

Practical No. 5. HANDLING MULTIPLE WINDOWS & FRAMES USING SELENIUM

Date: _____

Aim:

To learn how to handle multiple windows, frames and modals using selenium.

Theory:

How to handle Selenium multiple window using Webdriver

In automation, when we have multiple windows in any web application, the activity may need to switch control among several windows from one to other in order to complete the operation.

After completion of the operation, it has to return to the main window i.e. parent window in Selenium.

WindowHandle:

It is a unique identifier that holds the address of all the windows. Think of it as a pointer to a window, which returns the string value. It is assumed that each browser will have a unique window handle. This window handle function helps to retrieve the handles of all windows.

In Selenium web driver there are methods through which we can handle multiple windows.

Driver.getWindowHandles();

To handle all opened windows by web driver, we can use “Driver.getWindowHandles()”. This method helps to get the handles of all the windows opened and then we can switch window from one window to another in a web application. Its return type is Iterator<String>.

Driver.getWindowHandle();

When the site opens, we need to handle the main window by driver.getWindowHandle(). This method helps to get the window handle of the current window. Its return type is String.

set:

This method helps to set the window handles in the form of a string. set<string> set= driver.get.windowhandles()

driver.switchTo()

This method helps to switch between the windows

action:

This method helps to perform certain actions on the windows

How to handle frames in Selenium Webdriver

Frames in HTML can be used to divide a web-page vertically or horizontally. iFrames is mainly used for displaying external content on a target web page, for example, an advertisement for any online programming course on a web page. An iframe is also known as the inline frame. It is a tag used in HTML5 to embed an HTML document within a parent HTML document. An iframe tag is defined using <iframe></iframe> tags.

It is possible to identify the iframes on a web page in two ways:

- Right-click on the specific element and check all the options. If you find an option like This Frame, view Frame source or Reload Frame, it means the page includes frames.
- Similar to the first step, right-click on the page and click on View Page Source. On the page source, search for “iframe-tags”. If you find any iframe tags, it means the page includes iframes.

To interact with any web element present within any frame, one needs to switch to that particular frame. This allows the user to identify elements present on that page and write tests accordingly.

QAs can switch between frames using the **Switch.frame()** function. The switch function can be implemented using three different locators: By.index, By.id, By WebElement. Refer to the commands below:

By Index

```
driver.switchTo().frame(1);
```

Switches to the frame with index number 1

By Id or Name

```
driver.switchTo().frame("resultframe");
```

Switches the frame where the value of id attribute is resultframe

By Web Element

```
WebElement iframeElement =  
driver.findElement(By.id("resultframe"));  
driver.switchTo().frame(iframeElement);
```

The WebElement command above identifies the web element and then passes it through

the iframe element object.

How to handle modals in Selenium WebDriver?

A Modal Dialog Box (also referred to as Bootstrap Modal Window) is built in Bootstrap Framework, due to which it gets displayed on top of your current page. Due to this, modal boxes need to be interacted with first before moving to the current webpage. Switching is not necessary for modals.

Implementation

- 1. Open “flight_reservation.html” and write a script to handle frames and print heading of page in each frame.**

```
package practical5;
```

```
import org.openqa.selenium.By;
```

```
import org.openqa.selenium.WebDriver;
```

```
import org.openqa.selenium.WebElement;
```

```
import org.openqa.selenium.firefox.FirefoxDriver;
```

```
public class HandlingIFrames {
```

```
    public static void main(String[] args) {
```

```
        System.setProperty("webdriver.gecko.driver", "/home/aishu/Apps/geckodriver");
```

```
        WebDriver driver=new FirefoxDriver();
```

```
        driver.get("file:///home/aishu/Sem3/tesing/Flight_Reservation/flight_reservation.html");
```

```
        //Switching to Frame1 using index
```

```
        driver.switchTo().frame(0);
```

```
        WebElement frame1_heading1=driver.findElement(By.id("heading1"));
```

```
        System.out.println("Frame1 Heading: "+frame1_heading1.getText());
```

```
        driver.switchTo().defaultContent();
```

```
        System.out.println("Title of main window: "+driver.getTitle());
```

```
        System.out.println("Switched to main window");
```

```
        //Switching to frame 2
```

```
        driver.switchTo().frame("IF2");
```

```

System.out.println("This is ifrmae 2");

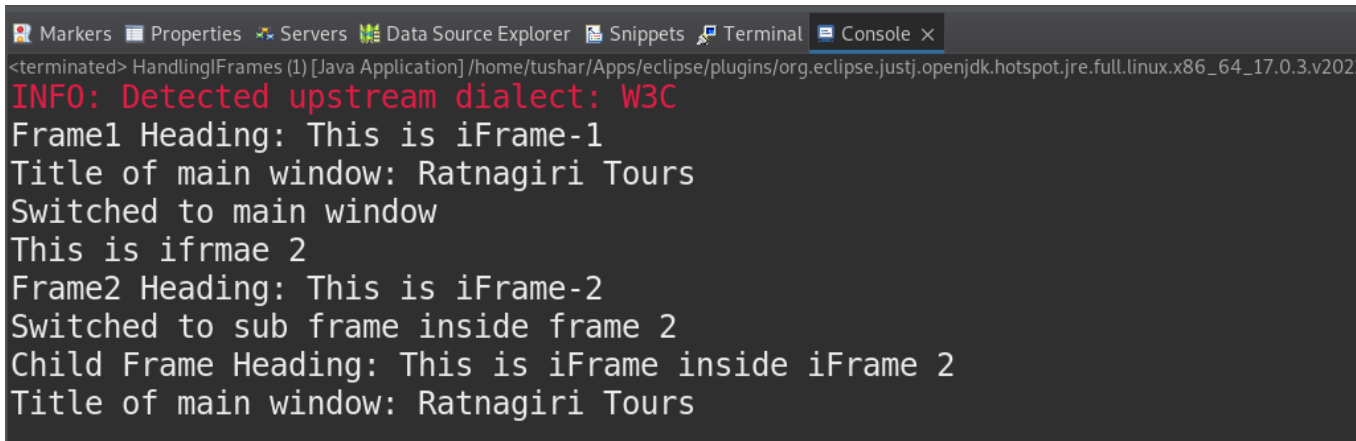
WebElement frame2_heading1=driver.findElement(By.id("heading2"));
System.out.println("Frame2 Heading: "+frame2_heading1.getText());

//Switching to sub frmae
driver.switchTo().frame(0);
System.out.println("Switched to sub frame inside frame 2 ");

WebElement frame3_heading1=driver.findElement(By.id("heading3"));
System.out.println("Child Frame Heading: "+frame3_heading1.getText());

driver.switchTo().defaultContent();
System.out.println("Title of main window: "+driver.getTitle());
}
}

```

Output:


```

Markers Properties Servers Data Source Explorer Snippets Terminal Console x
<terminated> HandlingIFrames (1) [Java Application] /home/tushar/Apps/eclipse/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.linux.x86_64_17.0.3.v202
INFO: Detected upstream dialect: W3C
Frame1 Heading: This is iFrame-1
Title of main window: Ratnagiri Tours
Switched to main window
This is ifrmae 2
Frame2 Heading: This is iFrame-2
Switched to sub frame inside frame 2
Child Frame Heading: This is iFrame inside iFrame 2
Title of main window: Ratnagiri Tours

```

2. Open <https://demoqa.com/browser-windows> and write a script to handle multiple windows that opens after clicking button “New Window” and print the heading on that new window.

```

package practical5;

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.firefox.FirefoxDriver;

public class Exercise2 {

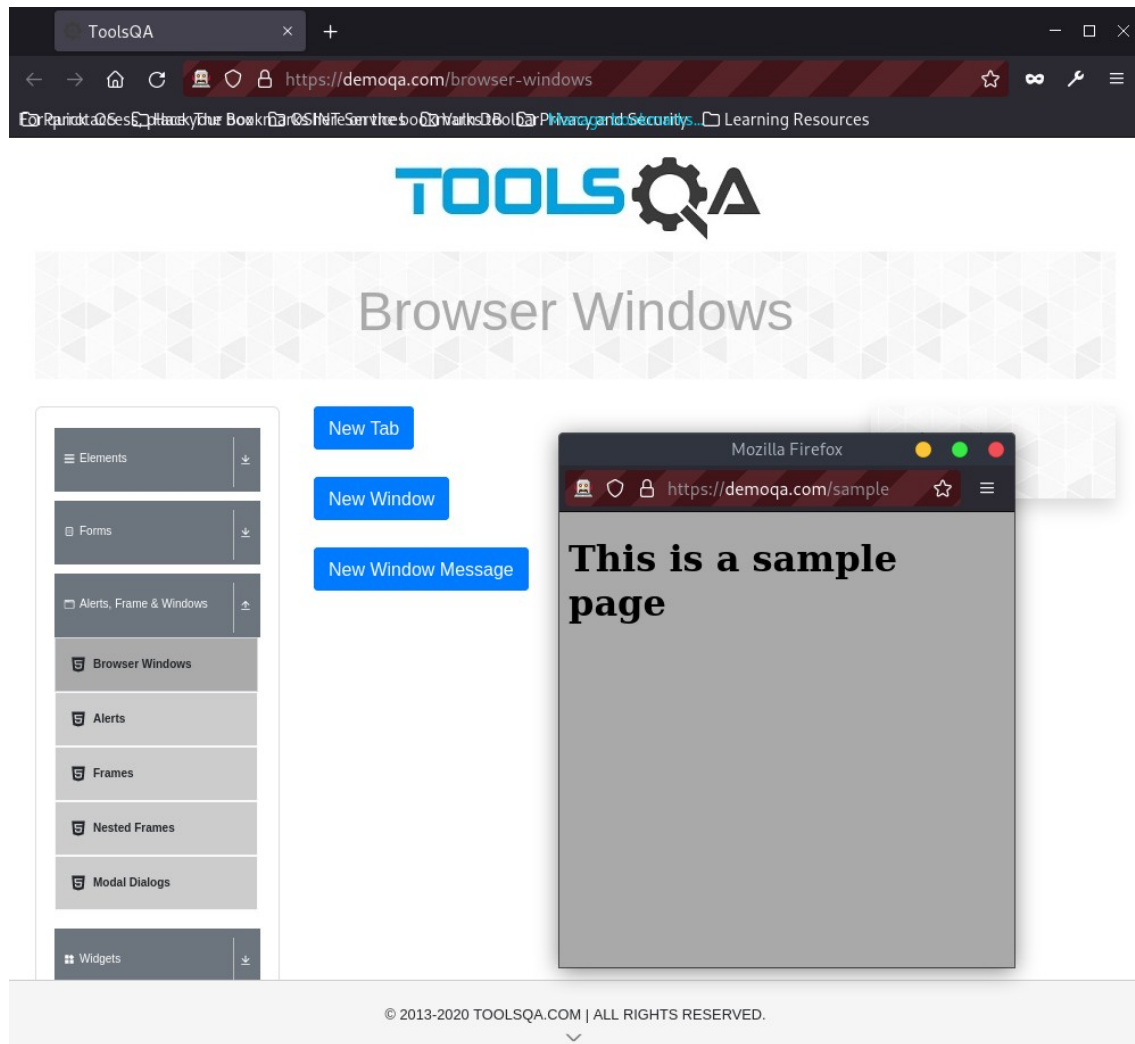
    public static void main(String[] args) {
        System.setProperty("webdriver.gecko.driver", "/home/aishu/Apps/geckodriver");
        WebDriver driver=new FirefoxDriver();
        driver.get("https://demoqa.com/browser-windows");

        WebElement newWindowBtn=driver.findElement(By.id("windowButton"));
        newWindowBtn.click();

        //Get handles of the windows
        String mainWindowHandle = driver.getWindowHandle();
        Set<String> allWindowHandles = driver.getWindowHandles();
        Iterator<String> i1 = allWindowHandles.iterator();

        while (i1.hasNext()) {
            String ChildWindow = i1.next();
            if (!mainWindowHandle.equalsIgnoreCase(ChildWindow)) {
                driver.switchTo().window(ChildWindow);
                WebElement text = driver.findElement(By.id("sampleHeading"));
                System.out.println("Heading of child window is " + text.getText());
                driver.close();
                System.out.println("Child window closed");
            }
        }
    }
}
```

Output:



```

Markers Properties Servers Data Source Explorer Snippets Terminal Console x
<terminated> Exercise2 (3) [Java Application] /home/tushar/Apps/eclipse/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.linux.x86_64_17.0.3.v20220515-1416/jre/bin/java (14-Nov-2
Nov 14, 2022 12:00:23 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected upstream dialect: W3C
Heading of child window is This is a sample page
JavaScript error: https://cdn.ad.plus/player/adplus.js, line 402: TypeError: e(...).se
1668407433486 CDP ERROR Invalid browser preferences for CDP. Set "fission.web
Nov 14, 2022 12:00:33 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMat
INFO: Found exact CDP implementation for version 85
Child window closed

```

3. Open “flight_reservation.html” and write a script to handle popup window that opens after clicking on “Hotels” Hyperlink and print title of the popup window and heading on that page.

package practical5;

```
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;
import org.openqa.selenium.firefox.FirefoxDriver;

public class HandlingPopup {

    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver",
"/home/aishu/Sem3/tesing/chromedriver");
        WebDriver driver=new ChromeDriver();
        driver.get("file:///home/aishu/Flight_Reservation/flight_reservation.html");

        String mainWindow=driver.getWindowHandle();//retrieve the unique id of flight
reservation window
        System.out.println("Main Window Handle :"+mainWindow);
        System.out.println("Title of main window is: "+driver.getTitle());

        WebElement hotel_link=driver.findElement(By.linkText("Hotels"));
        hotel_link.click();

        Set<String> handles=driver.getWindowHandles();
        for(String windowHandle:handles)
        {
            if(!windowHandle.equals(mainWindow))
            {
                driver.switchTo().window(windowHandle);
                System.out.println("Title of child window is "+driver.getTitle());
                WebElement heading1=driver.findElement(By.id("sampleHeading"));
                System.out.println("Heading inside child window is
```

```

"+heading1.getText());

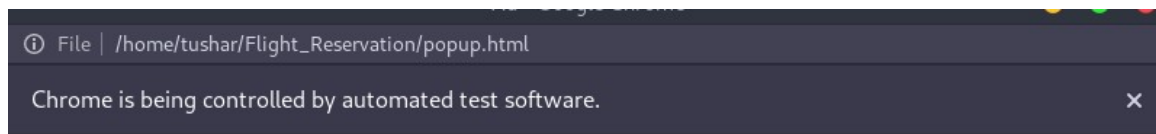
        Thread.sleep(4000);
        driver.close();
    }
}

driver.switchTo().window(mainWindow);
System.out.println("Title of main window: "+driver.getTitle());

}

}

```

Output:

So, book your vacay in advance with these deals live till 19th October:

Get Up to 35% OFF* on Holiday Packages.

```

Markers Properties Servers Data Source Explorer Snippets Terminal Console x
<terminated> HandlingPopup (1) [Java Application] /home/tushar/Apps/eclipse/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.linux.x86_64_17.0.3.v20220515-1416/jre/bin/java (14-Nov-2022, 12:02:57 pm - 12:03:07 pm)
WARNING: Unable to find an exact match for CDP version 107, so returning the closest version found: 104
Nov 14, 2022 12:03:01 PM org.openqa.selenium.devtools.CdpVersionFinder findNearestMatch
INFO: Found CDP implementation for version 107 of 104
Main Window Handle :CDwindow-77AA513434996F1DD1C65E7C56B3C5CD
Title of main window is: Ratnagiri Tours
Title of child window is Ad
Heading inside child window is So, book your vacay in advance with these deals live till 19th October:
Title of main window: Ratnagiri Hotels

```

4. Open “hotel_search.html” page and handle modals that appear after clicking on buttons on that webpage.


```
package practical5;
```

```
import org.openqa.selenium.By;
```

```
import org.openqa.selenium.WebDriver;
```

```
import org.openqa.selenium.WebElement;
```

```
import org.openqa.selenium.firefox.FirefoxDriver;
```

```
public class HandlingModels {
```

```
    public static void main(String[] args) throws InterruptedException {
```

```
        System.setProperty("webdriver.gecko.driver", "/home/aishu/Apps/geckodriver");
```

```
        WebDriver driver=new FirefoxDriver();
```

```
        driver.get("file:///home/aishu/Sem3/tesing/Flight_Reservation/hotel_search.html");
```

```
        WebElement hotels=driver.findElement(By.cssSelector("button[data-  
target='#myModal']"));
```

```
        hotels.click();
```

```
        WebElement modal_title1=driver.findElement(By.xpath("//h4[@class='modal-title']"));
```

```
        System.out.println("Title of modal is : "+modal_title1.getText());
```

```
        Thread.sleep(3000);
```

```
        WebElement ok_button=driver.findElement(By.xpath("//button[@data-  
dismiss='modal']"));
```

```
        ok_button.click();
```

```
        Thread.sleep(2000);
```

```
        WebElement book_room_btn=driver.findElement(By.xpath("//button[@id='myBtn1']"));
```

```
        book_room_btn.click();
```

```
        WebElement hotelname=driver.findElement(By.xpath("//input[@id='htlname']"));
```

```
        hotelname.sendKeys("Taj Hotel");
```

```
WebElement person=driver.findElement(By.xpath("//input[@id='prs']"));
person.sendKeys("1");
```

```
WebElement days=driver.findElement(By.xpath("//input[@id='days']"));
days.sendKeys("6");
```

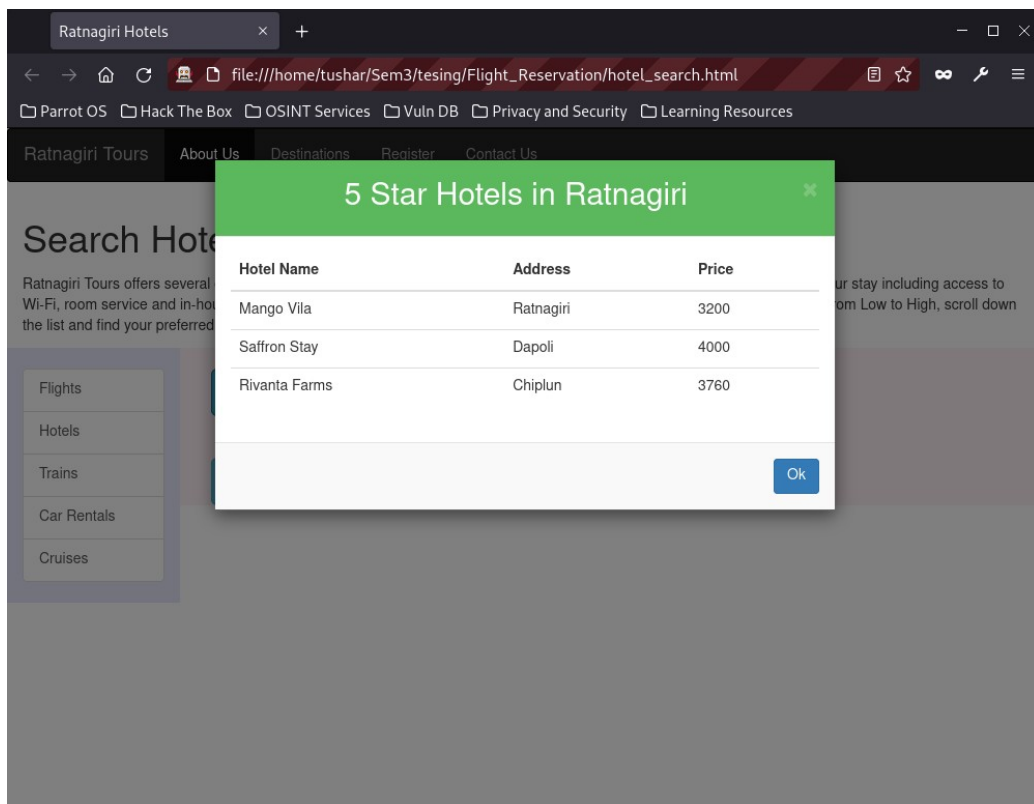
```
Thread.sleep(3000);
```

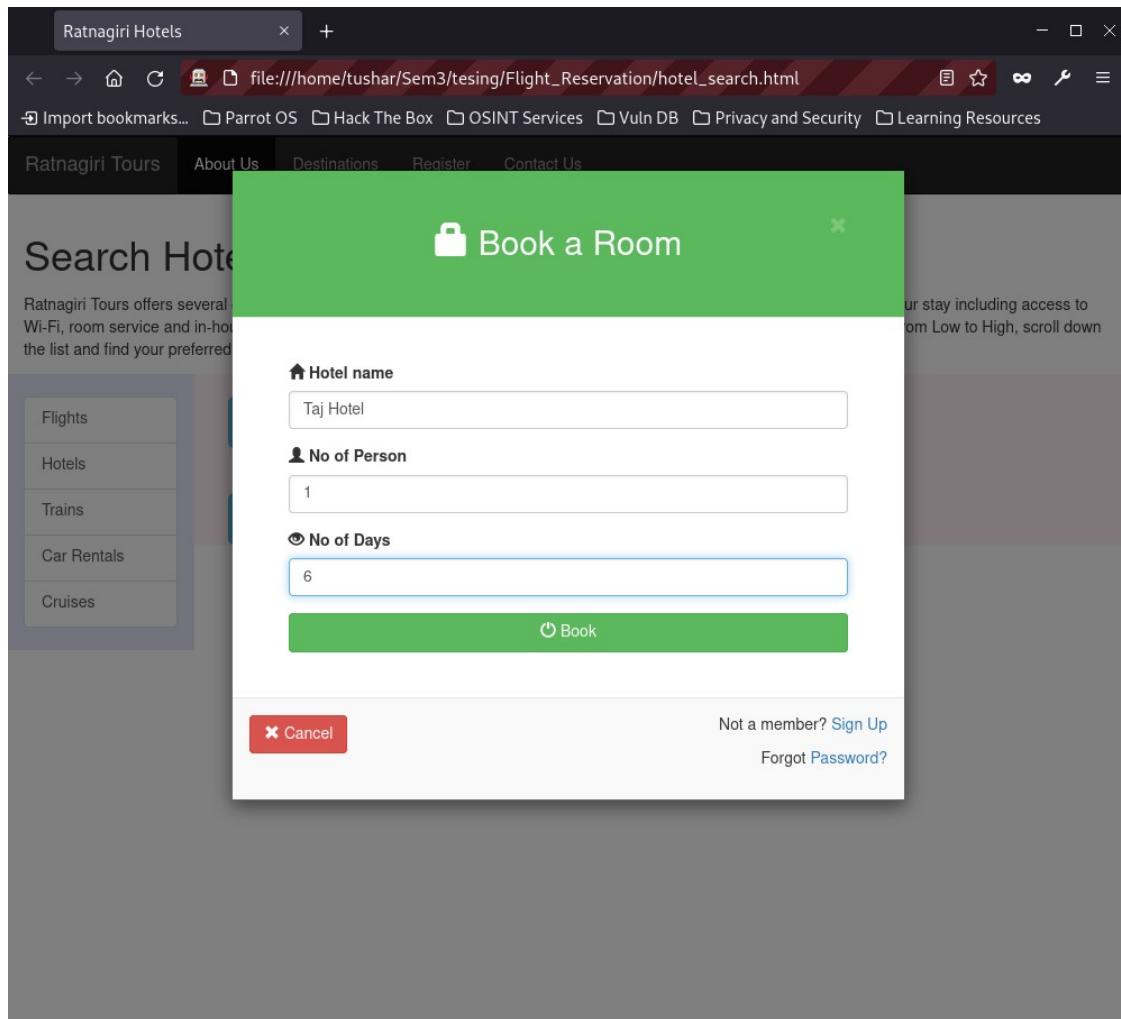
```
WebElement cancelbtn=driver.findElement(By.xpath("//button[@type='submit']
//following::button"));
cancelbtn.click();
```

```
}
```

```
}
```

Output:





```
Markers Properties Servers Data Source Explorer Snippets Terminal Console x
<terminated> HandlingModels (1) [Java Application] /home/tushar/Apps/eclipse/plugins/org.eclipse.justj.openjdk.hotspot.jre.full.linux.x86
1668407867325 RemoteAgent WARN TLS certificate errors w
console.warn: SearchSettings: "get: No settings file exists, new
Missing chrome or resource URL: resource://gre/modules/UpdateLis
Missing chrome or resource URL: resource://gre/modules/UpdateLis
DevTools listening on ws://localhost:51608/devtools/browser/31b7
Nov 14, 2022 12:07:49 PM org.openqa.selenium.remote.ProtocolHand
INFO: Detected upstream dialect: W3C
Title of modal is : 5 Star Hotels in Ratnagiri
```

Conclusion: Learnt to handle multiple windows, frames and modals in Selenium.

After performing this Practical/lab, students are expected to answer following questions

- Q.1 What is iframe?
- Q.2 What is Window handle?
- Q.3 What is switchTo() method?