
Action Class

Handling special keyboard and mouse events are done using the **Advanced User Interactions API**.

It contains the **Action class** which provides the methods to perform these actions.

Action class are a way to automate low level interactions such as mouse movements, mouse button actions, key press, and context menu interactions.

To use the action class,

First we need to create the object of **Action Class**, Which takes one parameter of type web driver.

Syntax:

```
Actions act = new Actions(driver);
```

Here, we need to pass the web driver instance to action class to pass the control from web driver to action class, so that action class perform the actions like mouse over, right click, drag drop etc.

Following are the methods provided by the **Action Class** to perform the mouse related actions.

IMPORTANT:

- Whenever we use any methods of action class. We should use the perform method to generate the actions on the browser.

Generating user actions,

When you call methods for actions on the action class object. The action are stored in a queue in the action chains object. In order to fire the actions stored in the action class object we need to call perform () function. The events are fired in the order they are queued.

1. Move to element

- Moves the mouse to the middle of the element.

Syntax:

MoveToElement (WebElement)

- Parameter-> WebElement – element on which we want to move the cursor.

Write a script to move the cursor on element?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class MoveToElement {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("http://airindia.com/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        WebElement ele = driver.findElement(By.xpath("//a[contains(text(),'Manage Your Trip')]"));
        Actions act = new Actions(driver);
        Thread.sleep(5000);
        act.moveToElement(ele);
        act.perform();

        driver.close();
    }
}
```

2. Move by offset

- Moving the mouse to an offset from current mouse position.

Syntax:

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class MoveByOffset {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("http://airindia.com/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        WebElement ele = driver.findElement(By.xpath("//a[contains(text(),'Manage Your Trip')]"));
        Actions act = new Actions(driver);
        int x = ele.getLocation().getX();
        int y = ele.getLocation().getY();
        act.moveByOffset(x, y);
        act.perform();

        driver.close();
    }
}
```

Composite Actions:

- Performing multiple actions at the same time is called as composite actions.

3. Click

- Clicks on the element

Syntax:

Click (WebElement)

- Clicks an element

Write a scripts to click on element?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class Click {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("http://airindia.com/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        WebElement ele = driver.findElement(By.xpath("//a[contains(text(),'Manage Your Trip')]"));
        Actions act = new Actions(driver);
        act.moveToElement(ele);
        WebElement msOffice = driver.findElement(By.xpath("//a[text()='MS Office Plug-ins']"));
        act.click(msOffice);
        act.perform();

        driver.close();
    }
}
```

4. Pause:

- Pause all inputs for the specified duration.
- This method takes arguments as milli seconds.

Syntax:

Pause (Milli Seconds)

Write a script to move the cursor with pause method?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class Click {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://www.actimind.com/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        WebElement ele = driver.findElement(By.xpath("//a[contains(text(),'AREAS OF EXPERTISE')]"));
        Actions act = new Actions(driver);
        act.moveToElement(ele).pause(10000);
        WebElement msOffice = driver.findElement(By.xpath("//a[text()='MS Office Plug-ins']"));
        act.click(msOffice);
        act.perform();

        driver.close();
    }
}
```

5. Context Click

- Performs the context click (right click) at the current mouse location.

Syntax:

Context_click ()

- If you don't pass the argument, it will perform right click operation on top left corner of the browser.
- If you pass the web element as an argument, it will perform the right click operation on the middle of that web element.

Write a program to right click.

```
package actionclass;

import java.awt.AWTException;
import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class ContextClick_WithOutArgument {
    public static void main(String[] args) throws InterruptedException, AWTException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        Actions act = new Actions(driver);
        |
        WebElement downloadTab = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        act.contextClick(downloadTab).pause(5000);
        act.perform();

        driver.close();
    }
}
```

- When we right click on any element we get list of options which is called as context menu.
- To select the required option present in the context menu we use the shortcuts, IE, "t" to select open link in new tab, "w" to select link in new window.
- Since we cannot inspect the context menu, we type the shortcut using the robot class.
- Write a script to right click on the element and select link in new tab option?

```
package actionclass;

import java.awt.AWTException;
import java.awt.Robot;
import java.awt.event.KeyEvent;
import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class ContextClick {
    public static void main(String[] args) throws InterruptedException, AWTException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        Actions act = new Actions(driver);
        WebElement downloadTab = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        act.contextClick(downloadTab).pause(3000);
        act.perform();
        Robot r = new Robot();
        r.keyPress(KeyEvent.VK_T);

        driver.close();
    }
}
```

Activate Win

6. Send keys

- Sends the series of keystrokes onto element

Syntax:

Send_keys (on element key strokes)

```
package actionclass;

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.Keys;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.interactions.Actions;

public class CompositeActions {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://docs.seleniumhq.org/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        Actions act = new Actions(driver);
        WebElement downloadTab = driver.findElement(By.xpath("//a[@title='Get Selenium']"));
        act.sendKeys(Keys.CONTROL).click(downloadTab).perform();
        driver.close();
    }
}
```

7. Click and hold

- Holds down the left mouse button on an element.

Write a script to click and hold the link?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class ClickAndHold {
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://github.com/SeleniumHQ/");
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);

        Actions act = new Actions(driver);

        WebElement seleniumLink = driver.findElement(By.xpath("//span[text()='www.seleniumhq.org']"));
        act.clickAndHold(seleniumLink).pause(5000);
        act.perform();

        driver.close();
    }
}
```

```

package actionclass;

import java.util.concurrent.TimeUnit;

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.interactions.Actions;

public class Draggable {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "./Jars/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("http://jqueryui.com/draggable/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        driver.switchTo().frame(0);
        WebElement ele = driver.findElement(By.id("draggable"));
        Actions act = new Actions(driver);
        act.clickAndHold(ele).moveByOffset(100, 100).build().perform();
        Thread.sleep(5000);
        driver.close();
    }
}

```

8. Double Click

- Double-clicks an element.

HTML Code:

```

<html>
  <head>
    <title>Qspiders</title>
  </head>
  <body>
    <div class="box">
      <span onclick="window.location='http://www.google.com'" style="color:blue;text-decoration:
        underline;">Double Click Here</span>
    </div>
  </body>
</html>

```

Write a script to double on the element?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class DoubleClick {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("file:///D:/HTML%20Pages/Practice/Actions/doubleclickq.html");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        WebElement doubleClickEle = driver.findElement(By.xpath("//span[text()='Double Click Here']"));
        Actions act = new Actions(driver);
        act.doubleClick(doubleClickEle);
        act.perform();

        driver.close();
    }
}
```

9. Drag and Drop

- Holds down the left mouse button on the source element, then moves to the target element and releases the mouse button.

Write a script to drag and drop the element?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class DragAndDrop {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.vtiger.com/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);

        driver.findElement(By.id("username")).sendKeys("admin");
        driver.findElement(By.id("password")).sendKeys("admin");
        driver.findElement(By.xpath("//button[text()='Sign in']")).submit();

        Actions act = new Actions(driver);
        WebElement source = driver.findElement(By.xpath("//div[@title='Opportunities by Stage']"));
        WebElement target = driver.findElement(By.xpath("//div[@title='Overdue Activities']"));
        act.dragAndDrop(source, target).perform();

        driver.close();
    }
}
```

Activate Windows

Write a script to drag and drop the element using offset?

```
package actionclass;

import java.util.concurrent.TimeUnit;
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.interactions.Actions;

public class DragAndDropByOffset {
    public static void main(String[] args) throws InterruptedException {
        System.setProperty("webdriver.chrome.driver", "D:/Softwares/Drivers/chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.manage().window().maximize();
        driver.get("https://demo.vtiger.com/");
        driver.manage().timeouts().implicitlyWait(100, TimeUnit.SECONDS);
        driver.findElement(By.id("username")).sendKeys("admin");
        driver.findElement(By.id("password")).sendKeys("admin");
        driver.findElement(By.xpath("//button[text()='Sign in']")).submit();

        Actions act = new Actions(driver);
        WebElement source = driver.findElement(By.xpath("//div[@title='Opportunities by Stage']"));
        WebElement target = driver.findElement(By.xpath("//div[@title='Overdue Activities']"));
        int x = target.getLocation().getX();
        int y = target.getLocation().getY();
        act.dragAndDropBy(source, x, y).perform();

        driver.close();
    }
}
```

Activate Window