

## 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.

#### Code:

```
package selenium;

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

public class HandlingIFrames {

    public static void main(String args[]) {

        System.setProperty("webdriver.chrome.driver", "D:\\Finolex\\SEM
3\\chromedriver_win32\\chromedriver.exe");

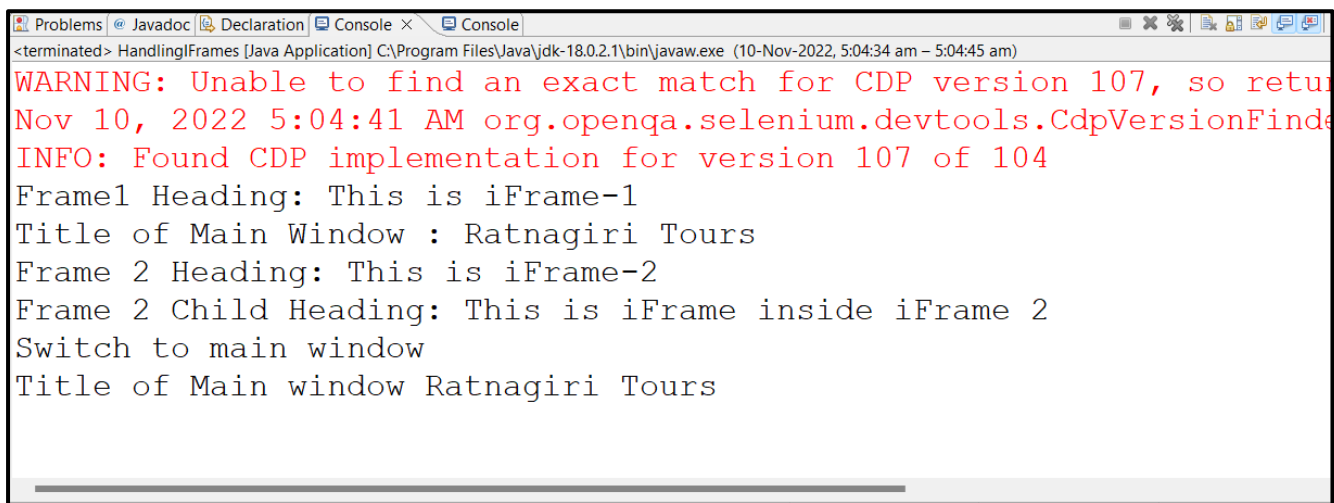
        WebDriver driver=new ChromeDriver(); //create driver instance
        driver.get("file:///D:/Finolex/SEM%203/Selenium-
Setup/Flight_Reservation/flight_reservation.html");

        //Id of Iframe 1 is "IF1"
        //index is 0
        driver.switchTo().frame(0);
        WebElement frame1Heading=driver.findElement(By.id("heading1"));
        System.out.println("Frame1 Heading: "+frame1Heading.getText());
        driver.switchTo().defaultContent();
        System.out.println("Title of Main Window : "+driver.getTitle());
        //Switch to frame 2
        driver.switchTo().frame("frame2");
        WebElement frame2Heading=driver.findElement(By.id("heading2"));
        System.out.println("Frame 2 Heading: "+frame2Heading.getText());
```

```

        //Switch to child frame of frame 2
        driver.switchTo().frame("IF2_1");
        WebElement frame2ChildHeading=driver.findElement(By.id("heading3"));
        System.out.println("Frame 2 Child Heading: "+frame2ChildHeading.getText());
        driver.switchTo().defaultContent();
        System.out.println("Switch to main window");
        System.out.println("Title of Main window "+driver.getTitle());
    }
}

```

**Output:-**


```

Problems | Javadoc | Declaration | Console | Console
<terminated> HandlingIFrames [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (10-Nov-2022, 5:04:34 am – 5:04:45 am)
WARNING: Unable to find an exact match for CDP version 107, so returning version 104
Nov 10, 2022 5:04:41 AM org.openqa.selenium.devtools.CdpVersionFinder.findVersion
INFO: Found CDP implementation for version 107 of 104
Frame1 Heading: This is iFrame-1
Title of Main Window : Ratnagiri Tours
Frame 2 Heading: This is iFrame-2
Frame 2 Child Heading: This is iFrame inside iFrame 2
Switch to main window
Title of Main window Ratnagiri Tours

```

- 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.

**Code:-**

```

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;

public class q2 {
    public static void main(String args[]) {
        System.setProperty("webdriver.chrome.driver", "D:\\Finolex\\SEM
3\\chromedriver_win32\\chromedriver.exe");
        WebDriver driver=new ChromeDriver(); //create driver instance

        driver.get("https://demoqa.com/browser-windows");
    }
}

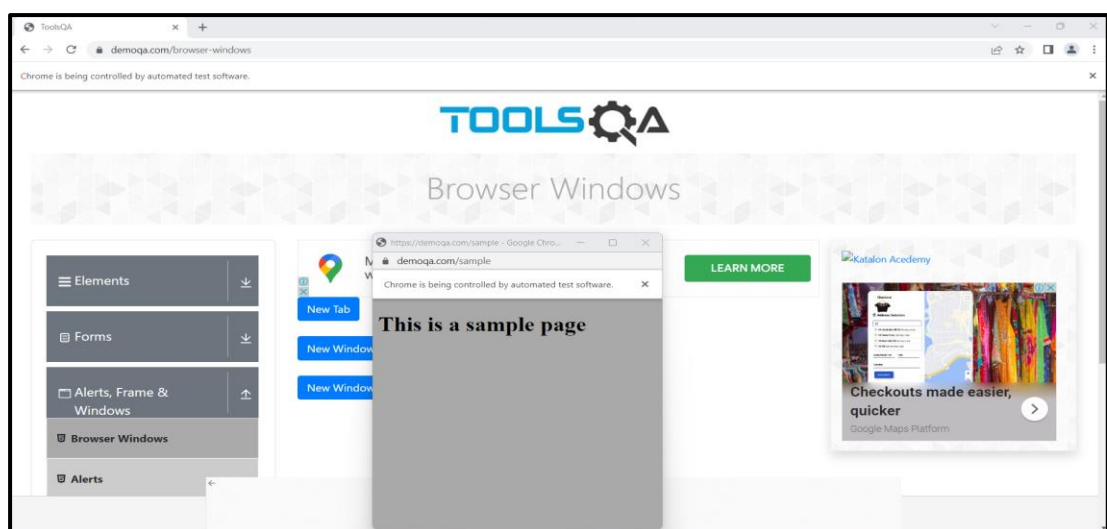
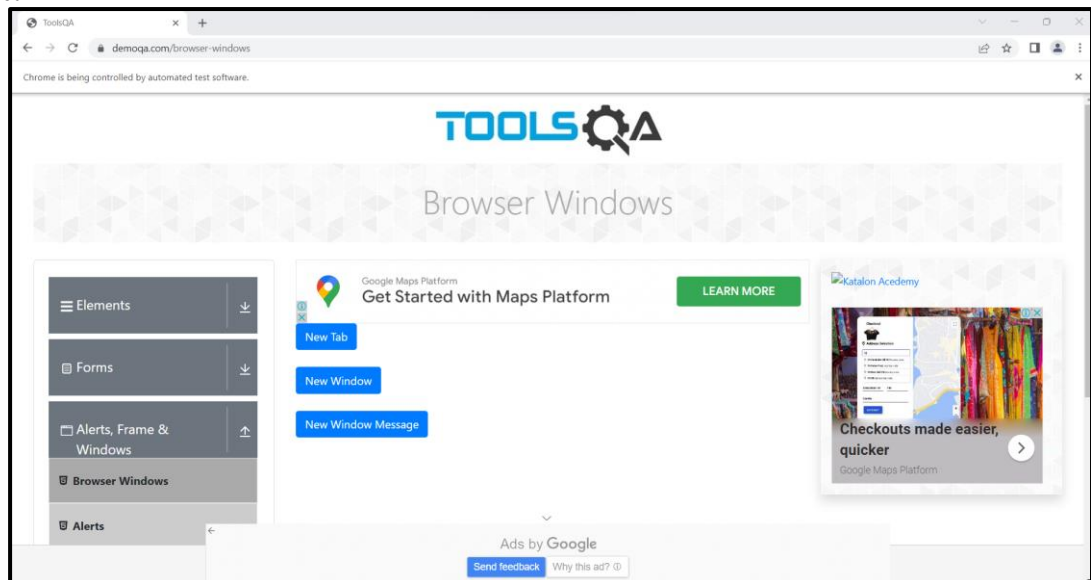
```

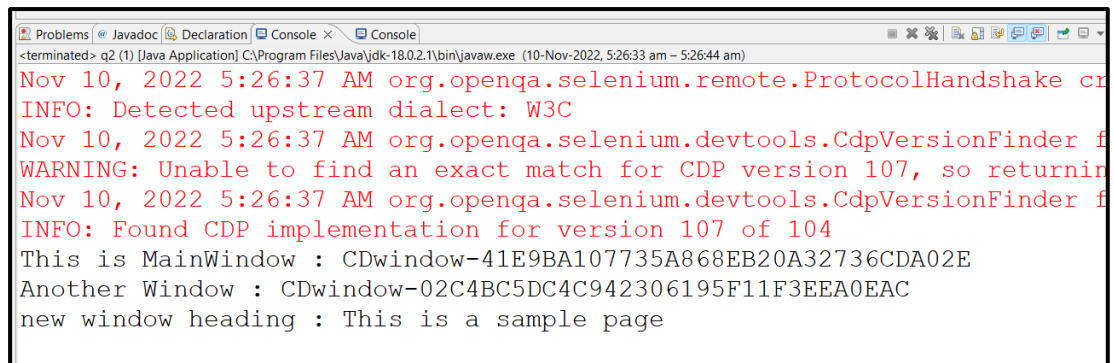
```

String mainWindow=driver.getWindowHandle();
System.out.println("This is MainWindow : "+mainWindow);
WebElement btnNewWindow=driver.findElement(By.id("windowButton"));
btnNewWindow.click();
Set<String> handles=driver.getWindowHandles();
for(String windowHandle : handles) {
    if(!windowHandle.equals(mainWindow))
    {
        System.out.println("Another Window : "+windowHandle);
        driver.switchTo().window(windowHandle);
        WebElement heading=driver.findElement(By.id("sampleHeading"));
        System.out.println("new window heading : "+heading.getText());
    }
}
}

```

Output:-





- 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.

**Code:-**

```

package selenium;

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 ActionOnPopup {

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

        System.setProperty("webdriver.chrome.driver", "D:\\Finolex\\SEM
3\\chromedriver_win32\\chromedriver.exe");

        WebDriver driver=new ChromeDriver(); //create driver instance
        driver.get("file:///D:/Finolex/SEM%203/Selenium-
Setup/Flight_Reservation/flight_reservation.html");

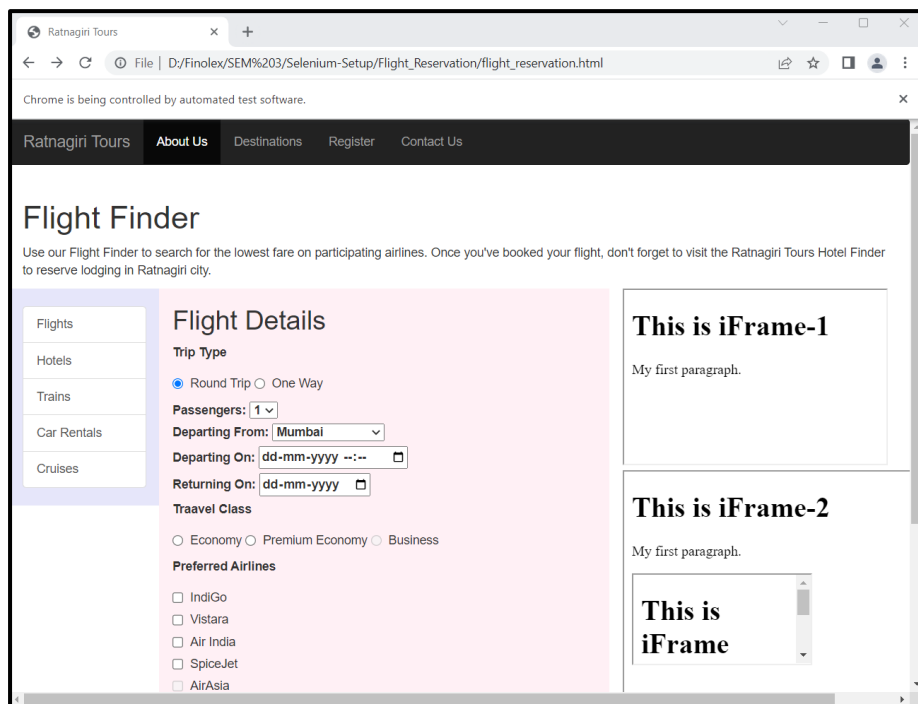
        //Get Handle of the windows
        //retrive the unique id of flight reservation window
        String mainWindow=driver.getWindowHandle();
        System.out.println("Main window : "+mainWindow);
        System.out.println("Title of mainWindow : "+driver.getTitle());
        WebElement hotel=driver.findElement(By.linkText("Hotels"));
        Thread.sleep(1000);
        hotel.click();
        Set<String> handles=driver.getWindowHandles();
        for(String windowHandle : handles) {
            if(!windowHandle.equals(mainWindow))

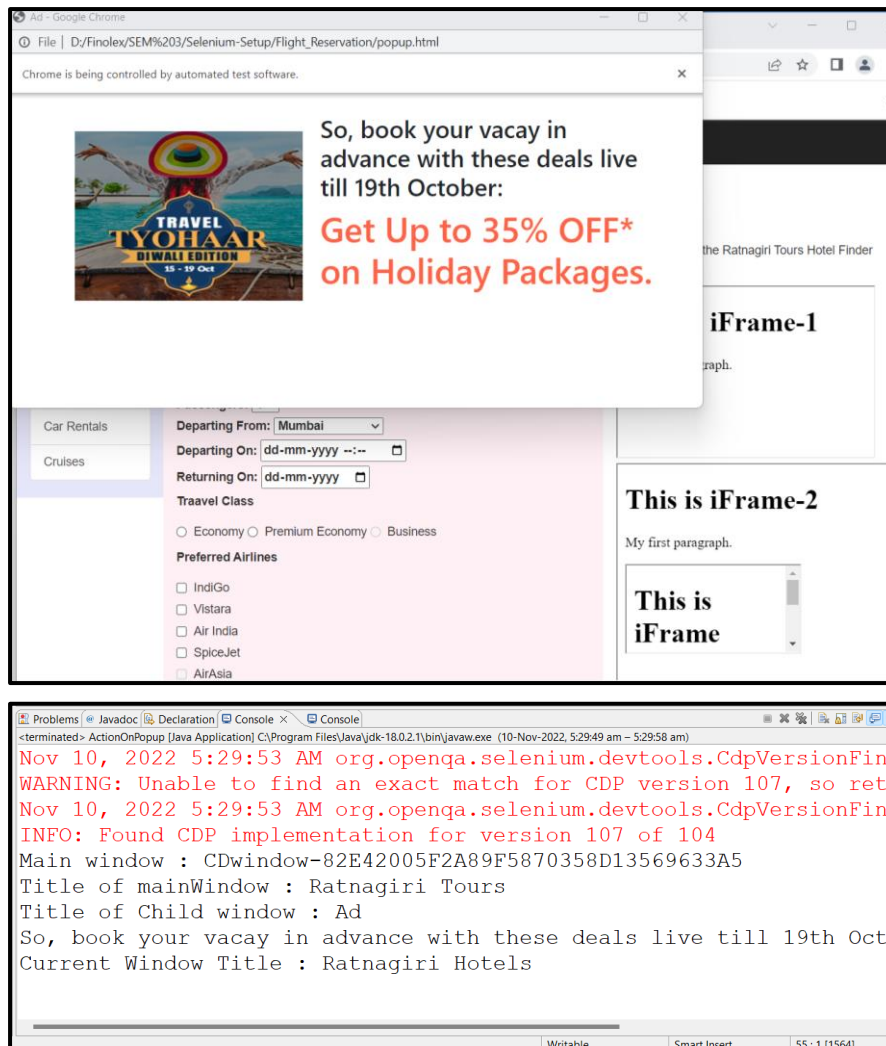
```

```

{
    driver.switchTo().window(windowHandle);
    System.out.println("Title of Child window : "+driver.getTitle());
    //retriving heading
    WebElement
heading1=driver.findElement(By.id("sampleHeading"));
    System.out.println(heading1.getText());
    Thread.sleep(2000);
    driver.close();
}
driver.switchTo().window(mainWindow);
System.out.println("Current Window Title : "+driver.getTitle());
}

```

**Output:**



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

#### Code:-

```
package selenium;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;

public class HandlingModals {

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

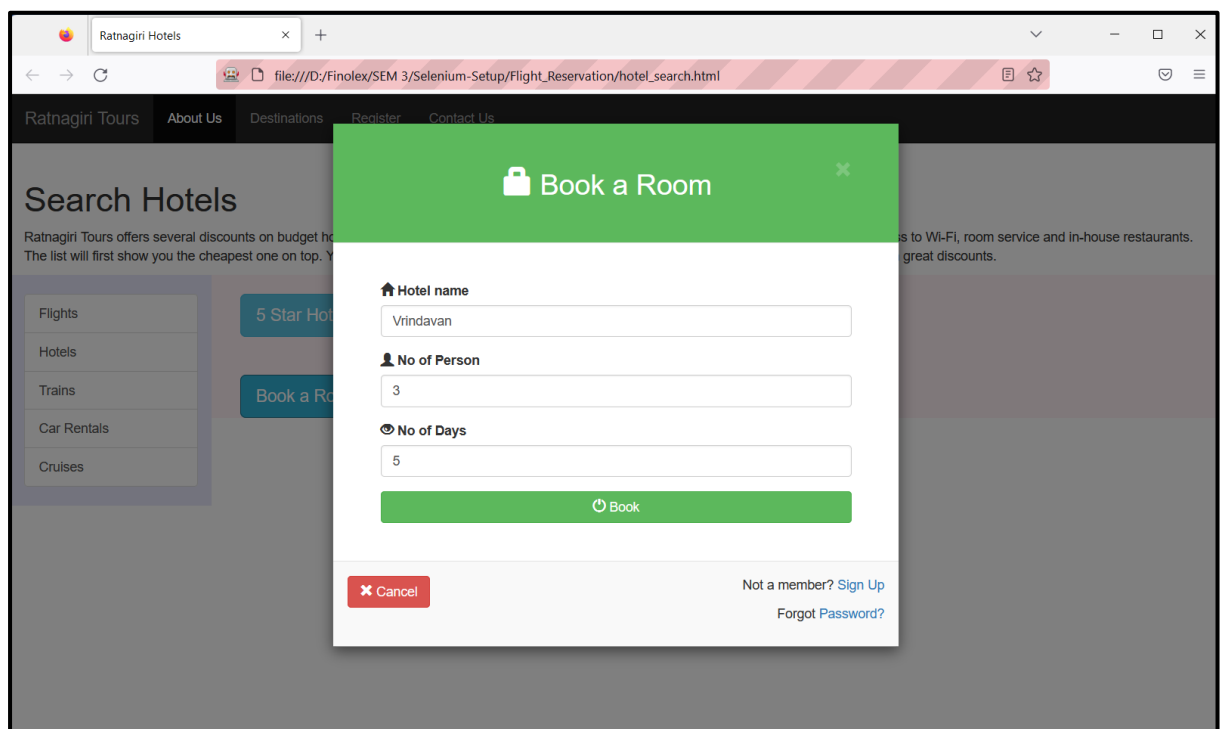
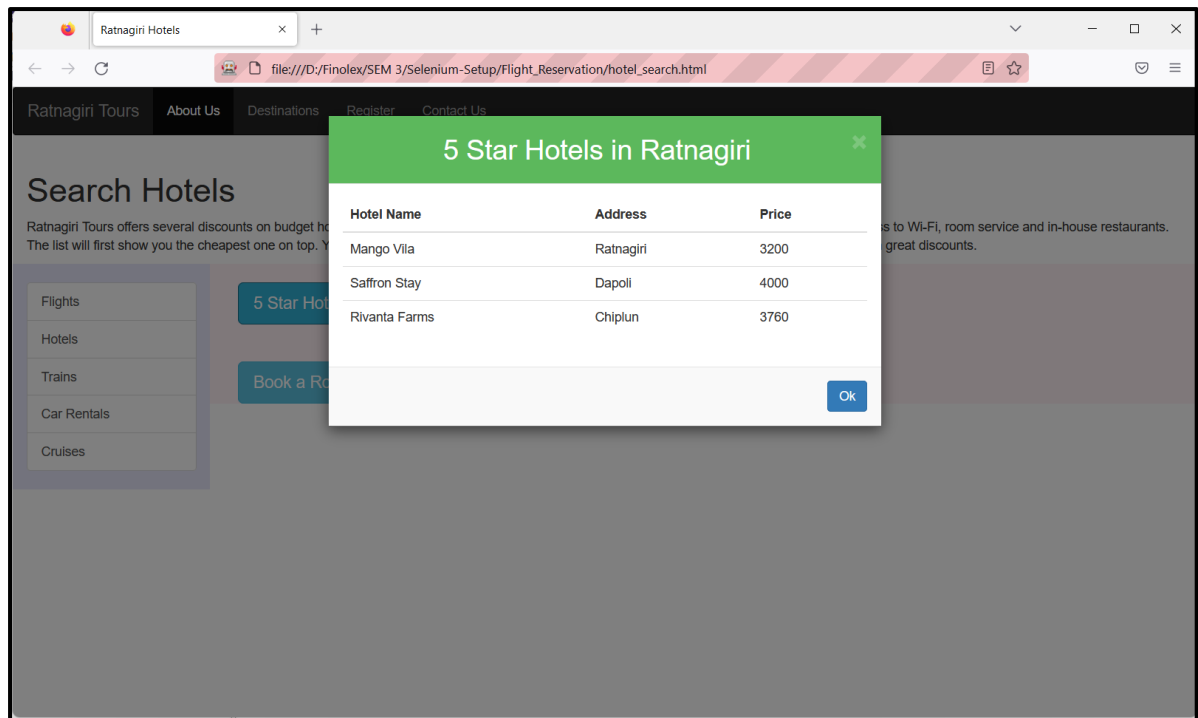
        System.setProperty("webdriver.gecko.driver", "D:\\Finolex\\SEM 3\\Selenium-Setup\\geckodriver.exe");

        WebDriver driver=new FirefoxDriver(); //create driver instance
        driver.get("file:///D:/Finolex/SEM%203/Selenium-
```



```
Setup/Flight_Reservation/hotel_search.html");
        WebElement btnHotels=driver.findElement(By.cssSelector("button[data-
target='#myModal']"));
        Thread.sleep(2000);
        btnHotels.click();
        WebElement modalHeader=driver.findElement(By.xpath("//h4[@class='modal-
title']"));
        System.out.println("Modal Header: "+modalHeader.getText());
        //click on ok button
        Thread.sleep(3000);
        WebElement okBtn=driver.findElement(By.xpath("//button[text()='Ok']"));
        okBtn.click();
        //click on book button
        Thread.sleep(2000);
        WebElement bookBtn=driver.findElement(By.id("myBtn1"));
        bookBtn.click();
        Thread.sleep(2000);
        WebElement
hotelName=driver.findElement(By.cssSelector("input[placeholder='hotelName']"));
        hotelName.sendKeys("Vrindavan");
        Thread.sleep(1000);
        WebElement personCount=driver.findElement(By.xpath("//input[@id='prs']"));
        personCount.sendKeys("3");
        Thread.sleep(1000);
        WebElement days=driver.findElement(By.xpath("//input[@id='days']"));
        days.sendKeys("5");
        Thread.sleep(1000);
        WebElement
cancelBtn=driver.findElement(By.xpath("//button[@type='submit']/following::button"));
        cancelBtn.click();
    }}
}
```

**Output:-**



**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?