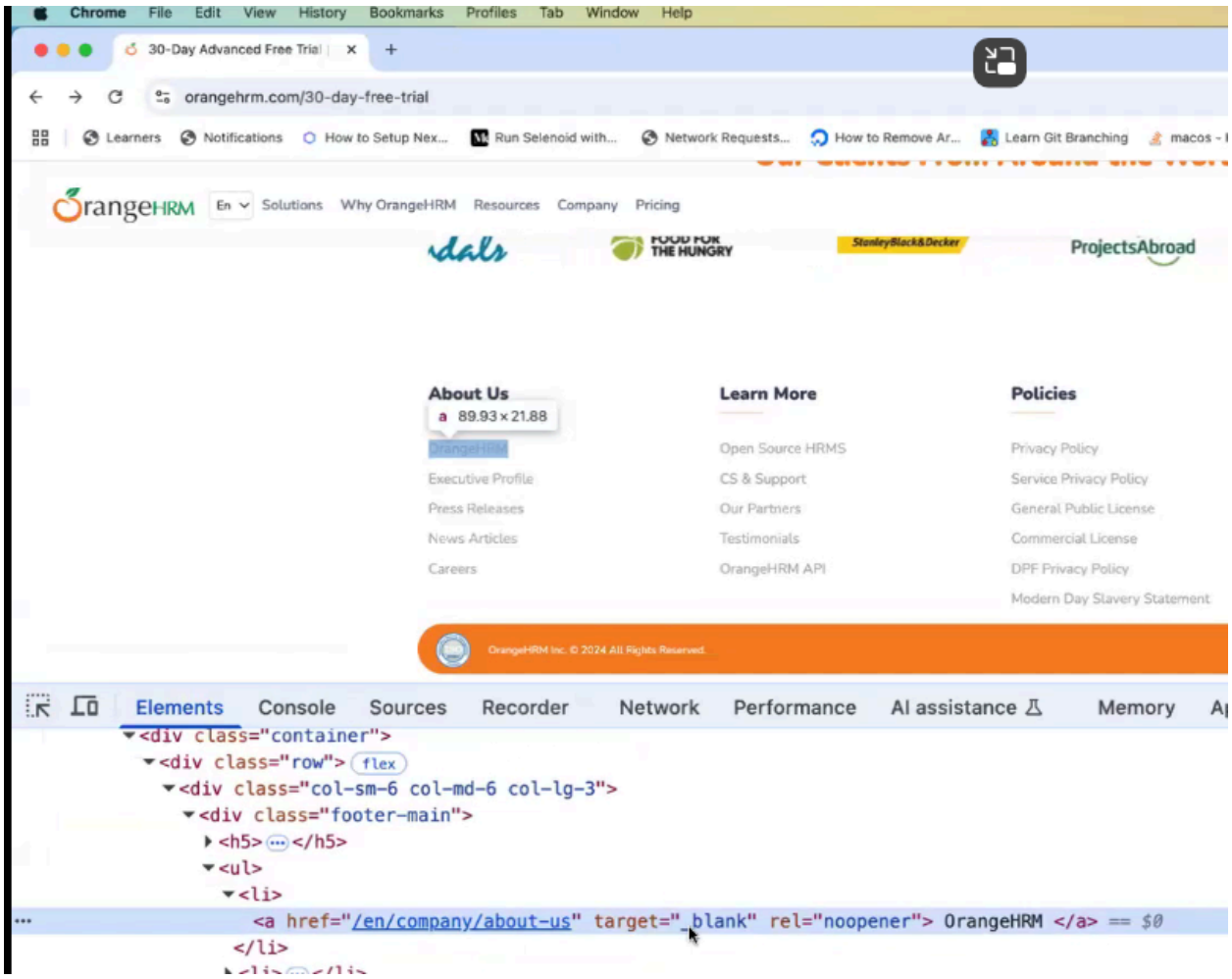
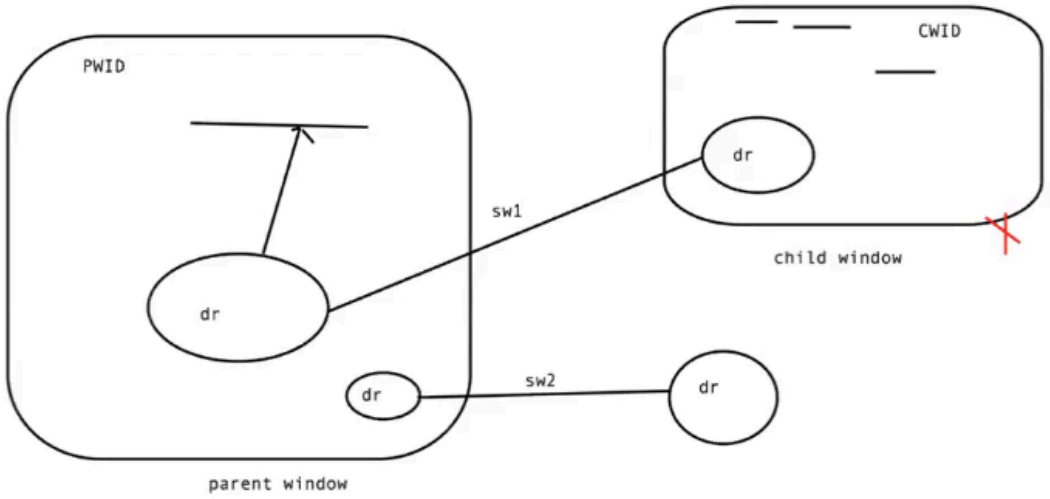
Target attribute is the hero here-
It will say whether to open in new tab or window or same tab or window. Blank means new tab or window. Tab or window depends on browser settings you have kept.



Here we have to switch drivers between windows manually.
Driver.close will close the parent or child window where we are in.
Driver.quit will close entire browser and all windows.



Driver will be lost if we dont switch manually.

Click orange hrm footer link-
Orange hrm website. Scroll down to footer. Click orange hrm link.
Whenever we need to fetch values from set or order less collection use iterator.

```java
package seleniumsessions;

import java.util.Iterator;
import java.util.Set;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class BrowserWindowPopUpHandling {

    //window handler api: tab/window: browser window pop up
    //url, title, webelements

    public static void main(String[] args) {

        WebDriver driver = new ChromeDriver();

        driver.get("https://www.orangehrm.com/30-day-free-trial");//parent
        driver.findElement(By.linkText("OrangeHRM")).click();//child

        //1st: fetch the window IDs
        Set<String> handles = driver.getWindowHandles();
        Iterator<String> it = handles.iterator();

        String parentWindowID = it.next();
        System.out.println("parent window id: "+ parentWindowID);

        String childWindowID = it.next();
        System.out.println("child window id: "+ childWindowID);
```

```
Mar 25, 2025 8:48:45 AM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
WARNING: Unable to find an exact match for CDP version 134, returning the closest version; found: 133; Please upda
Exception in thread "main" org.openqa.selenium.ElementClickInterceptedException: element click intercepted: Elemen
  (Session info: chrome=134.0.6998.118)
Build info: version: '4.29.0', revision: '5fc1ec94cb'
```

As we did not scroll to the area.

Added 22 23 for scroll-

```java
        WebDriver driver = new ChromeDriver();

        driver.get("https://www.orangehrm.com/30-day-free-trial");//parent
        Actions act = new Actions(driver);
        act.sendKeys(Keys.PAGE_DOWN).perform();
        driver.findElement(By.linkText("OrangeHRM")).click();//child

        //1st: fetch the window IDs
```

```
Console  Problems  Javadoc  Declaration  Progress  TestNG  Debug  Expressions  Termin
<terminated> BrowserWindowPopUpHandling [Java Application] /Users/naveenautomationlabs/.p2/pool/plugins/org.eclipse.justj.ope
Mar 25, 2025 8:50:27 AM org.openqa.selenium.devtools.CdpVe
WARNING: Unable to find an exact match for CDP version 134
parent window id: 33A78C104F5A2D6599A7CD36EA9A93A7
child window id: 1C1EB0BEAEA0105B5719A3A948C1EC32
```

Window method returns web driver.

Switch windows-
Get title of child.
Close child.
Come back to parent .
Get title of parent.

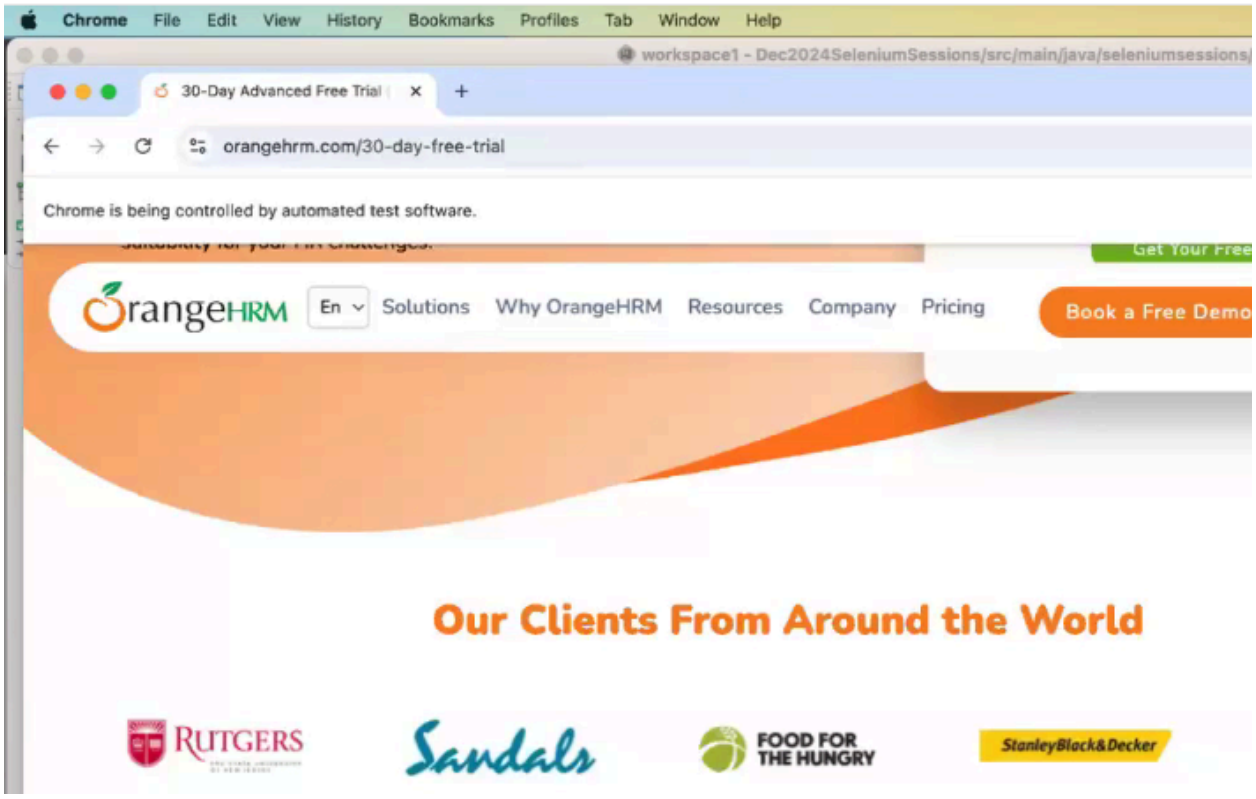
```
        //2nd: switching work:
        driver.switchTo().window(childWindowID);
        System.out.println("child window title : "+ driver.getTitle());

        Thread.sleep(4000);
        //close the child window:
        driver.close();

        //driver is lost:

        //switch back to parent window:
        driver.switchTo().window(parentWindowID);
        System.out.println("parent window title : "+ driver.getTitle());

        driver.quit();
```

Switches windows and get the details

```
workspace1 - Dec2024SeleniumSessions/src/main/java/s...msessions/BrowserWindowPopUpHandling.java - Eclipse IDE
Console  Problems  Javadoc  Declaration  Progress  TestNG  Debug  Expressions  Terminal 1
<terminated> BrowserWindowPopUpHandling [Java Application] /Users/naveenautomationlabs/.p2/pool/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.macosx.x86_64_14.0.2.v20200815-0932/jre/bin/ja
Mar 25, 2025 8:54:53 AM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
WARNING: Unable to find an exact match for CDP version 134, returning the closest versio
parent window id: EECFB9E0D91976E10D06A11A2BF09404
child window id: 54D7618D8BBB7AD4FFA55FFA5D819677
child window title : Get to Know Us | Innovating HR Solutions | OrangeHRM HR Software
parent window title : 30-Day Advanced Free Trial | OrangeHRM HR Software
```

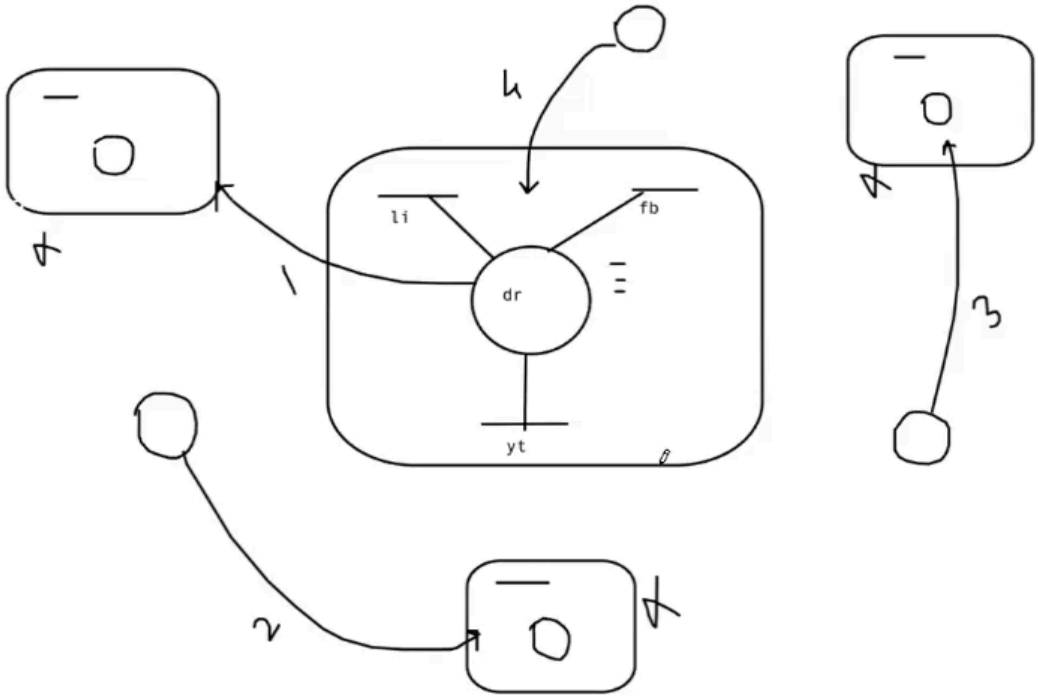
Comment the quit statement-
Parent window will be open.

```
50
51          //driver.quit();
52
```



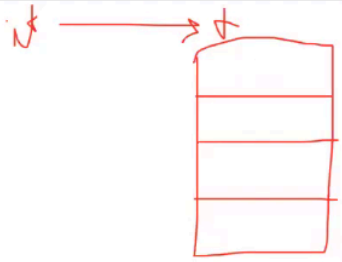
Set - no order. Unique values.
Since no order use iterator, because it will point to top of set and then go to next values to retrieve them one by one.

More than two windows-
Orange hrm.
Scroll down and click on every social media link.
Number of switches needed=4.



Get window handles-
Returns set of strings. Java has decided it, hence return type is not list. Window ids are unique so store in set.
Has next method - returns boolean.

```java
package seleniumsessions;

import java.util.Iterator;
import java.util.Set;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class BrowserMultipleWindowHandle {

    public static void main(String[] args) {
        WebDriver driver = new ChromeDriver();

        driver.get("https://www.orangehrm.com/30-day-free-trial");// parent


        WebElement fb_ele = driver.findElement(By.xpath("//img[@alt='facebook logo']"));
        WebElement li_ele = driver.findElement(By.xpath("//img[@alt='linkedin logo']"));
        WebElement yt_ele = driver.findElement(By.xpath("//img[@alt='youtube logo']"));

        fb_ele.click();
        li_ele.click();
        yt_ele.click();

        Set<String> handles = driver.getWindowHandles();
        Iterator<String> it = handles.iterator();
```



```java
        while(it.hasNext()) {
            String windowId = it.next();
            driver.switchTo().window(windowId);
            System.out.println(driver.getTitle());
            driver.close();
        }
```

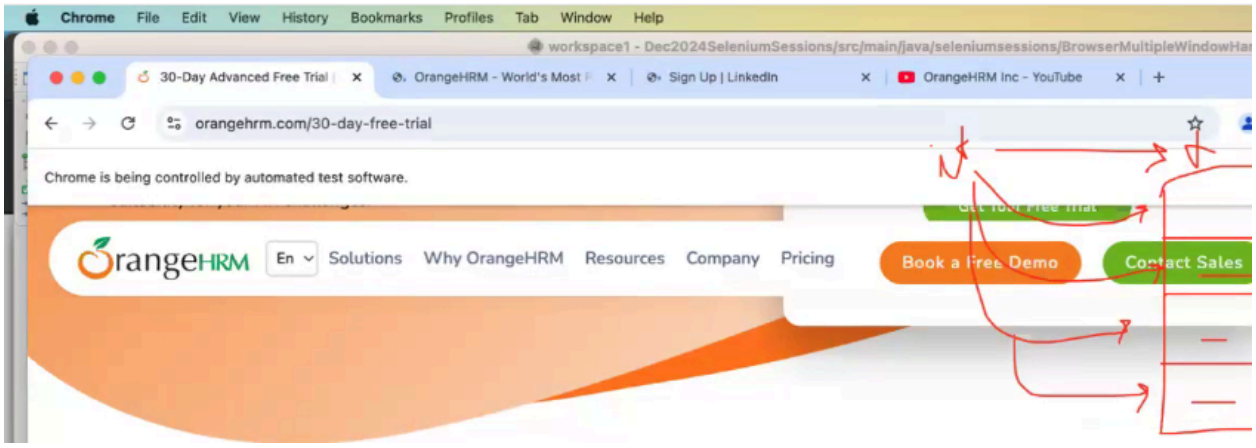
Added scroll down

```java
        driver.get("https://www.orangehrm.com/30-day-free-trial");// parent

        Actions act = new Actions(driver);
        act.sendKeys(Keys.PAGE_DOWN).perform();
```

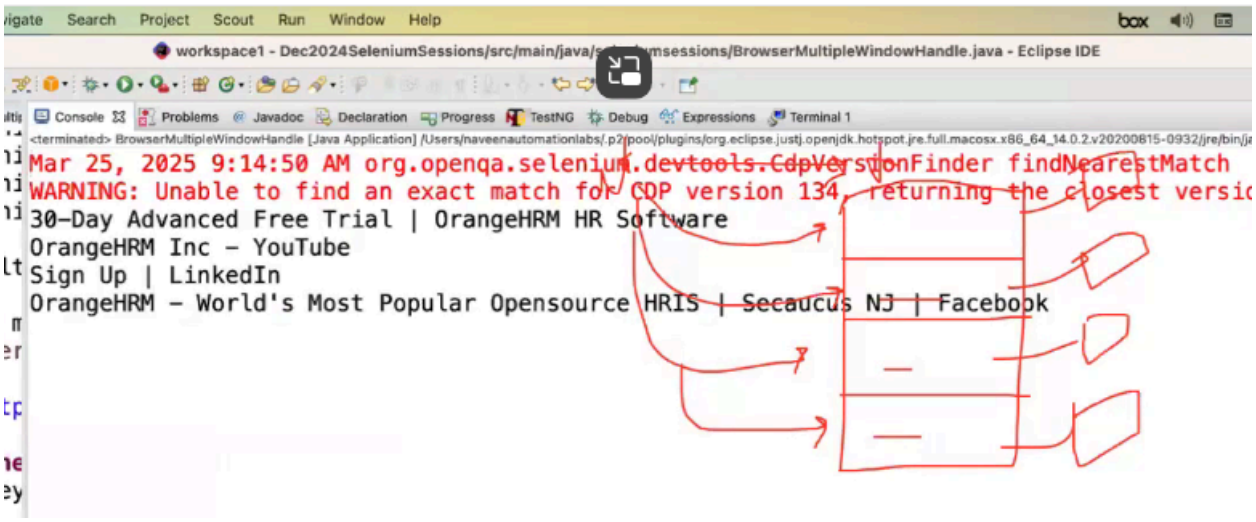
Added 38

```java
        while (it.hasNext()) {
            String windowId = it.next();
            driver.switchTo().window(windowId);
            System.out.println(driver.getTitle());
            Thread.sleep(3000);
            driver.close();

        }
```

Four windows opened



All windows closed including parent



I dont want to close all windows.

Parent window to be opened.

As soon as you open website persist the parent window.

Use get window handle method.

Returns string.

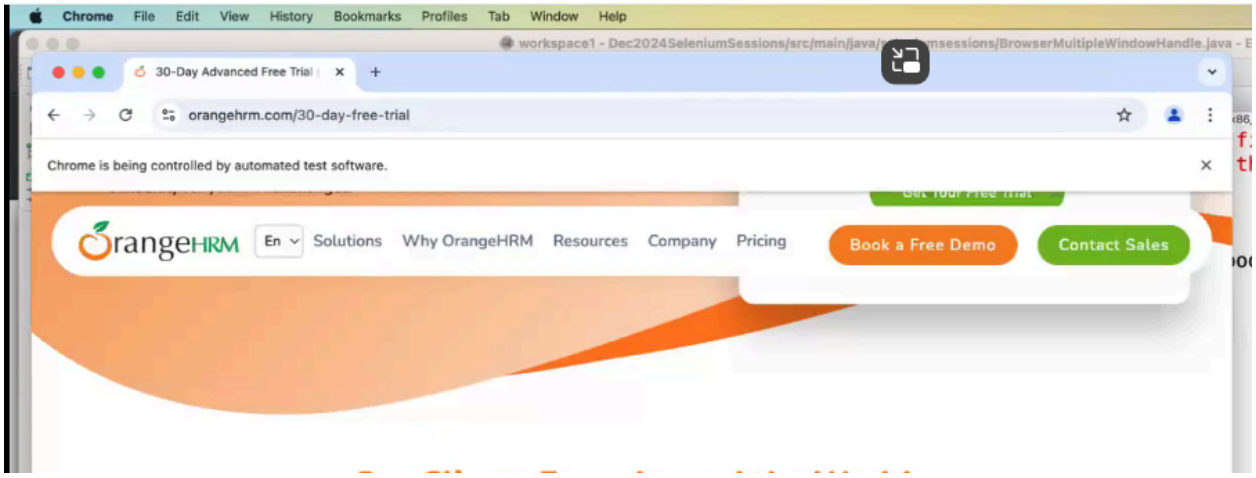
Update while loop.

If the window id is not equal to parent then close else keep it open.

```
17
18          driver.get("https://www.orangehrm.com/30-day-free-trial");// parent
19          String parentWindowId = driver.getWindowHandle();
20
```

```
34
35          while (it.hasNext()) {
36              String windowId = it.next();
37              driver.switchTo().window(windowId);
38              System.out.println(driver.getTitle());
39              Thread.sleep(1500);
40              if(!windowId.equals(parentWindowId)) {
41                  driver.close();
42              }
43
44          }
45
```

parent window remains open



Driver is lost.

Print title and see

```
45
46          System.out.println("parent window title:" + driver.getTitle());
47
```

Exception because driver is now lost

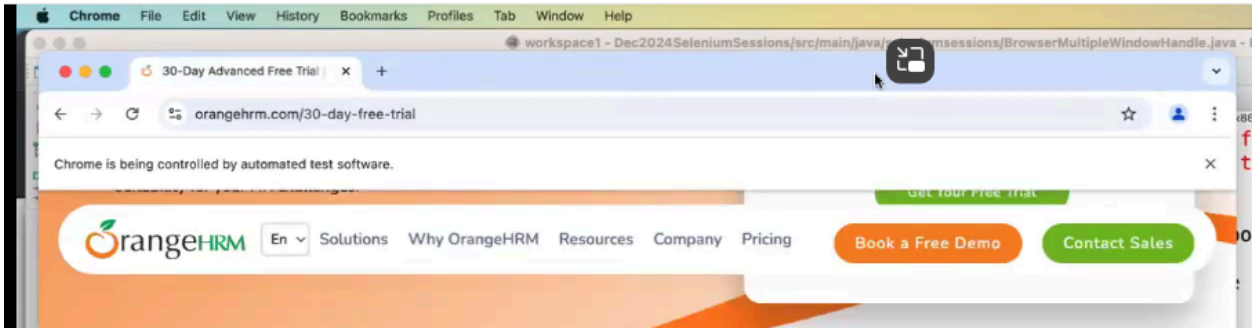
by Naveen Khunteta

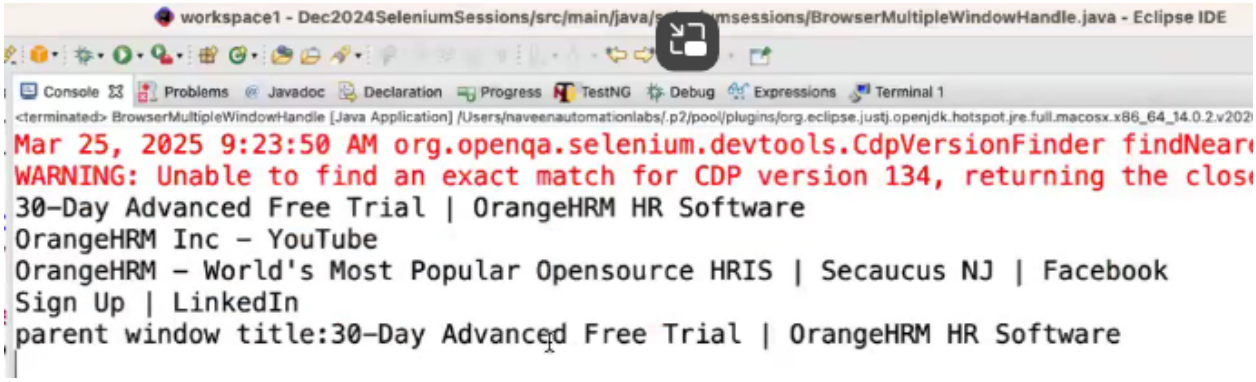
```
30-Day Advanced Free Trial | OrangeHRM HR Software
OrangeHRM - World's Most Popular Opensource HRIS | Secaucus NJ | Facebook
OrangeHRM | LinkedIn
OrangeHRM Inc - YouTube
Exception in thread "main" org.openqa.selenium.NoSuchWindowException: no such window: target window already closed
from unknown error: web view not found
  (Session info: chrome=134.0.6998.118)
Build info: version: '4.29.0', revision: '5fc1ec94cb'
System info: os.name: 'Mac OS X', os.arch: 'x86_64', os.version: '10.16', java.version: '14.0.2'
Driver info: org.openqa.selenium.chrome.ChromeDriver
Command: [6d941e29fa29ea4c8fb9d3f3c3ee4278, getTitle {}]
Capabilities {acceptInsecureCerts: false, browserName: chrome, browserVersion: 134.0.6998.118, chrome: {chromedriv
```

Switch to parent window once work done- Print the title now and it works.

```
        while (it.hasNext()) {
            String windowId = it.next();
            driver.switchTo().window(windowId);
            System.out.println(driver.getTitle());
            Thread.sleep(1500);
            if (!windowId.equals(parentWindowId)) {
                driver.close();
            }

        }

        driver.switchTo().window(parentWindowId);
        System.out.println("parent window title:" + driver.getTitle());
```

Now opens four windows and closes all child windows.

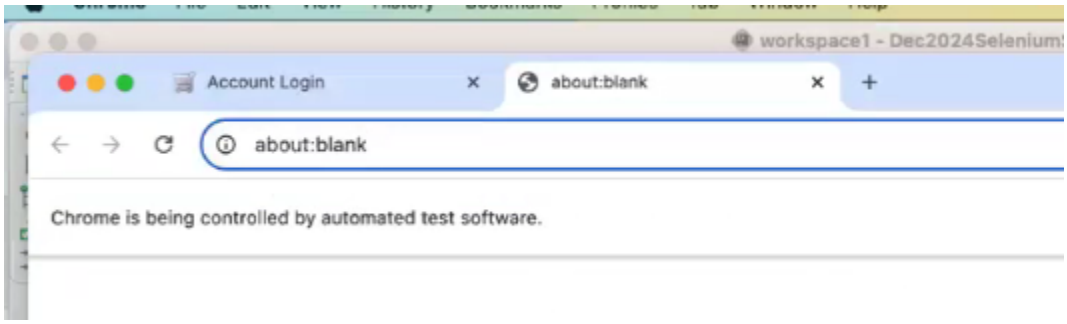




Second approach-
Go to individual links, handle child, then come back to parent, then do the same for second link, third link and so on. Lengthier approach. Better approach is open all child windows and then work on them and then close them.

New window method-
New in selenium 4.
Returns webdriver.
Open blank tab.

```java
package seleniumsessions;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WindowType;
import org.openqa.selenium.chrome.ChromeDriver;

public class BrowserBlankWindowTab {

    public static void main(String[] args) {

        WebDriver driver = new ChromeDriver();

        driver.get("https://naveenautomationlabs.com/opencart/index.php?route=account/login");


        //selenium 4.x:

        driver.switchTo().newWindow(WindowType.TAB);

    }

}
```



New window method wants **class or interface** as argument. In such case when we see something starting with caps, use that name followed by **dot** to get the methods.

Switch to new tab.

Open google.com in new tab.

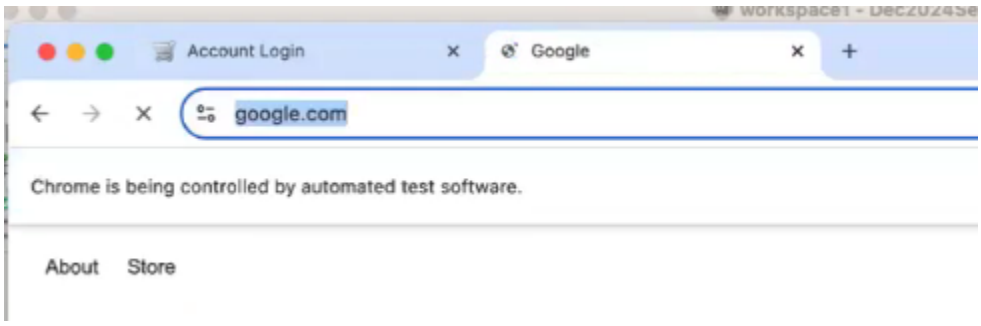
Get title.

Close it.

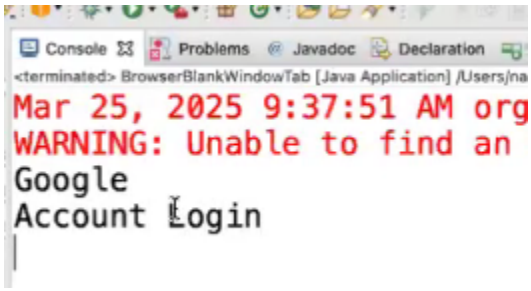
Come back to parent.

Print parent window title.

```
10
11          WebDriver driver = new ChromeDriver();
12
13          driver.get("https://naveenautomationlabs.com/opencart/index.php?route=account/login");
14          String PWID = driver.getWindowHandle();
15
16          //selenium 4.x:
17
18          driver.switchTo().newWindow(WindowType.TAB);
19          driver.get("https://www.google.com");
20          Thread.sleep(3000);
21          System.out.println(driver.getTitle());//google
22          driver.close();
23
24          driver.switchTo().window(PWID);
25
26          System.out.println(driver.getTitle());//open cart
27
```



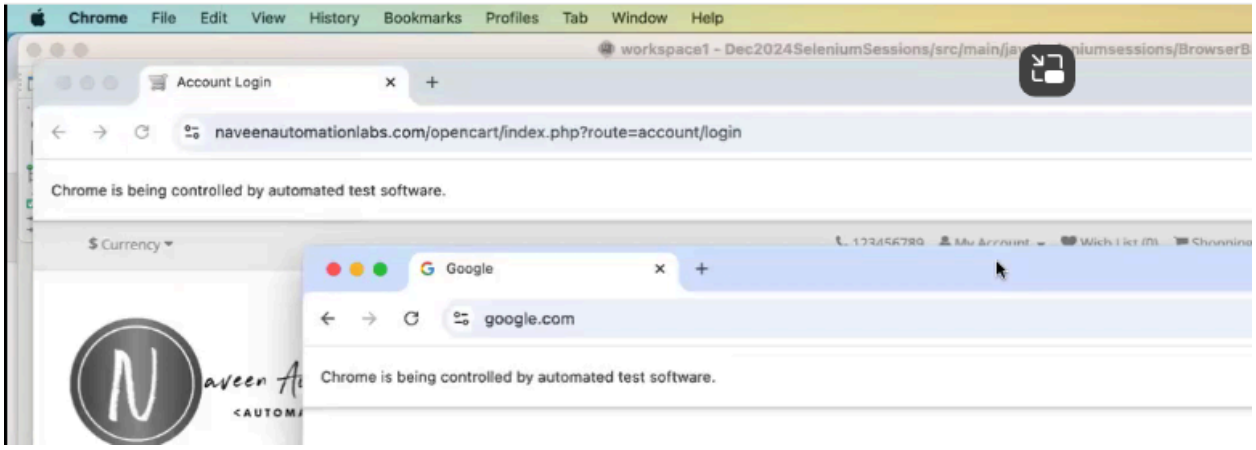
Closes google page.

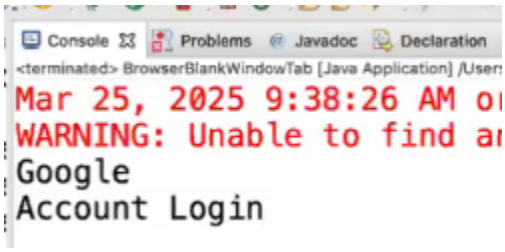


Change 18 to window not tab-

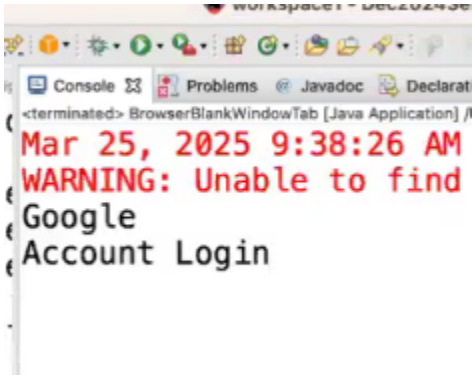
```
17
18          driver.switchTo().newWindow(WindowType.WINDOW);
19          driver.get("https://www.google.com");
20          Thread.sleep(3000);
21          System.out.println(driver.getTitle());//google
22          driver.close();
23
```

Opens in new window.

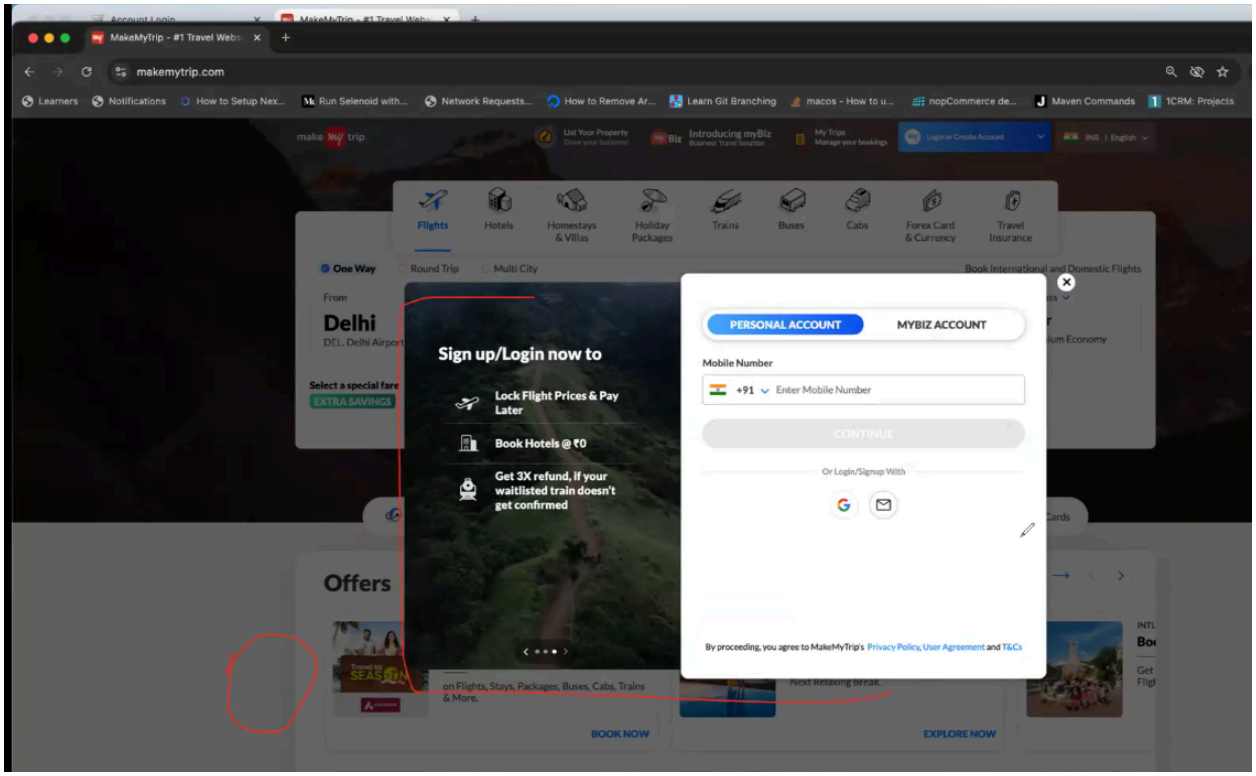




Ocd

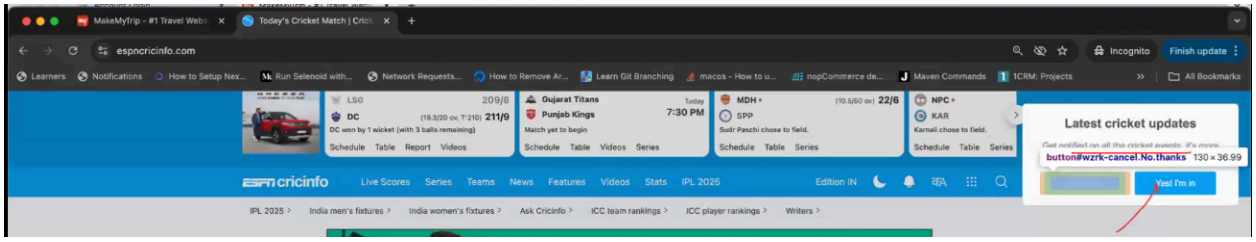


How to close such pop ups-

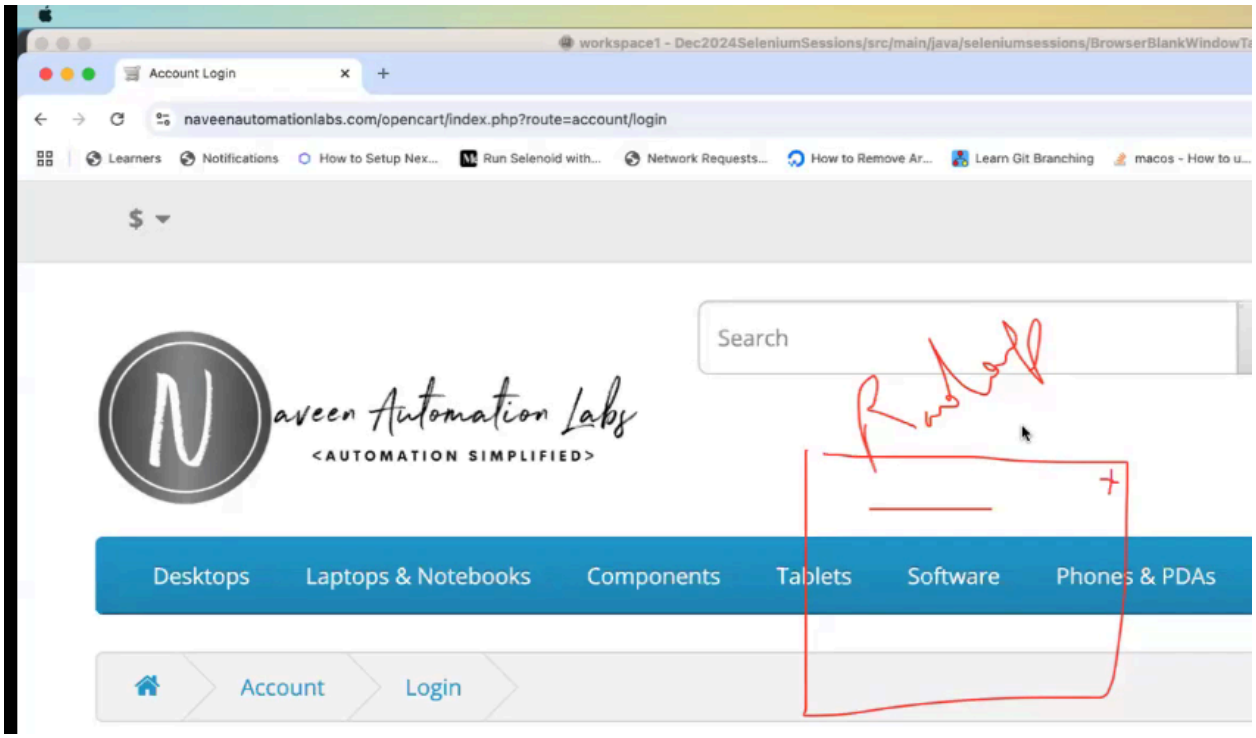


Parent and child window will have its own url and title. Thats how we can distinguish if we can use tabs/windows concept on them.
This is not alert nor js.
Inspect element like the cross icon and then click on it to close the window.

Another website- where we can see such irritating pop ups.



Sudden pop ups which come-
We dont know when it will come. How it will come, where it will come etc.
How to handle it.
We cant handle using selenium.



No condition checks can help because pop up can come any time. We need to use heavy javascript event handlers which is difficult.

Convert non order to order based collection-
Set to list. 1.40

Class name where changes are made-

*BrowserMultipleWindowHandle.java

```
35
36          Set<String> handles = driver.getWindowHandles();
37
38          //set to list:
39          List<String> handlesList = new ArrayList<String>(handles);
40
```

Index will come now once converted to list.
Use handles.get(0), handles.get(1) to get the values.