat GPT explanation (

The code you provided is written in Java and uses the Selenium WebDriver library for automated testing. Let me explain what each part of the code does:

1. **WebDriverWait wait = new WebDriverWait(driver, 20);**: This line initializes a WebDriverWait object, which is used to wait for a certain condition to be met before proceeding with the execution of the test. The **driver** object is the instance of the WebDriver that interacts with the browser, and **20** is the maximum amount of time to wait for the condition to be true.
2. **wait.until(ExpectedConditions.visibilityOfAllElementsLocatedBy(By.xpath("//p[contains(text() ,'First Name ')]")));**: This line waits until all elements located by the specified XPath are visible on the web page. The condition is implemented by the **visibilityOfAllElementsLocatedBy** ExpectedCondition.
3. **WebElement firstName = driver.findElement(By.xpath("//p[contains(text() ,'First Name ')]"));**: Once the visibility condition is met, this line finds the first element on the web page that matches the specified XPath, which contains the text "First Name." The located element is then assigned to the **firstName** variable of type **WebElement**.

In summary, this code waits for the visibility of all elements with the specified XPath containing the text "First Name" on the web page and then assigns the first matching element to the **firstName** variable for further interaction in your test script.

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Wait.until (the condition is that all elements located by the specified XPath should become visible within the specified time frame (20 seconds).)

the key difference is that point 2 is waiting for a condition to be satisfied (visibility of elements), and point 3 is finding and assigning a WebElement to a variable for further interaction in your test script. The waiting mechanism ensures that the web page is in the desired state (with elements visible) before you proceed with interacting with those elements.

What is difference in implicit and explicit waits

Implicit and explicit waits are techniques used in Selenium WebDriver to handle synchronization issues in test automation.

The difference is of condition.

In implicit you only waiting the element to be found. In this the element may not be visible or it might not be enable to click on it. Implicit wait only will help you to find the element.it is not going to tell you that okay I found element but it is not enabled or disabled.

But in explicit you are setting different condition for a specifically this or that element.

1. **Scope of Application:**
   * **Implicit Wait:** It is set globally for the entire WebDriver instance. Once set, it is applicable to all subsequent findElement() or findElements() calls throughout the script.
   * **Explicit Wait:** It is applied selectively to specific elements or conditions. You can specify different wait conditions for different elements or situations.
2. **Wait Condition:**
   * **Implicit Wait:** It waits for a specified amount of time for the element to be present in the DOM. If the element is found before the timeout expires, the script continues execution. If the timeout is reached, a **NoSuchElementException** is thrown.
   * **Explicit Wait:** It waits for a certain condition to be met before proceeding with the execution. Conditions can include element visibility, presence, clickability, etc. You can specify the expected conditions and maximum time to wait.
3. **Flexibility:**
   * **Implicit Wait:** It provides less flexibility as it is a global setting applied to all elements. If a certain element needs a longer or shorter wait time, it cannot be easily adjusted without changing the global timeout.
   * **Explicit Wait:** It offers more flexibility as you can specify different wait conditions and timeouts for different elements or scenarios. This allows for a more fine-grained control over synchronization.
4. **Performance:**
   * **Implicit Wait:** when the element is not found It waits until the set time is not finished. especially if the specified wait time is too long.
   * **Explicit Wait:** It is more performance-efficient as it waits only as long as necessary for a specific condition to be met.
5. **Exception Handling:**
   * **Implicit Wait:** It may lead to unexpected delays or timeouts as it is not tied to a specific condition. A generic **NoSuchElementException** is thrown if the element is not found within the specified time
   * **Explicit Wait:** It allows for better exception handling. You can catch more specific exceptions, such as **TimeoutException** or **ElementNotVisibleException**, and take appropriate actions based on the type of exception.

In summary, implicit waits are simpler to use but less flexible, while explicit waits provide more control and are better suited for complex synchronization scenarios in test automation. It's often recommended to use explicit waits over implicit waits for more robust and maintainable test scripts.

Explicit task website link

<https://syntaxprojects.com/dynamic-elements-loading.php>

important note wild card is only only used with x path only. It does not use with scc selector or other locator. Wild card is used when the tag name in html is changeable when developers make update page. Like header , h1, h2, h3 these header may change , you use star \* symbol inplace of tag name.

//\*[contains(text(), ‘welcome’)] this is the syntax for wild card.

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Fluent wait ? it is used to tell web driver wait for certain condition as well as its frequency.

It is not used in real work, it is outdated type of wait. Do not go deep inside it.

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What are web tables ?

Web tables are web element which constructed by having rows and columns

Types of web tables

1. Static web tables
2. Dynamic web tables

Web tables link

<https://syntaxprojects.com/table-search-filter-demo.php>

web order website link

<http://secure.smartbearsoftware.com/samples/TestComplete11/WebOrders/Login.aspx>

Stale element reference exception ; this error comes when your page is refreshed automatically or the element locator is not found correct.

It is worst error in life of automation engineer. How to handle this error.

Please refresh you page.

Fine locator correctly on DOM.

Syntax hrm link

<http://hrm.syntaxtechs.net/humanresources/symfony/web/index.php/leave/viewLeaveList>

What is pagination ? when your table is divided into more then 1 we use next button to move to next page it is called pagination.

Keys of key board working in selenium ?

In selenium there is option where you can use keys of key board;

Here is question that what is difference in enter key and click button?

As a tester our job is to check the functionality of login button. Bute enter key board key not tell us the functionality of button.

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Class 10 Date; 18-Nov-23

What is screen shot in selenium ?

Basic purpose of screen shot is for proof.

Take screen shot to show bug in case of failure of code.

Take screen short for record keeping.

Take screen short for as a document.

Take screen short to verify that from where code was giving error.

What is actions class ?

Action class is used to interact with actions performed by keyboard and mouse.

Actions class is used where click and send keys are not useful enough.

What are methods are operator in actions class ?

The method which we learnt in class are

1. Right click
2. Double click
3. Perfom
4. Build
5. Pick and hold
6. Drop

Guru 99 website link

<https://demo.guru99.com/test/simple_context_menu.html>

<https://www.guru99.com/selenium-tutorial.html>

when you uploading a file, the make sure the file upload button must have the tag name input.

file uploading website

<https://the-internet.herokuapp.com/upload>

if file not uploading by send key method then please learn about robot class library in java.

Robot class has many method to handle window based Alert.

What is java scrip executor ?

It is interface provided by selenium.

It is a library present in selenium , it also can be run in different languages

Java script is an interface it has many different methods.

When we will use java script library ?

Only only will be using

1. When click option not working
2. And when opening a new tab.

Action which can be performed by java script executor;

1. Click
2. Scroll the page
3. Refresh the page
4. Open a new tab
5. Highlight the element
6. Scroll the element

Java script executor give two methods

1. Execute script
2. Execute Async script

We will study only first one.

Why and when we will use highlight element action of java script executor

We will you when you need take a screen shot where the important point is located.

You will save that screen shot as a proof.