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

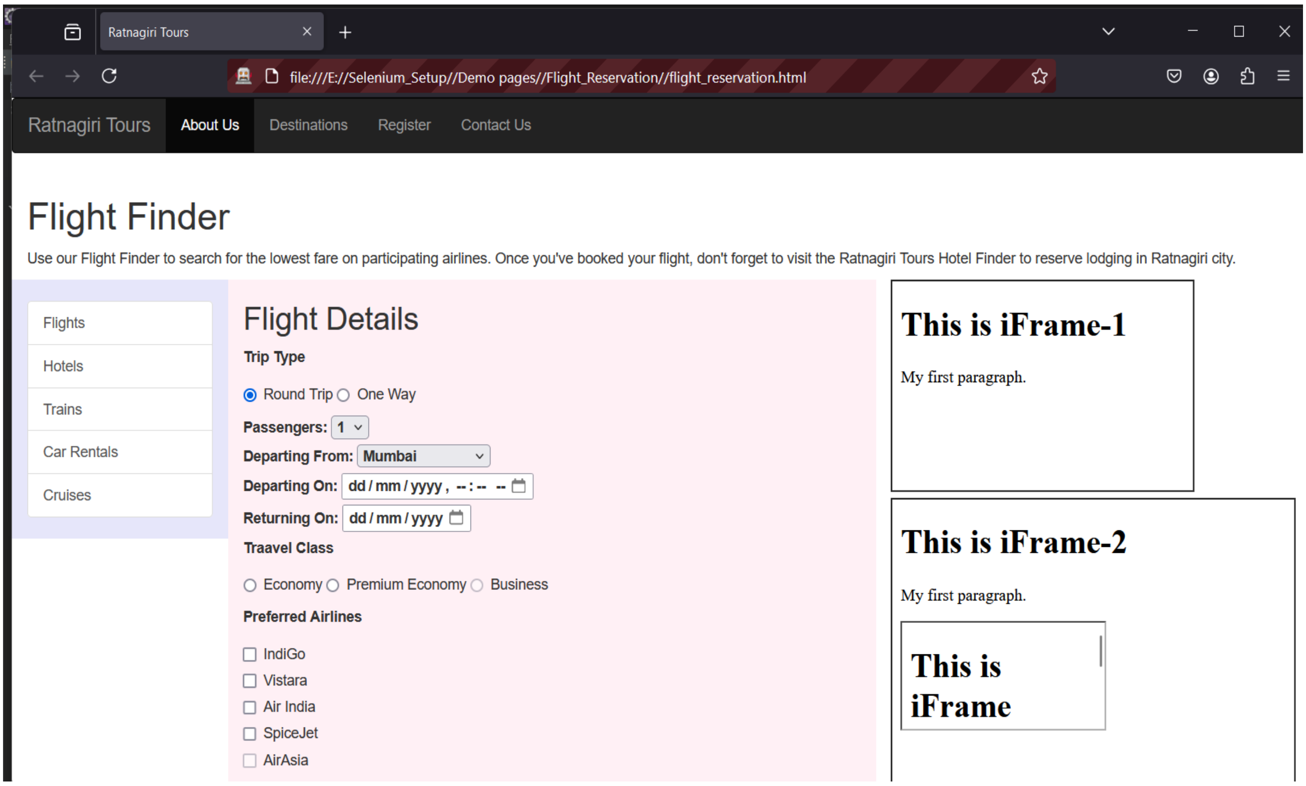
1. **Open “flight_reservation.html” and write a script to handle frames and print heading of page in eachframe.**

Program :

```
package selenium_test;


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

public class Handling_IFrame {
   public static void main(String[] args) throws InterruptedException {
      // Set the path to the Gecko driver
          // Set path of Gecko driver
      System.setProperty("webdriver.gecko.driver", "E:\\Selenium_setup\\geckodriver.exe");

      // Create an instance of the Firefox driver
      WebDriver driver = new FirefoxDriver();

      // Open the flight reservation HTML file
      driver.get("file:///E://Selenium_Setup//Demo
pages//Flight_Reservation//flight_reservation.html");
      Thread.sleep(2000);

      // Switch to the first iframe using its index (0)
      driver.switchTo().frame(0);

      // Locate & print the heading in Iframe 1
      WebElement heading1 = driver.findElement(By.id("heading1"));
      System.out.println("Heading in Iframe 1 is: " + heading1.getText());

      // Switch back to the main window
      driver.switchTo().defaultContent();

      // Switch to the second iframe using its id
      driver.switchTo().frame("IF2");

      // Locate & print the heading in Iframe 2
      WebElement heading2 = driver.findElement(By.id("heading2"));
      System.out.println("Heading in Iframe 2 is: " + heading2.getText());
```

```
            // Switch to the first iframe inside the second iframe
            driver.switchTo().frame(0);

            // Locate & print the heading in Iframe inside Iframe 2
            WebElement heading3 = driver.findElement(By.id("heading3"));
            System.out.println("Heading in the nested Iframe is: " + heading3.getText());

            // Switch back to the main window
            driver.switchTo().defaultContent();

            // Print the title of the main window
            System.out.println("Title of the main window is: " + driver.getTitle());

            // Close the browser
            driver.quit();
        }
    }
```

Output:



Flight Finder

Use our Flight Finder to search for the lowest fare on participating airlines. Once you've booked your flight, don't forget to visit the Ratnagiri Tours Hotel Finder to reserve lodging in Ratnagiri city.

Flight Details

Trip Type

● Round Trip ○ One Way

Passengers: 1

Departing From: Mumbai

Departing On: dd / mm / yyyy , -- : -- --

Returning On: dd / mm / yyyy

Traavel Class

○ Economy ○ Premium Economy ○ Business

Preferred Airlines

□ IndiGo
□ Vistara
□ Air India
□ SpiceJet
□ AirAsia

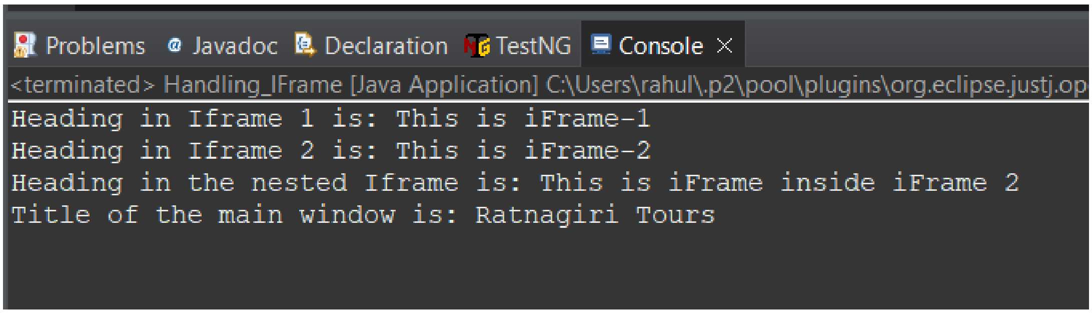
This is iFrame-1

My first paragraph.

This is iFrame-2

My first paragraph.

This is iFrame



```
<terminated> Handling_IFrame [Java Application] C:\Users\rahul\.p2\pool\plugins\org.eclipse.justj.op
Heading in Iframe 1 is: This is iFrame-1
Heading in Iframe 2 is: This is iFrame-2
Heading in the nested Iframe is: This is iFrame inside iFrame 2
Title of the main window is: Ratnagiri Tours
```

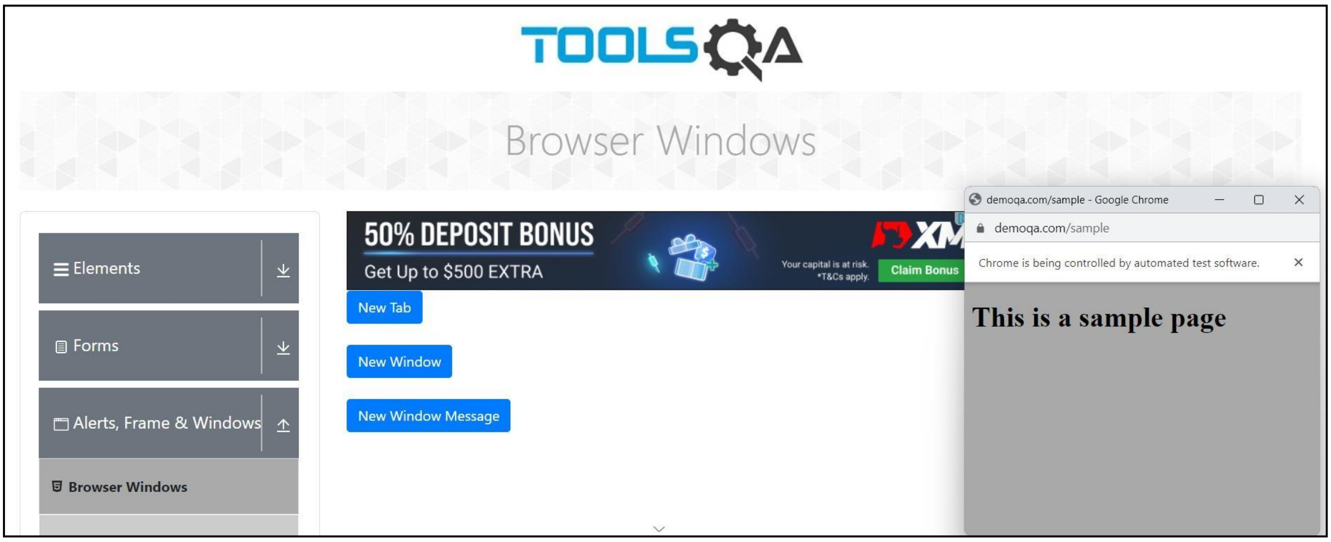
2. Open *https://demoqa.com/browser-windows* and write a script to handle multiple windows that opens afterclicking button "New Window" and print the heading on that new window.

Program :

```
package selenium_test;

import java.time.Duration;
import java.util.ArrayList;
import java.util.List;

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;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;

public class MultiWindow {

        public static void main(String[] args) {
                // Setting the system property for ChromeDriver
     System.setProperty("webdriver.chrome.driver",
"E:\\Selenium_setup\\chromedriver.exe");

     // Initialize ChromeDriver
     WebDriver driver = new ChromeDriver();

     try {
        // Open the URL
        driver.get("https://demoqa.com/browser-windows");

        // Create a WebDriverWait
        WebDriverWait wait = new WebDriverWait(driver, Duration.ofSeconds(10));

        // Wait until the button is clickable and then click on the "New Window" button
        WebElement newWindowButton =
wait.until(ExpectedConditions.elementToBeClickable(By.id("windowButton")));
        newWindowButton.click();

        // Wait for the new window to open
```

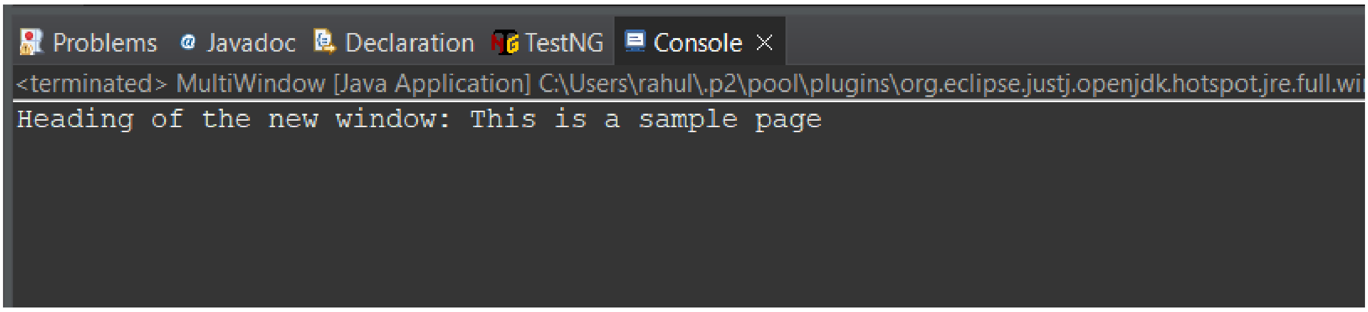
```
            Thread.sleep(2000);  // Consider using WebDriverWait for a more robust solution

            // Get the current window handle
            String originalWindow = driver.getWindowHandle();

            // Get all window handles
            List<String> windowHandles = new ArrayList<>(driver.getWindowHandles());

            // Switch to the new window
            for (String handle : windowHandles) {
                if (!handle.equals(originalWindow)) {
                    driver.switchTo().window(handle);
                    break;
                }
            }
            Thread.sleep(2000);
            // Print the heading of the new window
            WebElement heading = driver.findElement(By.tagName("h1"));
            System.out.println("Heading of the new window: " + heading.getText());

            // Close the new window
            driver.close();

            // Switch back to the original window
            driver.switchTo().window(originalWindow);

        } catch (Exception e) {
            e.printStackTrace();
        } finally {
            // Ensure the driver quits after execution
            driver.quit();
        }
    }
}
```

Output:



Chrome is being controlled by automated test software.

This is a sample page



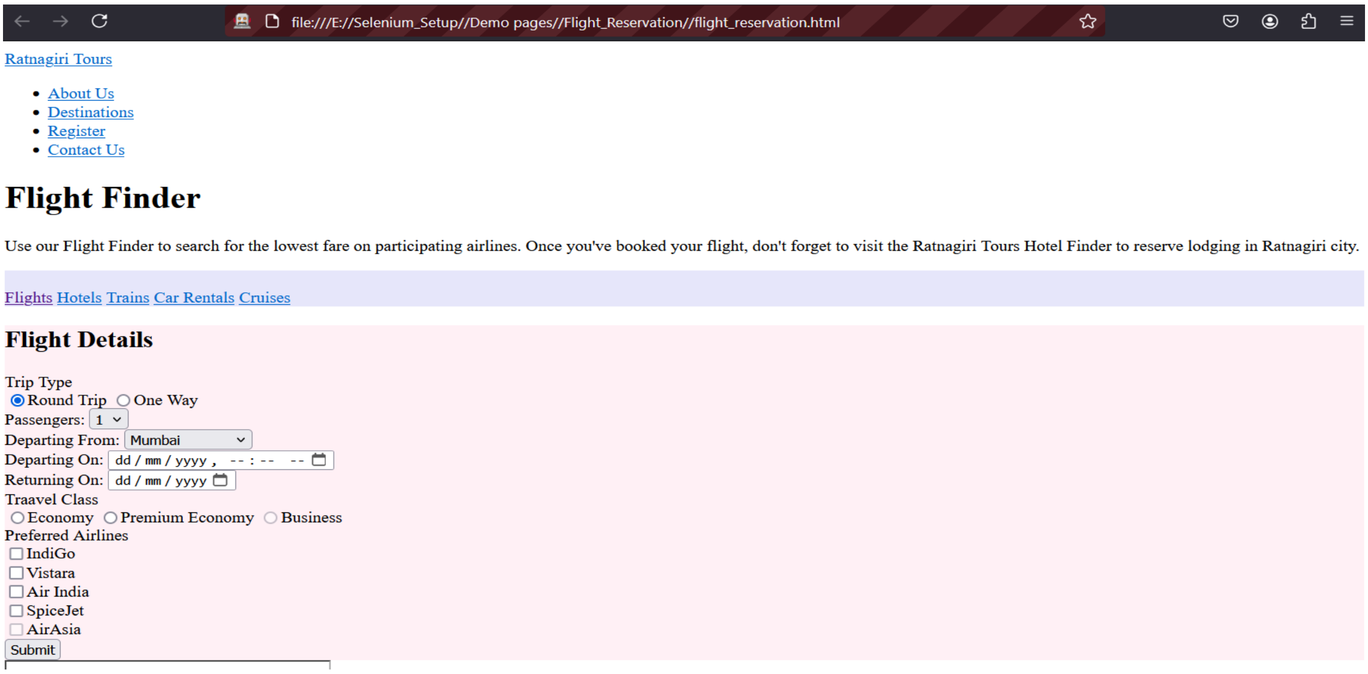
```
<terminated> MultiWindow [Java Application] C:\Users\rahul\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.wi
Heading of the new window: This is a sample page
```

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.

Program :

```
package selenium_test;

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

public class HandlingPopup {
    public static void main(String[] args) throws InterruptedException {
        // Set the path to the Gecko driver
        System.setProperty("webdriver.gecko.driver", "E:\\Selenium_setup\\geckodriver.exe");

        // Create an instance of the Firefox driver
        WebDriver driver = new FirefoxDriver();

        // Open the flight reservation HTML file
        driver.get("file:///E://Selenium_Setup//Demo
pages//Flight_Reservation//flight_reservation.html");

        Thread.sleep(2000);

        // Locate and click on the "Hotels" hyperlink
        WebElement hotelsLink = driver.findElement(By.linkText("Hotels"));
        hotelsLink.click();

        // Wait for the popup to open
        Thread.sleep(2000);

        // Switch to the popup window
        String mainWindow = driver.getWindowHandle();
        for (String windowHandle : driver.getWindowHandles()) {
            if (!windowHandle.equals(mainWindow)) {
                driver.switchTo().window(windowHandle);
                break;
            }
        }

        // Wait for the popup content to load
        Thread.sleep(2000);

        // Print the title of the popup window
        System.out.println("Title of the popup window is: " + driver.getTitle());
// Locate and print the heading on the popup page
WebElement heading = driver.findElement(By.tagName("h1"));
System.out.println("Heading on the popup page is: " + heading.getText());

// Switch back to the main window
driver.close();
driver.switchTo().window(mainWindow); // Switch back to the main window

// Print the title of the main window
System.out.println("Title of the main window is: " + driver.getTitle());

driver.quit();} }
```

Output:



file:///E://Selenium_Setup//Demo pages//Flight_Reservation//flight_reservation.html

Ratnagiri Tours

- About Us
- Destinations
- Register
- Contact Us

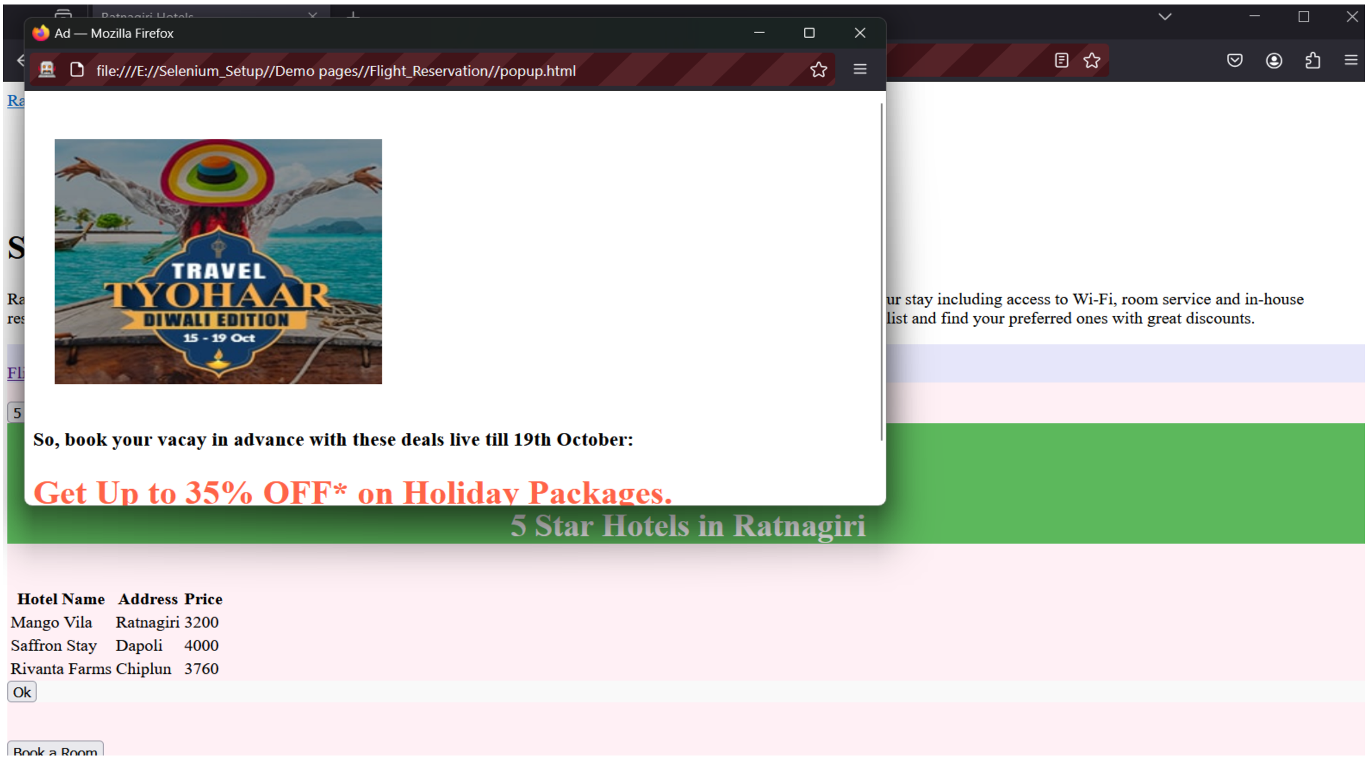
Flight Finder

Use our Flight Finder to search for the lowest fare on participating airlines. Once you've booked your flight, don't forget to visit the Ratnagiri Tours Hotel Finder to reserve lodging in Ratnagiri city.

Flights Hotels Trains Car Rentals Cruises

Flight Details

Trip Type
● Round Trip ○ One Way
Passengers: 1
Departing From: Mumbai
Departing On: dd / mm / yyyy , -- : -- --
Returning On: dd / mm / yyyy
Traavel Class
○ Economy ○ Premium Economy ○ Business
Preferred Airlines
□ IndiGo
□ Vistara
□ Air India
□ SpiceJet
□ AirAsia
Submit



Ad — Mozilla Firefox

file:///E://Selenium_Setup//Demo pages//Flight_Reservation//popup.html

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

Get Up to 35% OFF* on Holiday Packages.

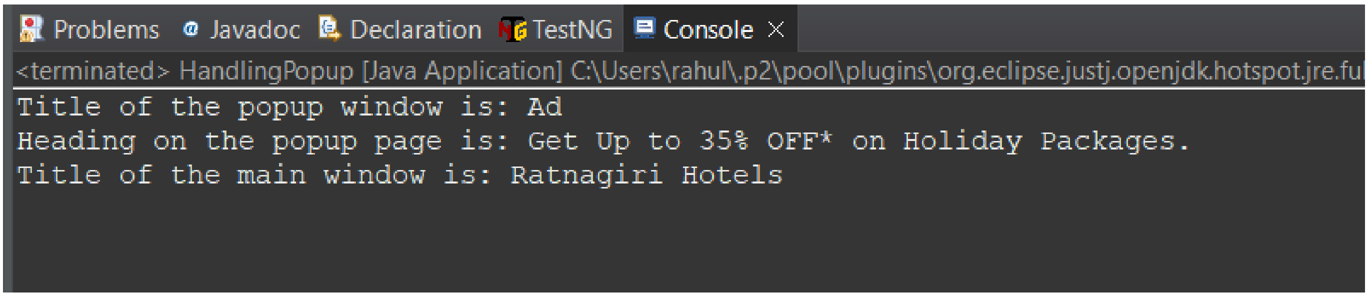
ur stay including access to Wi-Fi, room service and in-house
list and find your preferred ones with great discounts.

5 Star Hotels in Ratnagiri

Hotel Name	Address	Price
Mango Vila	Ratnagiri	3200
Saffron Stay	Dapoli	4000
Rivanta Farms	Chiplun	3760

Ok

Book a Room



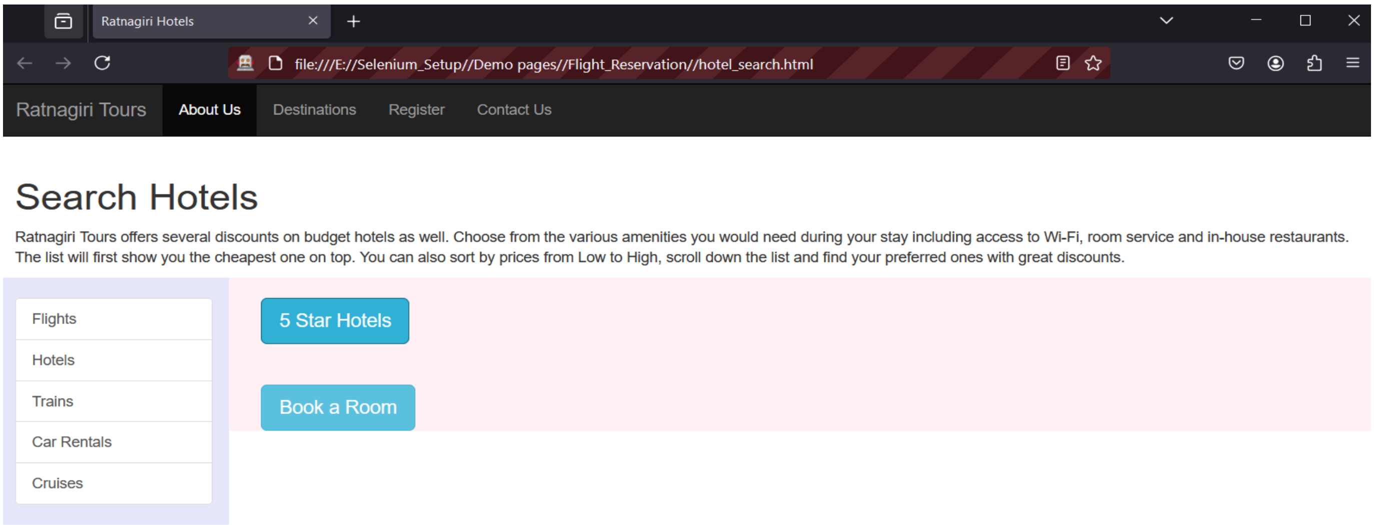
```
<terminated> HandlingPopup [Java Application] C:\Users\rahul\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.fu
Title of the popup window is: Ad
Heading on the popup page is: Get Up to 35% OFF* on Holiday Packages.
Title of the main window is: Ratnagiri Hotels
```

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

```
package selenium_test;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.support.ui.ExpectedConditions;
import org.openqa.selenium.support.ui.WebDriverWait;
import java.time.Duration;

public class hotel_search {

  public static void main(String[] args) {
         // Set the path to the Gecko driver
     System.setProperty("webdriver.gecko.driver", "E:\\Selenium_setup\\geckodriver.exe");

     // Create an instance of the Firefox driver
     WebDriver driver = new FirefoxDriver();

     try {
        driver.get("file:///E://Selenium_Setup//Demo
pages//Flight_Reservation//hotel_search.html");

        WebDriverWait wait = new WebDriverWait(driver, Duration.ofSeconds(10));

        // Click the first button to open the modal
        WebElement btn1 =
wait.until(ExpectedConditions.elementToBeClickable(By.cssSelector("button[data-target
='#myModal']")));
        btn1.click();
        Thread.sleep(2000);

        // Locate modal header & print it
        WebElement modalHead =
wait.until(ExpectedConditions.visibilityOfElementLocated(By.className("modal-title")));
        System.out.println("Title of modal is: " + modalHead.getText());

        // Click the 'Ok' button on the modal
```

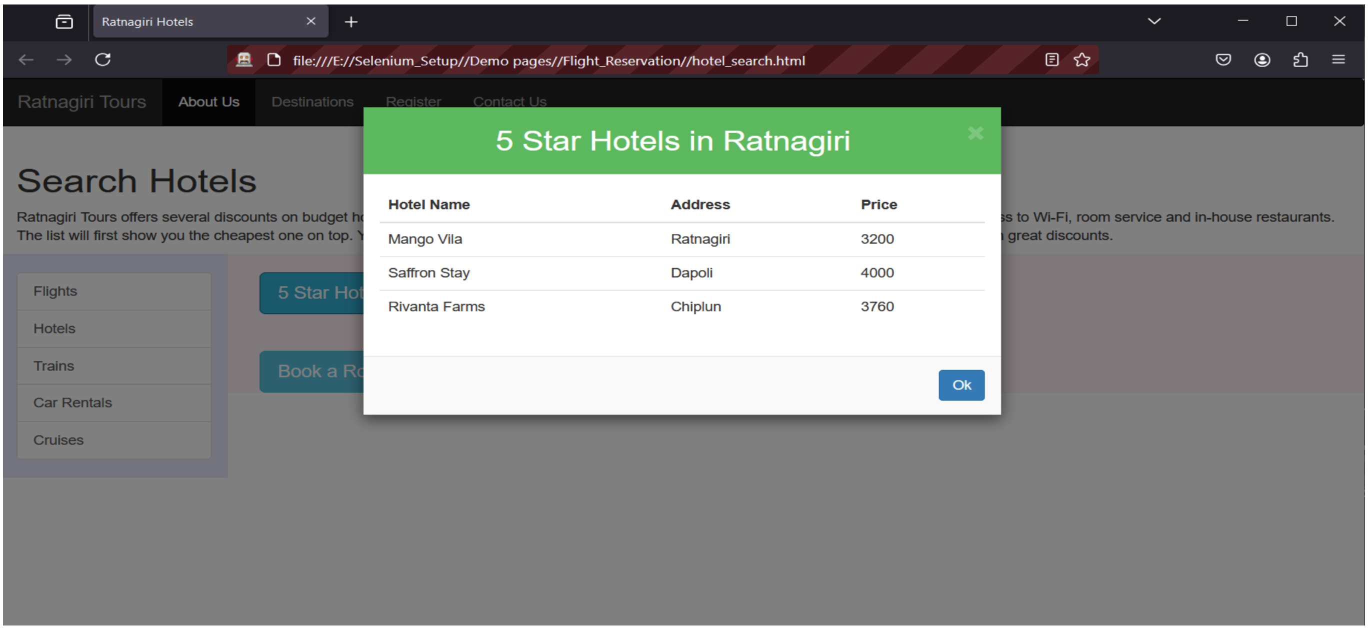
```
            WebElement okBtn =
wait.until(ExpectedConditions.elementToBeClickable(By.xpath("//button[text()='Ok']")));
            okBtn.click();
            Thread.sleep(2000);
            // Click the second button to open another modal or action
            WebElement btnRoom =
wait.until(ExpectedConditions.elementToBeClickable(By.id("myBtn1")));
            btnRoom.click();
            Thread.sleep(2000);
            // Input a hotel name
            WebElement hName =
wait.until(ExpectedConditions.visibilityOfElementLocated(By.id("htlname")));
            hName.sendKeys("vivek");

        } catch (Exception e) {
            e.printStackTrace();
        } finally {
            // Close the browser
            driver.quit();
        }
    }
}
```

Output :


Ratnagiri Hotels
file:///E://Selenium_Setup//Demo pages//Flight_Reservation//hotel_search.html
Ratnagiri Tours
About Us
Destinations
Register
Contact Us

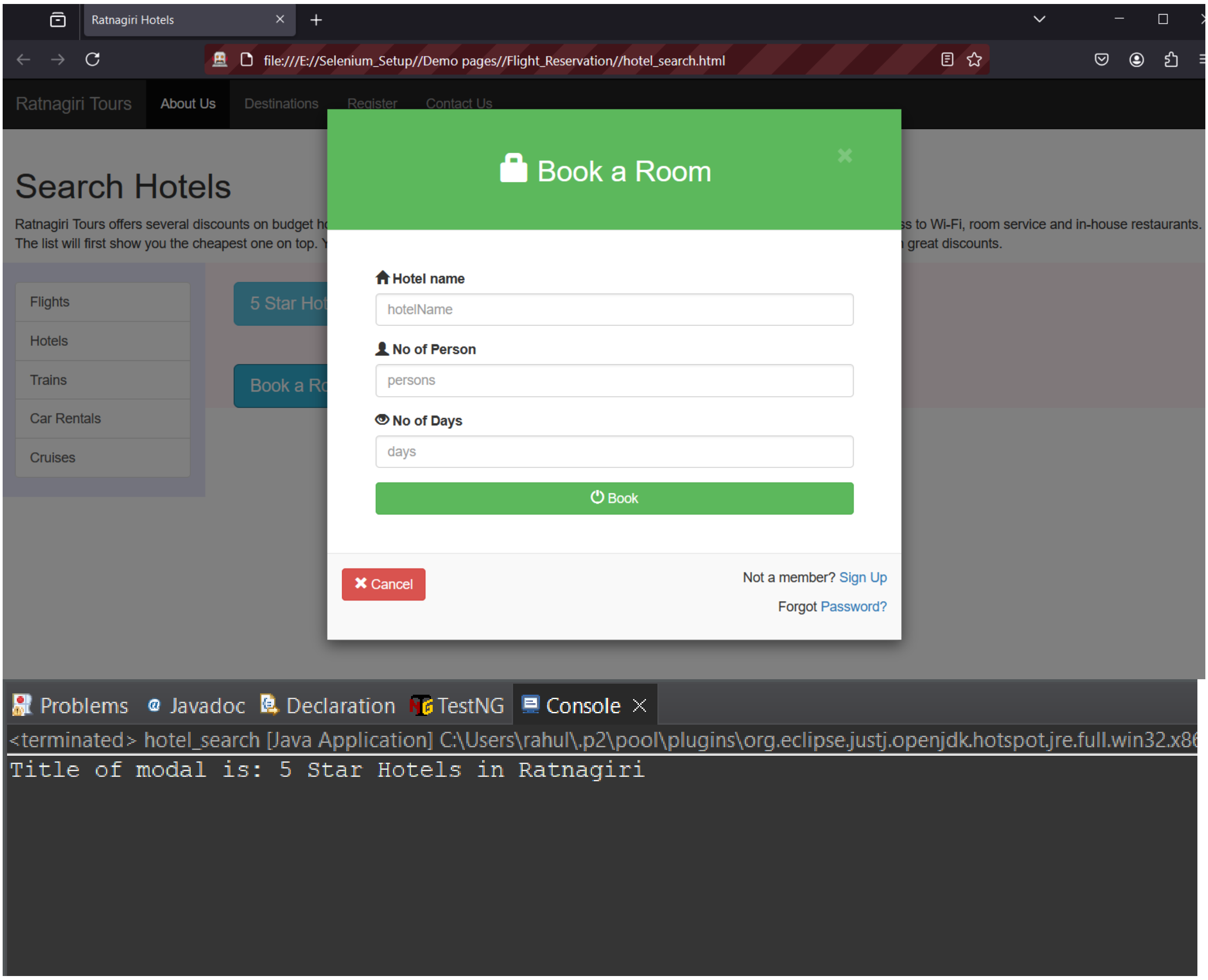
Search Hotels

Ratnagiri Tours offers several discounts on budget hotels as well. Choose from the various amenities you would need during your stay including access to Wi-Fi, room service and in-house restaurants. The list will first show you the cheapest one on top. You can also sort by prices from Low to High, scroll down the list and find your preferred ones with great discounts.



5 Star Hotels in Ratnagiri

Hotel Name	Address	Price
Mango Vila	Ratnagiri	3200
Saffron Stay	Dapoli	4000
Rivanta Farms	Chiplun	3760



```
<terminated> hotel_search [Java Application] C:\Users\rahul\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86
Title of modal is: 5 Star Hotels in Ratnagiri
```

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