Selenium Java - Tutorial 14- Mouse hover using Actions class

This is the next tutorial in selenium-java series. Please go through the previous tutorials before you start this one. In the last tutorial, we learned how to handle java alerts. In this tutorial we will see how to handle mouse hover operation!

What you will Learn:

1. Mouse Hover using Actions class

Mouse Hover using Actions class

Navigate to https://americangolf.co.uk and mouse hover 'Golf Clubs'. You will see a list of child menu items that come up automatically. so we don't have to click 'Golf Clubs' to see its menu items, we have to just mouse hover it. The red highlighted box (bigger one) is the list of menus under 'Golf Clubs'

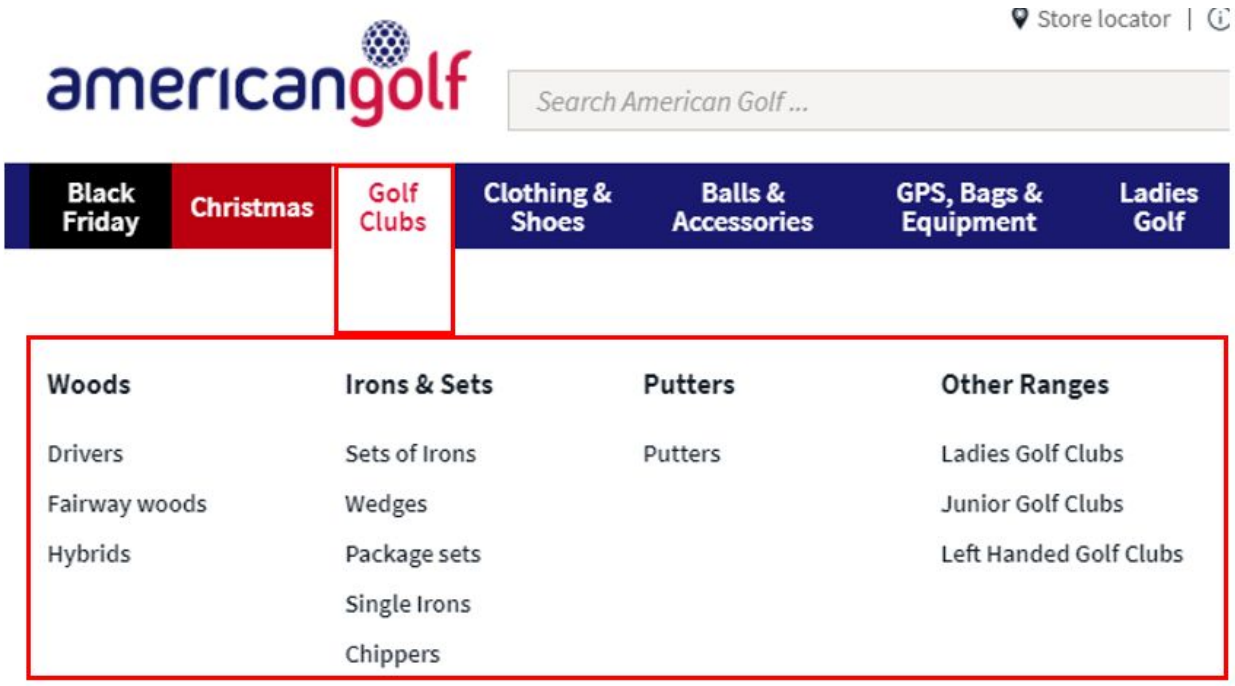

Figure 1

In Selenium, this mouse hover can be achieved by using 'Actions' class. Thus 'Actions' class can be used to handle mouse-over and keyboard interactions of the user.

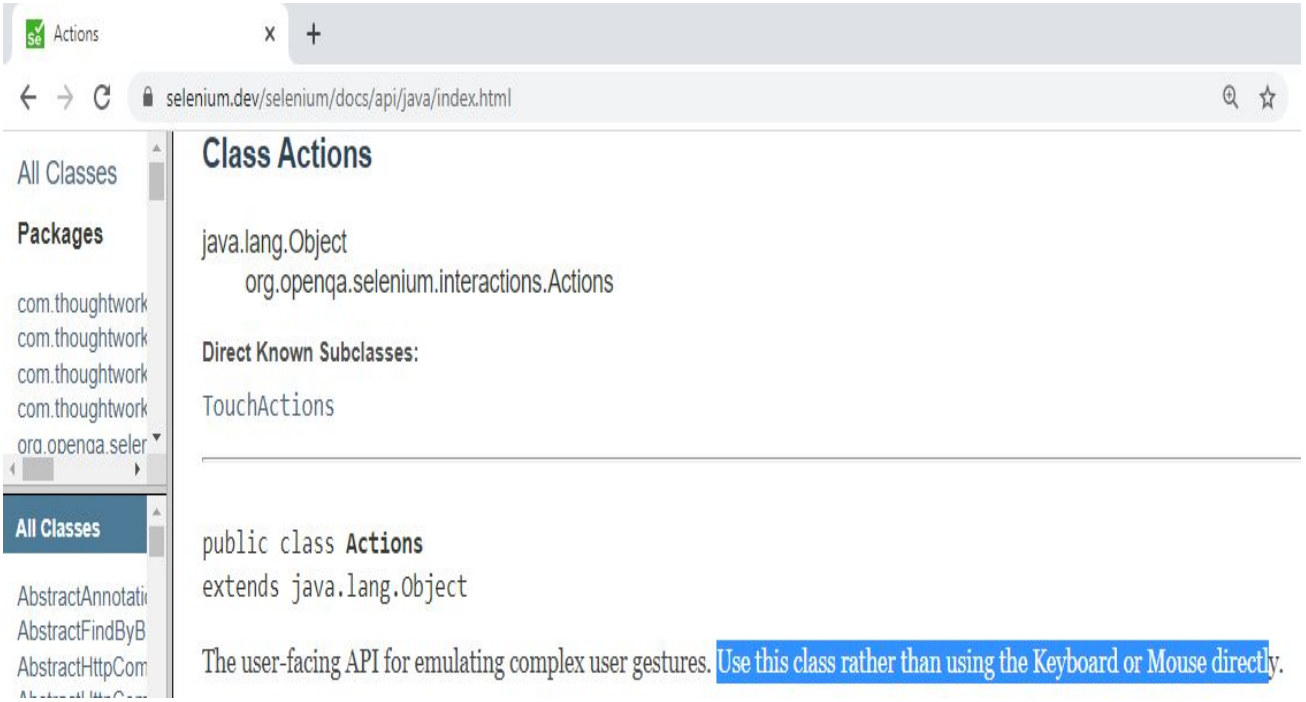

Figure 2

You can see various methods to handle mouse operations

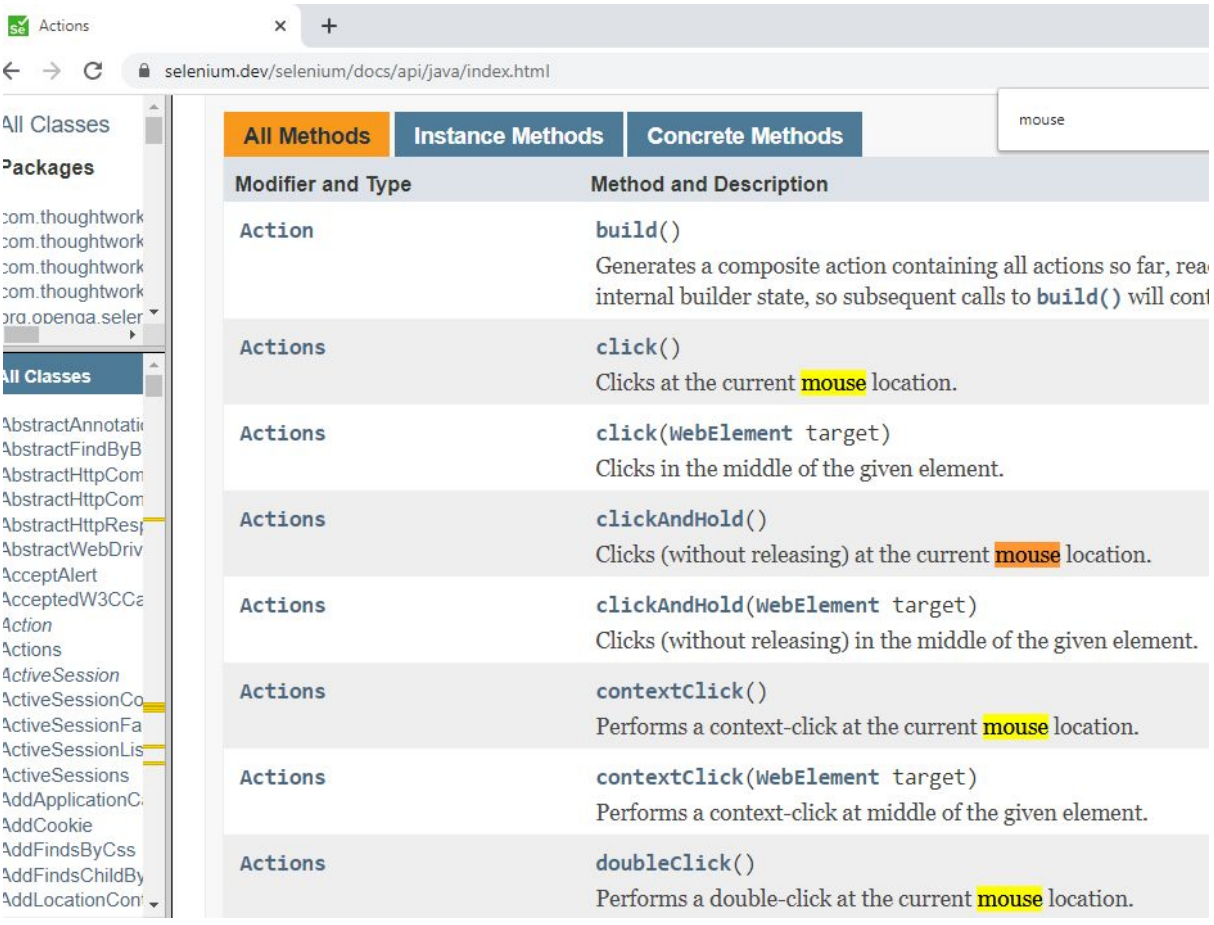

Figure 3

Now our task is to mouse hover ‘Gold clubs’ and click ‘Drivers’ menu

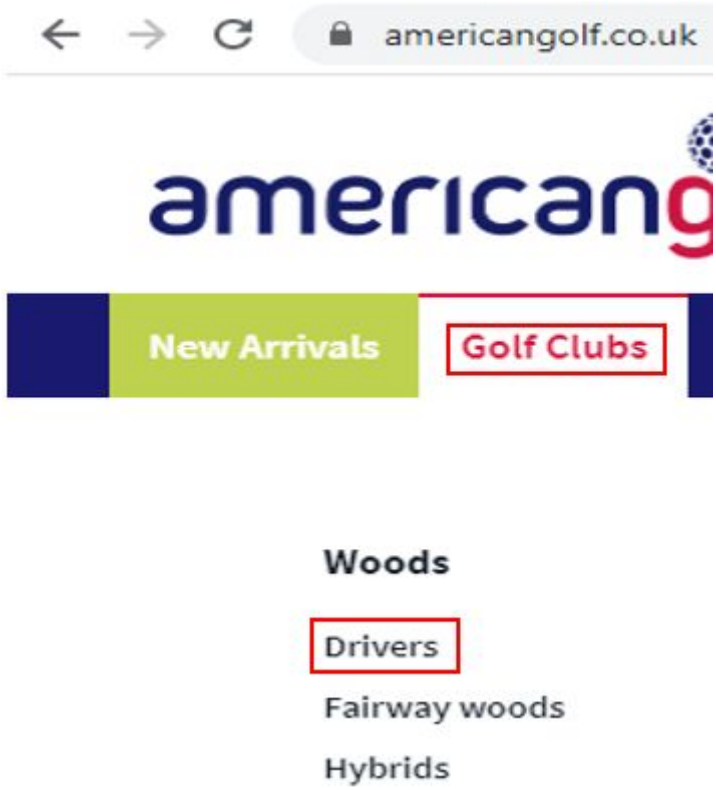

Figure 4

Let us first inspect ‘Golf Clubs’ and expand the <a tag. You can see the text ‘Golf Clubs’ written. We can now build custom xpath:
//a[@class='a-level-1'][contains(text(),'Golf Clubs')]

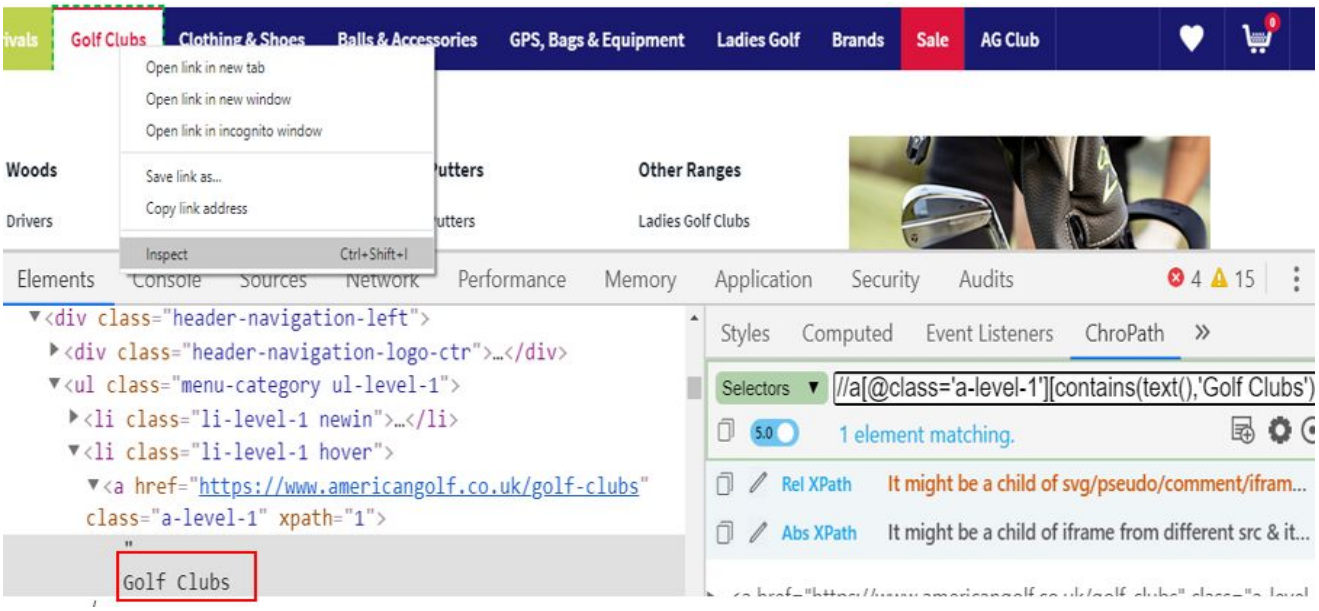

Figure 5

Let us create a new class

```
4 import org.openqa.selenium.interactions.Actions;
5
6 public class ActionsClass {
7
8 public static void main(String[] args) {
9 System.setProperty("webdriver.chrome.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\chromedriver.exe");
10
11 WebDriver driver = null;
12
13 driver = new ChromeDriver();
14
15 driver.get("https://americangolf.co.uk");
16 Actions a = new Actions(driver);
17 a.moveToElement(driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]"))).build().perform();
```

Figure 6

In line#16, the driver object is passed in constructor of Actions class. The driver reference ‘a’ now gets all the capabilities of Actions’s class methods.

In line#17, we are using the method ‘moveToElement’ using reference ‘a’. This helps in moving to ‘Golf Clubs’ parent menu. Remember that, in line#17, you have to use .build.perform at the end, otherwise mouse hover will not happen.

Run the script. Notice below that list of menu items get displayed due to mouse hover

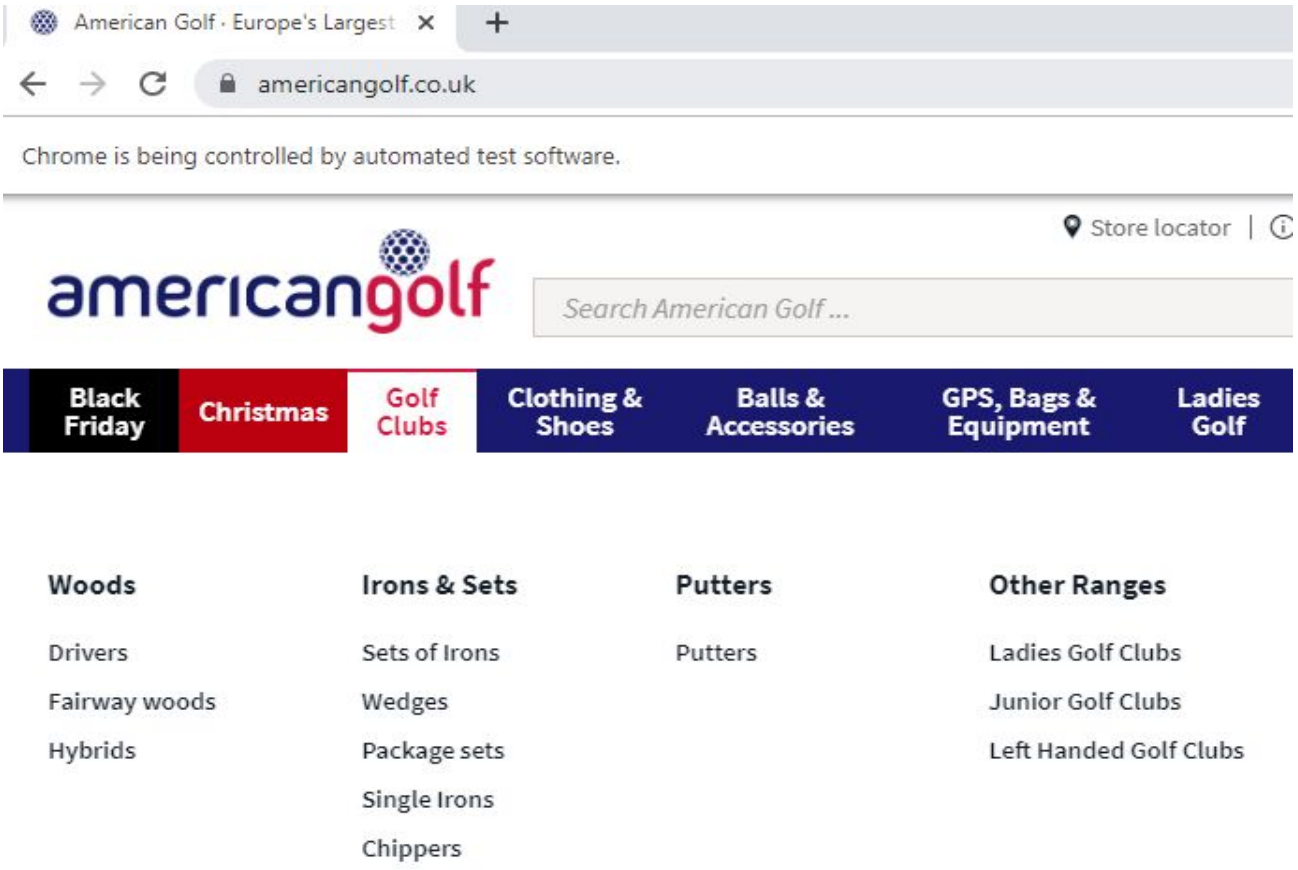

Figure 7

As we earlier said, our task is to click 'Drivers' link under 'Gold clubs'.

To do that, we have to find xpath of 'Drivers' link. Right click 'Drivers' and click Inspect

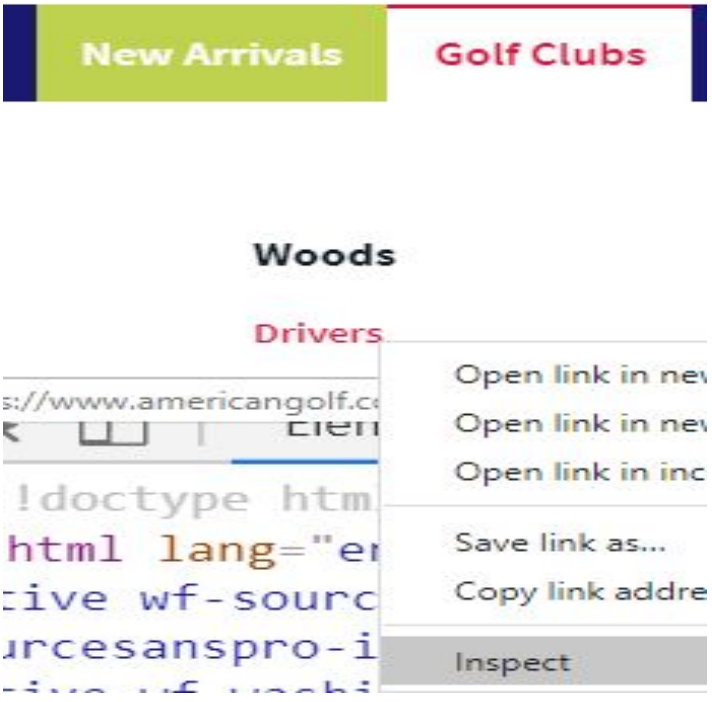

Figure 8

The custom xpath of ‘Drivers’ link would be:
//div[@id='CLUBS_1']//span[@class='name'][contains(text(),'Drivers')]

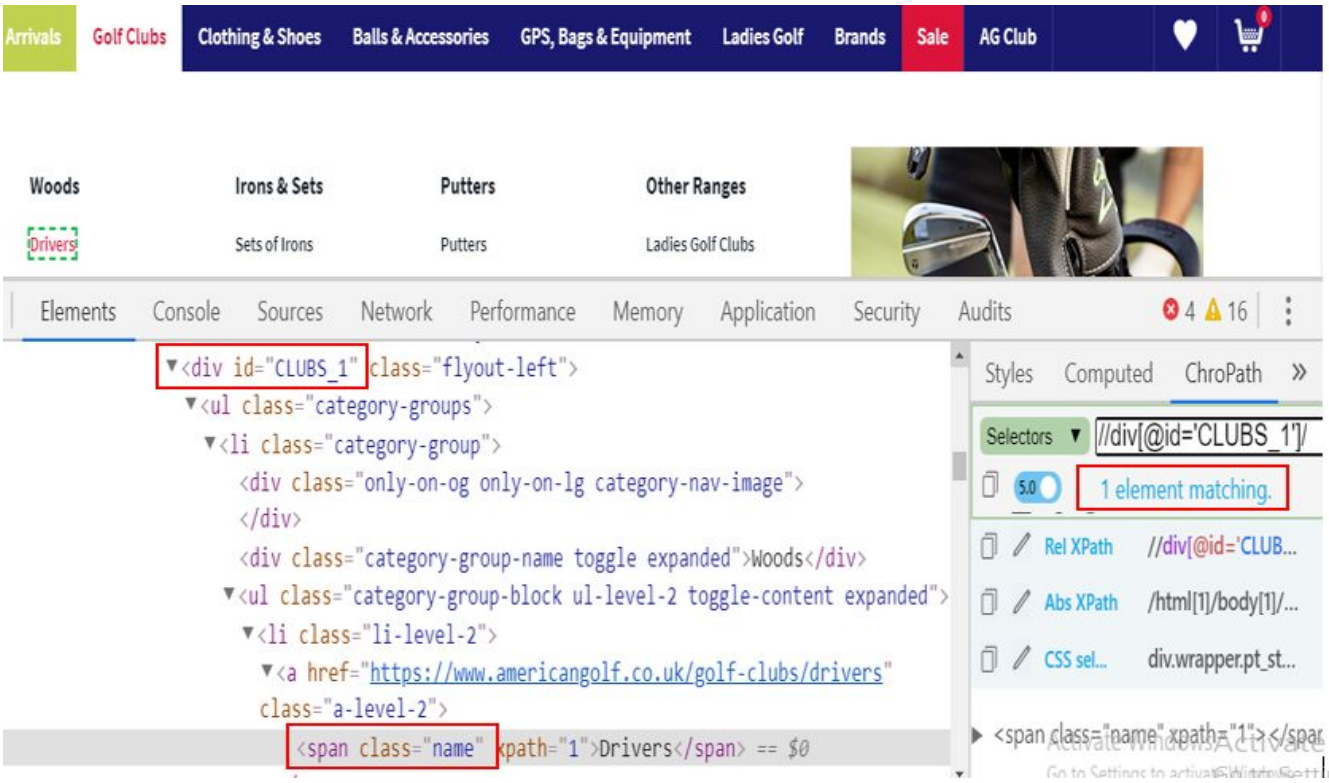

Figure 9

So in line#19, we use this xpath to click ‘Drivers’ link, see below

```
6  public class ActionsClass {
7
8  public static void main(String[] args) {
9  System.setProperty("webdriver.chrome.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\chromedriver.exe");
10
11 WebDriver driver = null;
12
13 driver = new ChromeDriver();
14
15 driver.get("https://americangolf.co.uk");
16 Actions a = new Actions(driver);
17 a.moveToElement(driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]"))).build().perform();
18
19 driver.findElement(By.xpath("//div[@id='CLUBS_1']//span[@class='name'][contains(text(),'Drivers')]")).click();
```

Figure 10

Run the script, notice that the script clicks the ‘Driver’s menu under ‘Golf Clubs’ & the https://www.americangolf.co.uk/golf-clubs/drivers page opens, see below

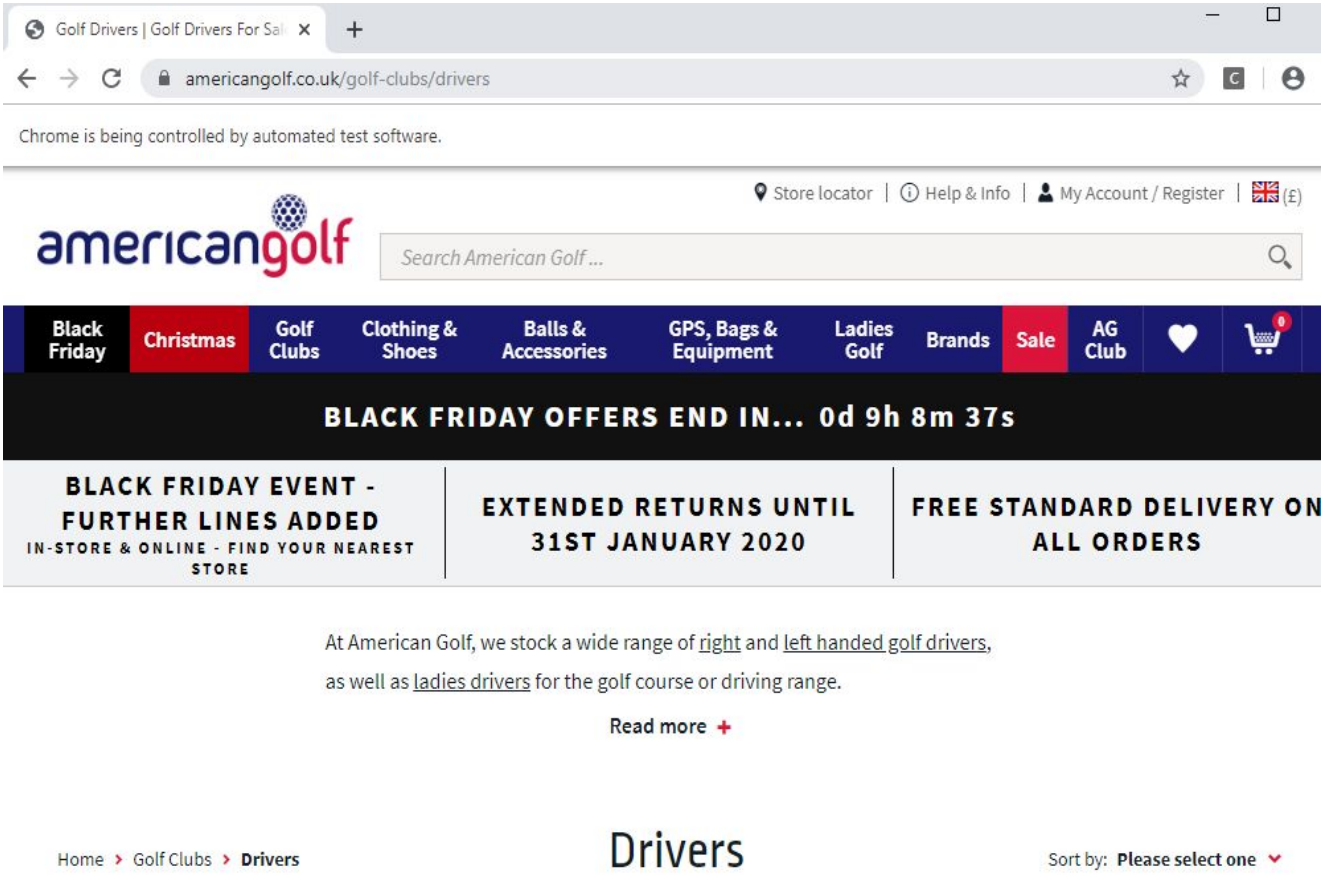

Figure 11

Now comment line 17, add line 18. So basically in line#18, instead of mouse hover 'Golf Clubs, we are trying to click 'Golf Clubs' menu. So lets see if selenium clicks 'Golf Clubs; menu (line#18) and clicks 'Drivers' link (line 19)

```
11 WebDriver driver = null;
12
13 driver = new ChromeDriver();
14
15 driver.get("https://americangolf.co.uk");
16 Actions a = new Actions(driver);
17 //a.moveToElement(driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]"))).build().perfor
18 driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]")).click();;
19 driver.findElement(By.xpath("//div[@id='CLUBS_1']//span[@class='name'][contains(text(),'Drivers')]")).click();
```

Figure 12

When you run the script, the 'Drivers' link does NOT get clicked. The script clicks 'Golf Clubs' menu & than throws an error

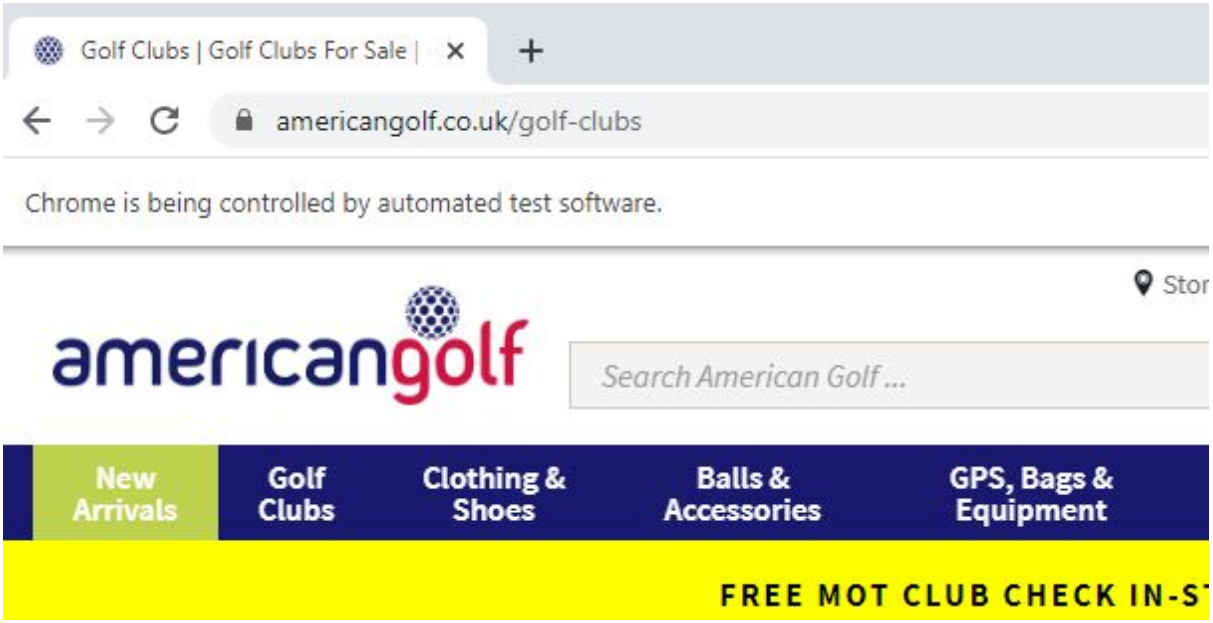

Figure 13

Notice below, 'ElementNotVisibleException' is thrown at line#19. What this means is that, selenium was not able to find the 'Drivers' link under 'Golf Clubs' menu, as expected

```
INFO: Detected dialect: OSS
Exception in thread "main" org.openqa.selenium.ElementNotVisibleException: element not interactable
        at ActionsClass.main(ActionsClass.java:19)
19 driver.findElement(By.xpath("//div[@id='CLUBS_1']//span[@class='name'][contains(text(),'Drivers')]")).click();
```

Figure 14

So basically, we have to use mouse hover approach to click 'Drivers' link. Let us comment line#18 and uncomment line#17as earlier

```
15 driver.get("https://americangolf.co.uk");
16 Actions a = new Actions(driver);
17 a.moveToElement(driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]"))).build().perform();
18 //driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]")).click();
19 driver.findElement(By.xpath("//div[@id='CLUBS_1']//span[@class='name'][contains(text(),'Drivers')]")).click();
```

Figure 15

On re-running the script, we might still encounter the same 'ElementNotVisibleException' at line#19. Why?

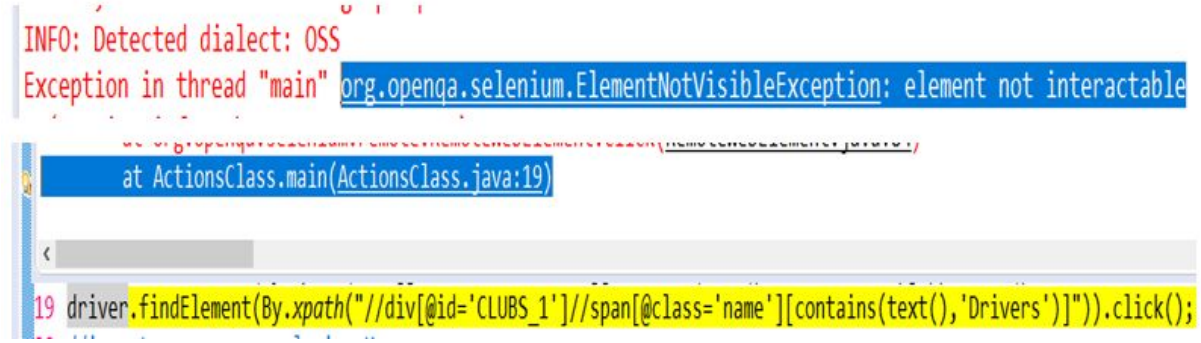

Figure 16

The reason being, when you run the script, look at the webpage below, the mouse hover happens over 'Golf Clubs' menu and selenium tries to click 'Drivers' link immediately. That's the reason you see errors in the console background. That's because, there might be some delay in the element (Drivers link) being visible

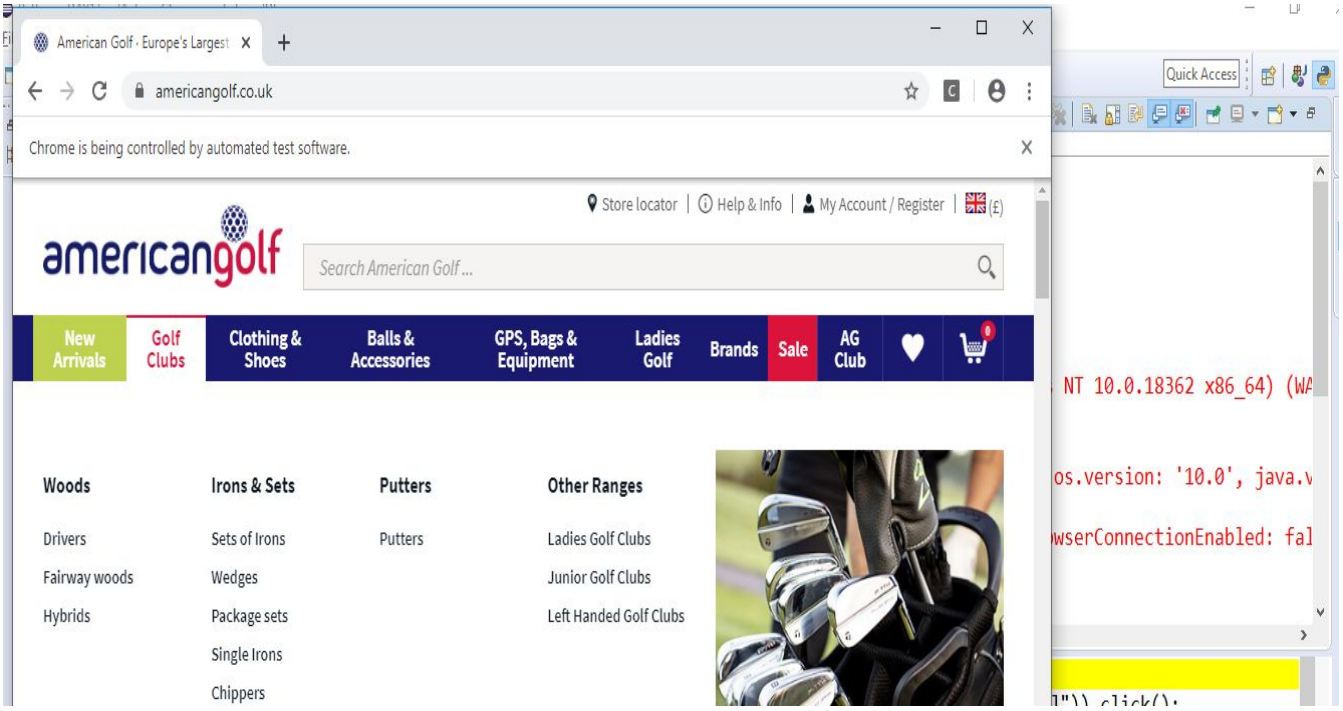

Figure 17

To fix this problem, we can add 2 sec wait time before asking selenium to click the 'Drivers' link. Thus we add wait time at line#19. So selenium will wait for 2 seconds before clicking the 'Drivers' link.

```
15 driver.get("https://americangolf.co.uk");
16 Actions a = new Actions(driver);
17 a.moveToElement(driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]"))).build().perform();
18 //driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Golf Clubs')]")).click();
19 Thread.sleep(2000);
20 driver.findElement(By.xpath("//div[@id='CLUBS_1']//span[@class='name'][contains(text(),'Drivers')]")).click();
```

Figure 18

Now when you run the script, there are no errors

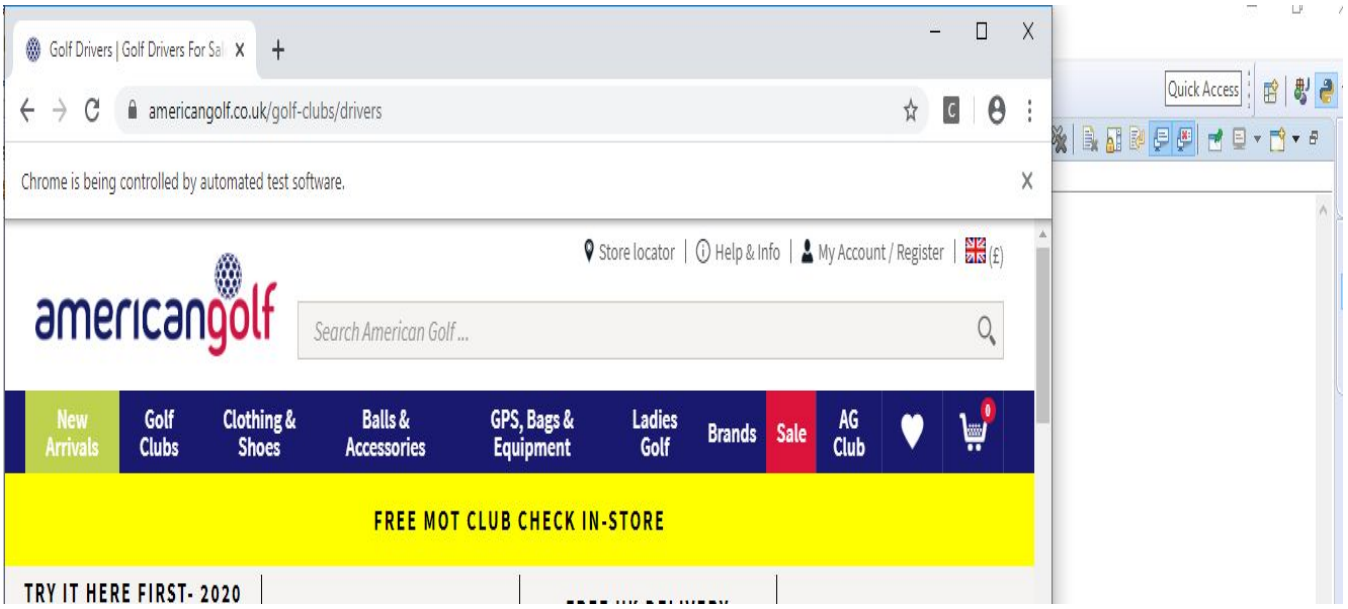

Figure 19

Let us now try to click 'Shirts' link under 'Clothing & Shoes' menu

Figure 20

Inspect ‘Clothing & Shoes’, expand <a tag, see the text

Figure 21

Inspect ‘Shirts’ and note down div tag’s id

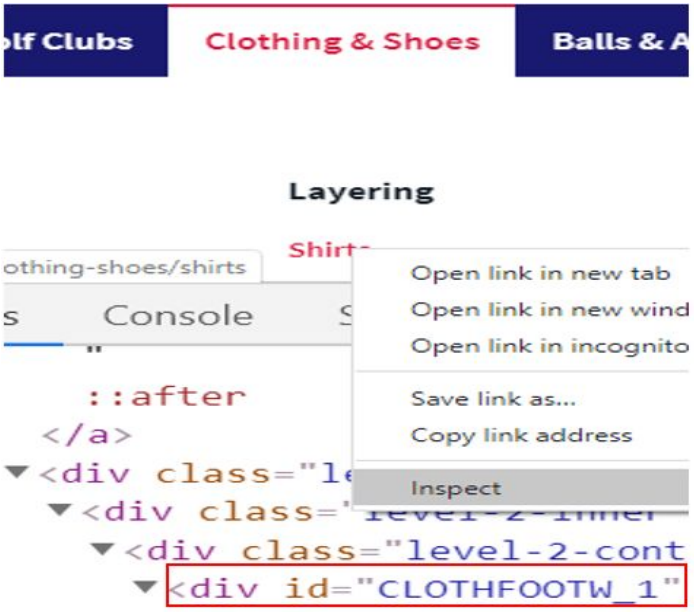

Figure 22

So we can write lines 17-19

```
15 driver.get("https://americangolf.co.uk");
16 Actions a = new Actions(driver);
17 a.moveToElement(driver.findElement(By.xpath("//a[@class='a-level-1'][contains(text(),'Clothing & Shoes')]"))).build().per
18 Thread.sleep(2000);
19 driver.findElement(By.xpath("//div[@id='CLOTHFOOTW_1']//span[@class='name'][contains(text(),'Shirts')]")).click();
```

Figure 23

Run script, notice that ‘Shirts’ page gets loaded

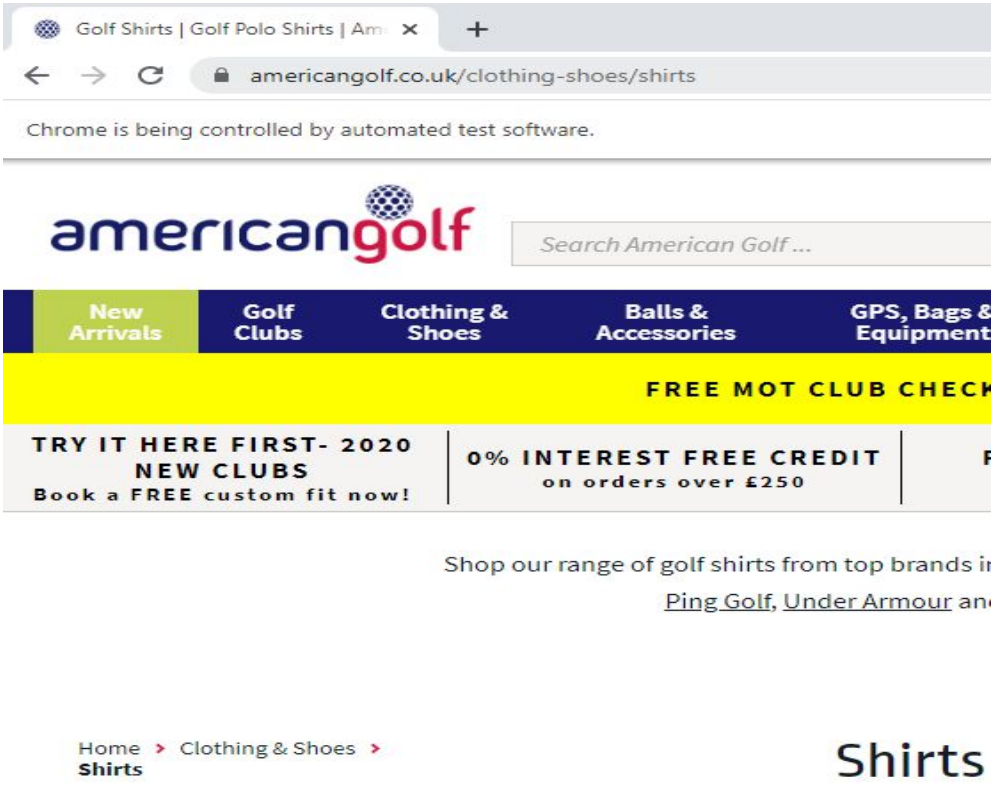

Figure 24

You can also refer moveToElement method in api document

Figure 20

You can open the details of this method and read out, see below

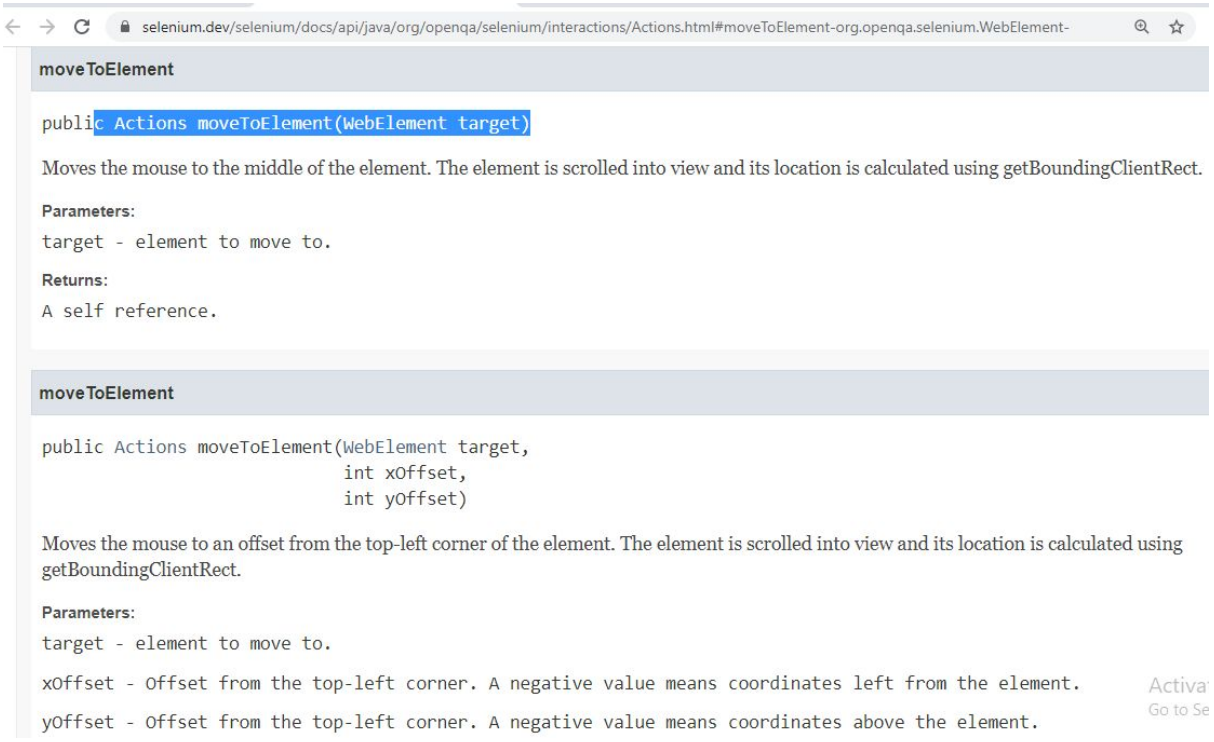

Figure 21

So this is how we use mouse hover operation. Thank you for reading!