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.**

Program:

```java
package   SeleniumScript;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;


public class handlinfIframes {
    public static void main(String[] args) {
            // TODO Auto-generated method stub
            System.setProperty("webdriver.chrome.driver", "E:\\Selenium\\chromedriver.exe");
            WebDriver driver=new ChromeDriver();
            driver.get("file:///E:/samplefiles/flight_reservation.html");

            //Switching to frame1 using index
            driver.switchTo().frame(0);
            WebElement frame1_heading=driver.findElement(By.id("heading1"));
            System.out.println("Heading of frame1 is "+frame1_heading.getText());

            driver.switchTo().defaultContent();
            System.out.println("Title of main window is "+driver.getTitle());
            System.out.println("Switched to main window");

            //Switching to frame 2 using name or id
            driver.switchTo().frame("IF2");

            WebElement frame2_heading=driver.findElement(By.id("heading2"));
            System.out.println("Heading of frame2 is "+frame2_heading.getText());

            //switching to child iframe inside frame2
            driver.switchTo().frame(0);
            System.out.println("Switched to child frame 2");

            WebElement childFrame_heading=driver.findElement(By.id("heading3"));
```

```
System.out.println("Heading of child frame inside Frame 2 is "+childFrame_heading.getText());

driver.switchTo().defaultContent();
System.out.println("Switched to main window");
System.out.println("Title of main window is "+driver.getTitle());
    }
}
```
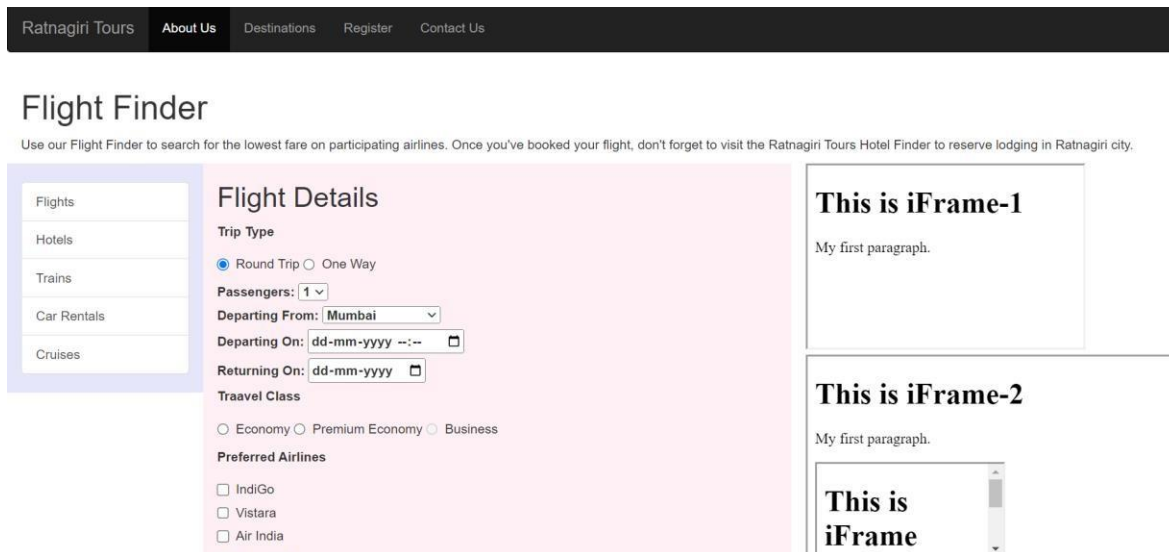
Output:


```
WebDriver BiDi listening on ws://127.0.0.1:53191
1669612367704    RemoteAgent    WARN    TLS certificate errors will be ign
console.warn: SearchSettings: "get: No settings file exists, new profile?"
DevTools listening on ws://127.0.0.1:53191/devtools/browser/4f4afd19-946f-
Nov 28, 2022 10:42:49 AM org.openqa.selenium.remote.ProtocolHandshake crea
INFO: Detected upstream dialect: W3C
Heading of frame1 is This is iFrame-1
Title of main window is Ratnagiri Tours
Switched to main window
Heading of frame2 is This is iFrame-2
Switched to child frame 2
Heading of child frame inside Frame 2 is This is iFrame inside iFrame 2
Switched to main window
```

2. **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 SeleniumScript;

```java
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 handlingPopups {
        public static void main(String[] args) throws InterruptedException {
                // TODO Auto-generated method stub
                System.setProperty("webdriver.chrome.driver", "E:\\Selenium\\chromedriver.exe");
                WebDriver driver=new ChromeDriver();

                driver.get("file:///E:/samplefiles/flight_reservation.html");

                System.out.println("Title of main window is "+driver.getTitle());
                String mainWindow = driver.getWindowHandle();

                System.out.println("ID of Main Window is "+mainWindow);
                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);//switch to first child window
                                System.out.println("Title of ChildWindow is "+driver.getTitle());
                                System.out.println("ID of ChildWindow is "+driver.getWindowHandle());

                                WebElement heading = driver.findElement(By.id("sampleHeading"));
                                System.out.println("heading inside ChildWindow is "+heading.getText());

                                Thread.sleep(3000);
                                driver.close();
                        }
                }
```
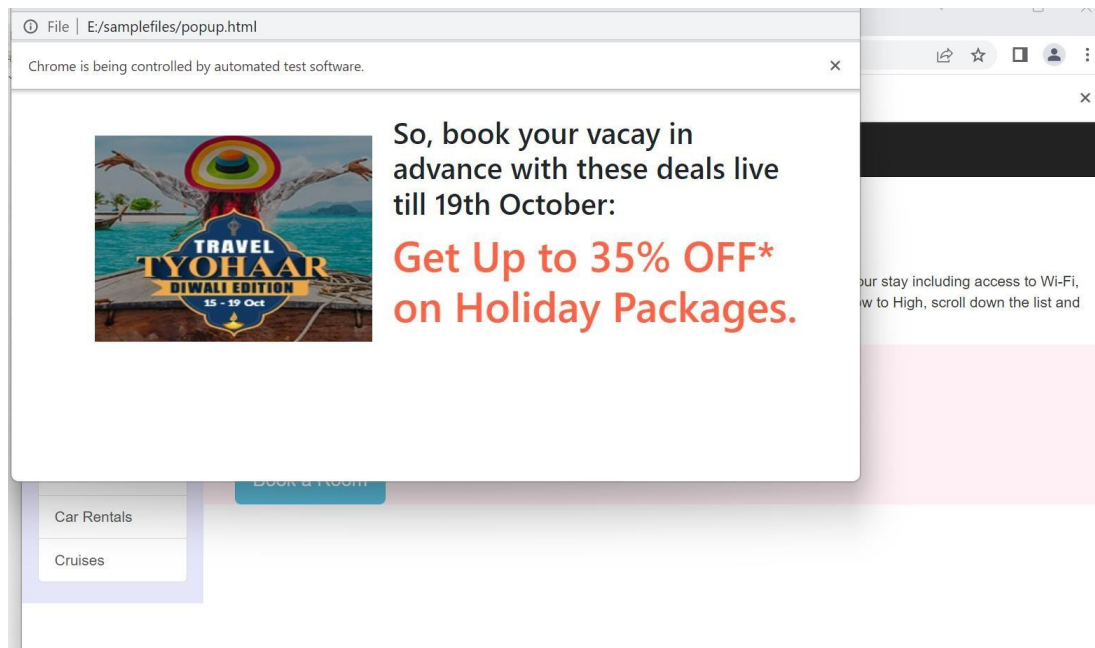
Output:

3. **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.**

Program:

```java
package SeleniumScript;

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 browserWindows {
    public static void main(String[] args) throws InterruptedException {
        // TODO Auto-generated method stub
        System.setProperty("webdriver.chrome.driver", "E:\\Selenium\\chromedriver.exe");
        WebDriver driver=new ChromeDriver();
        driver.get("https://demoqa.com/browser-windows");

        String mainWindow= driver.getWindowHandle();
        System.out.println("Main Window Handle "+mainWindow);
        System.out.println("Title of Main Window "+driver.getTitle());

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

        Set<String> handles=driver.getWindowHandles();
        for(String windowHandle:handles) {
            if(!windowHandle.equals(mainWindow)) {
                driver.switchTo().window(windowHandle);

                WebElement heading= driver.findElement(By.tagName(("h1")));
```
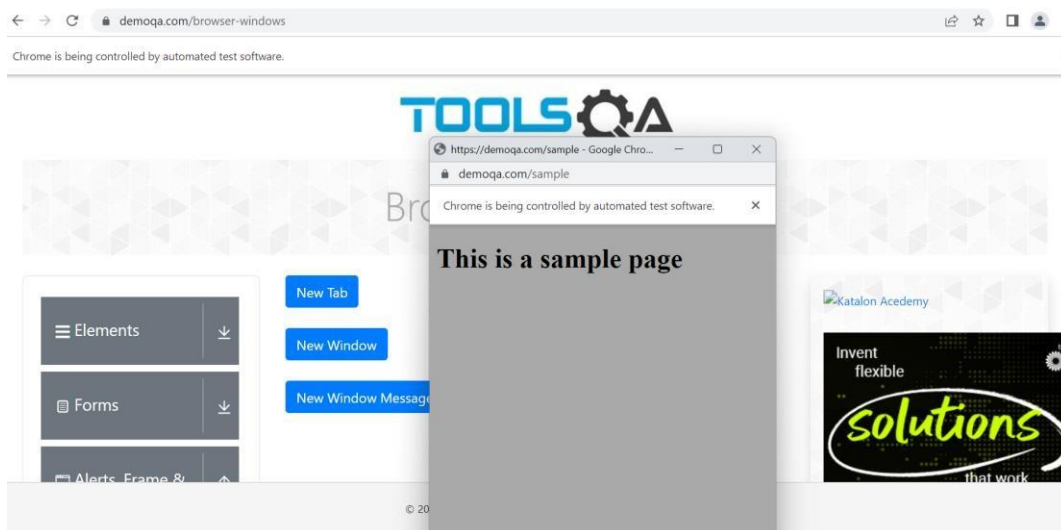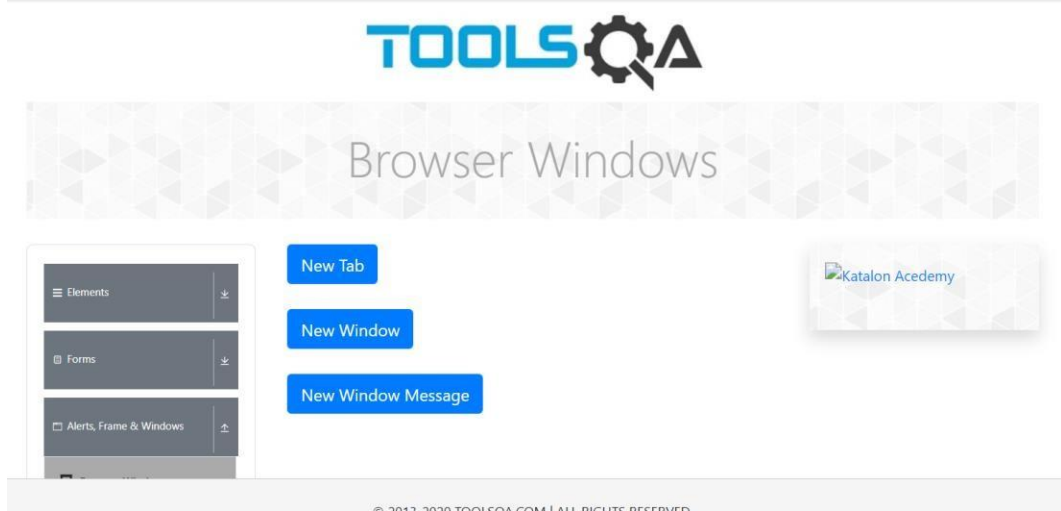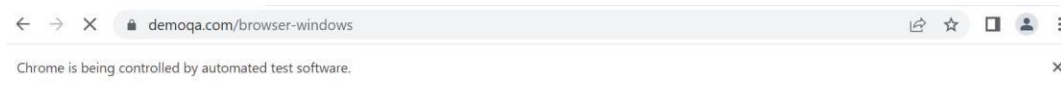
```
                    System.out.println("Heading "+heading.getText());

                    Thread.sleep(2000);
                    driver.close();
                }
            }

        }

    }
```

Output:

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

     Program:

```
package   SeleniumScript;

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 handlingModels {

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

                // TODO Auto-generated method stub

                //System.setProperty("webdriver.chrome.driver", "E:\\Selenium\\chromedriver.exe");

                //WebDriver driver=new ChromeDriver();

                System.setProperty("webdriver.gecko.driver","E:\\Selenium\\geckodriver.exe");

                WebDriver driver = new FirefoxDriver();

                driver.get("file:///E:/samplefiles/hotel_search.html");


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

                //hotels.click();


                //WebElement    modal_header1=    driver.findElement(By.xpath("//h4[@class='modal-title']"));

                //System.out.println("Modal Header is "+modal_header1.getText());

                //WebElement ok_btn= driver.findElement(By.xpath("//button[text()='Ok']"));

                //Thread.sleep(2000);

                //ok_btn.click();


                WebElement book_room =driver.findElement(By.cssSelector("button[id=myBtn1]"));

                book_room.click();


                WebElement htlname= driver.findElement(By.id("htlname"));

                htlname.sendKeys("Shivtej");


                WebElement no_of_person= driver.findElement(By.id("prs"));
```
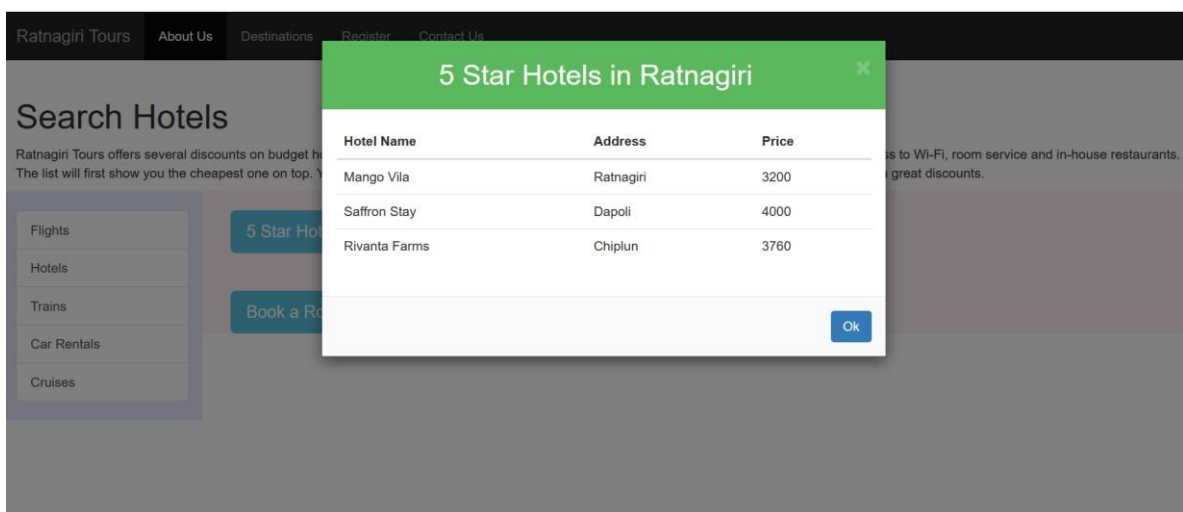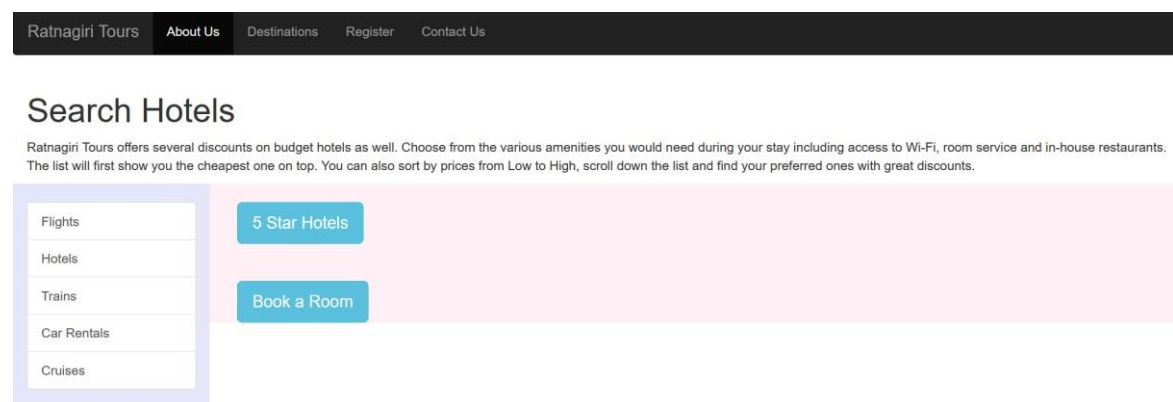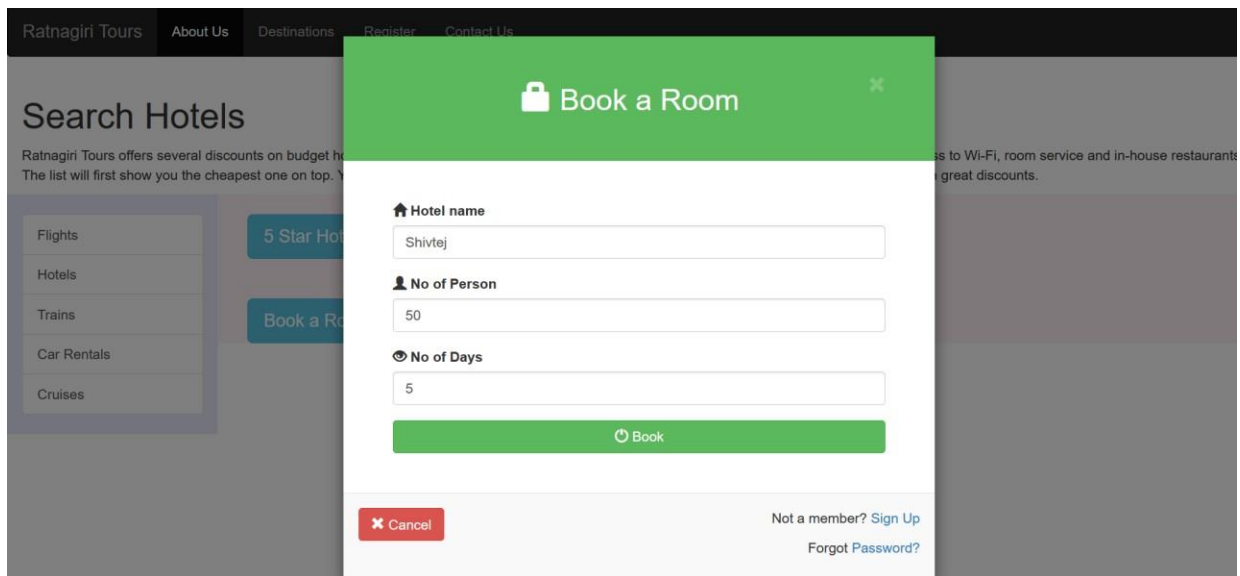
```
            no_of_person.sendKeys("50");
            WebElement no_of_days= driver.findElement(By.id("days"));
            no_of_days.sendKeys("5");


            WebElement
cancel=driver.findElement(By.xpath("//button[@type='submit']//following::button"));
            Thread.sleep(2000);
            cancel.click();
            }
    }
```

Output:

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