

Working with various browsers

This is the third tutorial in the selenium-java series. In the last tutorial, we had studied about identifying the elements on a webpage. In this tutorial we are going to study about how to work with different web browsers!

What you will Learn:

Working with Chrome Browser

Working with Firefox Browser

Working with Internet Explorer browser

Launch all the 3 browsers

Working with Chrome Browser:

In the DAY1 project that we had created earlier, create a new class 'Browsers'. Create an instance of ChromeDriver & navigate to a url, write below 2 lines:

```
ChromeDriver cd = new ChromeDriver();  
cd.get("https://google.com");
```

Make sure to *import org.openqa.selenium.chrome.ChromeDriver;*

```
public class Browsers {  
  
    public static void main(String[] args) {  
  
        ChromeDriver cd = new ChromeDriver();  
        cd.get("https://google.com");  
    }  
}
```

Figure 1

Run, you will see an `IllegalStateException`. This says that the path to driver executable must be set by chrome driver

```
<terminated> Browsers [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (23-Nov-2019, 2:13:15 PM)  
" java.lang.IllegalStateException: The path to the driver executable must be set by the webdriver.chrome.driver system property  
mon.base.Preconditions.checkNotNull(Preconditions.java:847)  
anium.remote.service.DriverService.findExecutable(DriverService.java:134)  
anium.chrome.ChromeDriverService.access$000(ChromeDriverService.java:35)  
anium.chrome.ChromeDriverService$Builder.findDefaultExecutable(ChromeDriverService.java:159)  
anium.remote.service.DriverService$Builder.build(DriverService.java:355)  
anium.chrome.ChromeDriverService.createDefaultService(ChromeDriverService.java:94)  
anium.chrome.ChromeDriver.<init>(ChromeDriver.java:123)  
Browsers.java:6
```

Figure 2

To resolve this exception, go to <https://selenium.dev/> and come to the page bottom. You would see 'Third Party' link

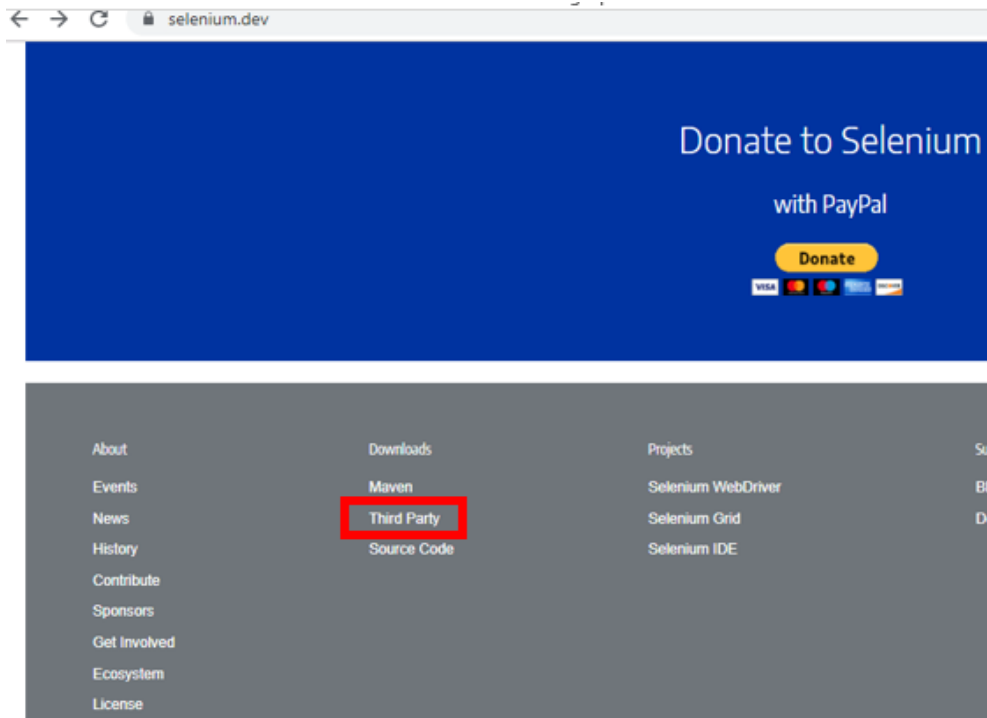


Figure 3

Click this link, the below page would come up

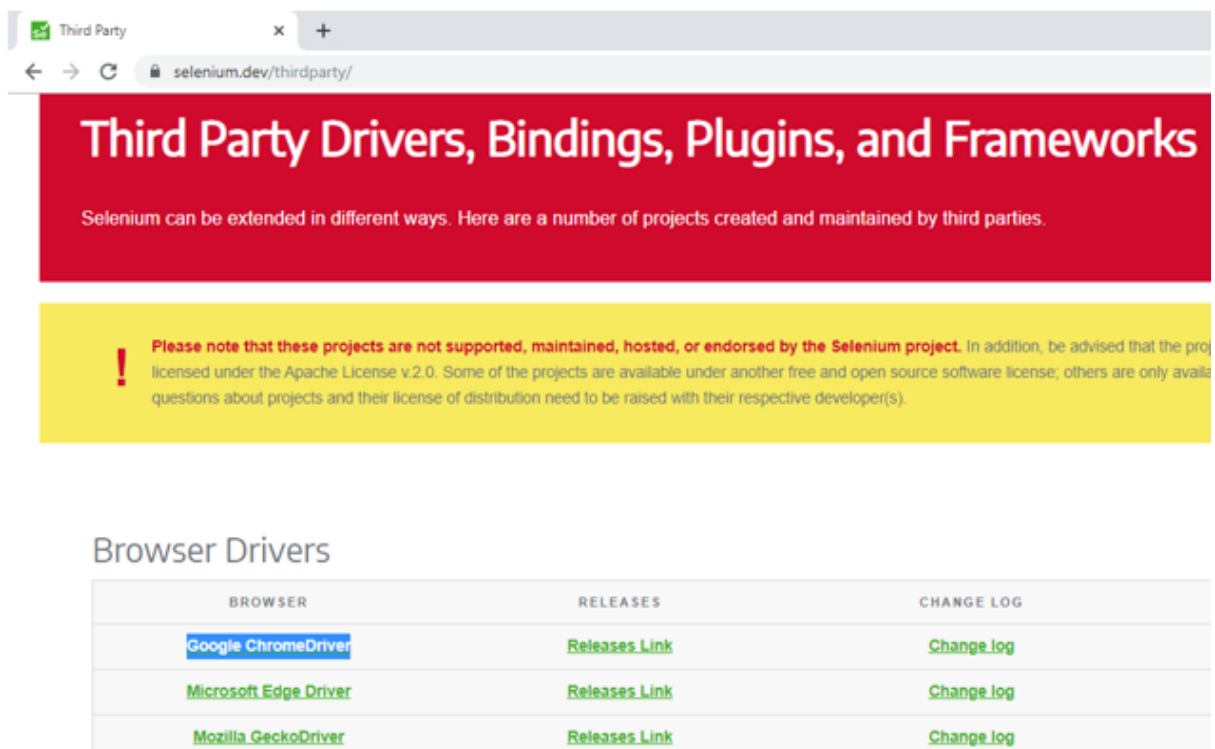


Figure 4

Under the 'Browser Drivers' section, you would see 'Google ChromeDriver' link, see above. Click this link. The below page comes up that shows the latest stable release link

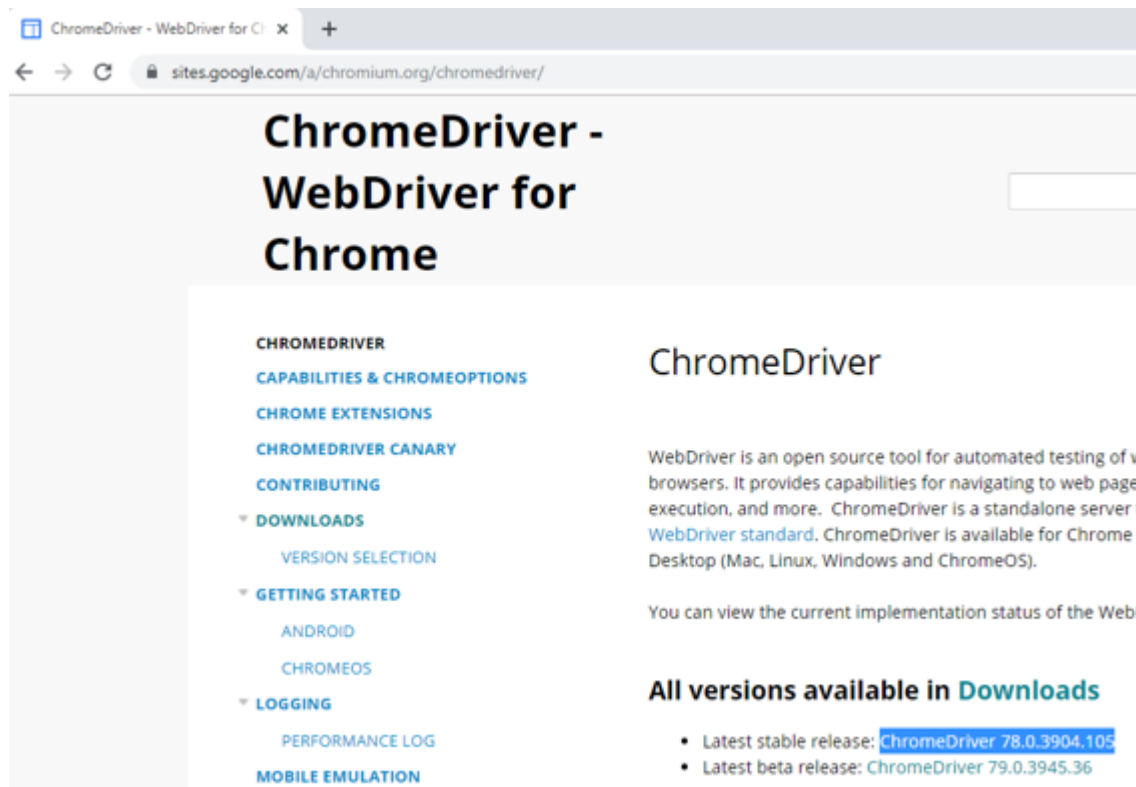


Figure 5

Click this link, the below page comes up

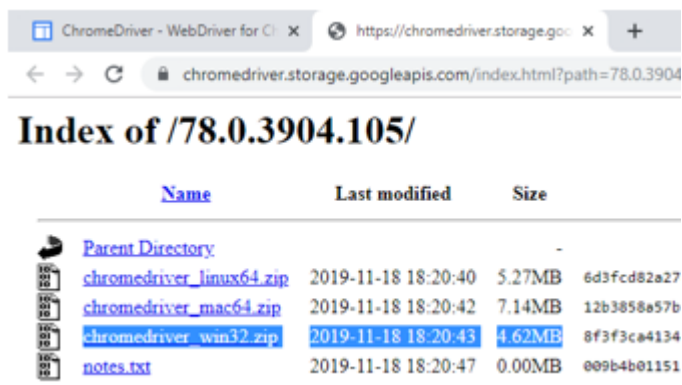


Figure 6

Download win32 zip file and extract zip in a location. This zip file contains chromedriver.exe. Add below line in the script

```
System.setProperty("webdriver.chrome.driver",
"C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\chromedriver.exe");
```

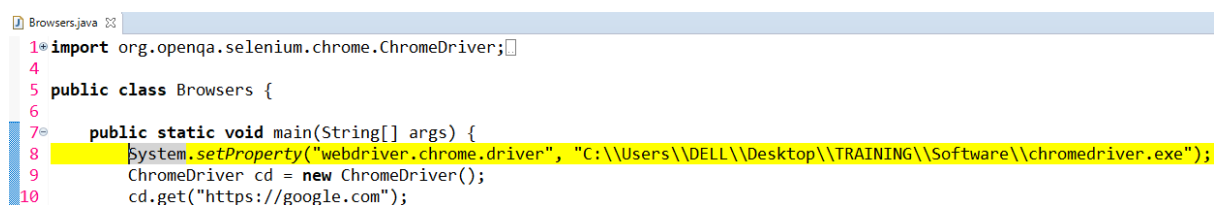


Figure 7

Run, we no more see the exception, the chrome launches and navigates to google.com. Notice the message at the top LHS “Chrome is being controlled by automated test software”. So we have created our first selenium script successfully!

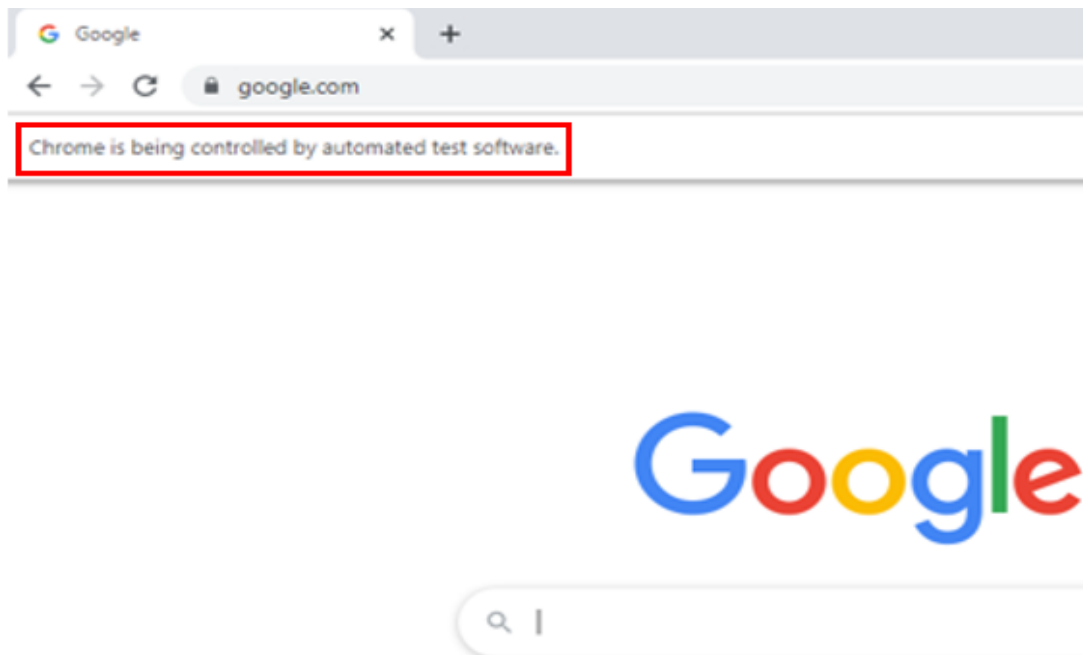


Figure 8

Now remove the protocol https from line#10

```
1+ import org.openqa.selenium.chrome.ChromeDriver;
4
5 public class Browsers {
6
7-     public static void main(String[] args) {
8         System.setProperty("webdriver.chrome.driver",
9         ChromeDriver cd = new ChromeDriver();
10        cd.get("google.com");
```

Figure 9

Re-run the script. This time a blank browser opens that does NOT navigate to google.com.

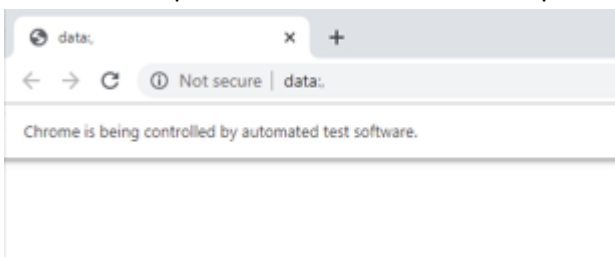


Figure 10

We get a WebDriverException as seen below. So protocol is very important

```
<terminated> Browsers [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (23-Nov-2019, 2:59:28 PM)
Starting ChromeDriver 2.42.591088 (7b2b2dca23cca0862f674758c9a3933e685c27d5) on port 21371
Only local connections are allowed.
[1574501377.329][WARNING]: Timed out connecting to Chrome, retrying...
Nov 23, 2019 2:59:39 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: OSS
Exception in thread "main" org.openqa.selenium.WebDriverException: unknown error: unhandled inspector error: {"code":-32000,"m
(Session info: chrome=78.0.3904.108)
(Driver info: chromedriver=2.42.591088 (7b2b2dca23cca0862f674758c9a3933e685c27d5),platform=Windows NT 10.0.18362 x86_64) (W
Command duration or timeout: 0 milliseconds
Build info: version: '3.141.59', revision: 'e82be7d358', time: '2018-11-14T08:25:48'
System info: host: 'DESKTOP-0MH3LPB', ip: '192.168.43.95', os.name: 'Windows 10', os.arch: 'amd64', os.version: '10.0', java.v
Driver info: org.openqa.selenium.chrome.ChromeDriver
Capabilities {acceptInsecureCerts: false, acceptSslCerts: false, applicationCacheEnabled: false, browserConnectionEnabled: fal
Session ID: bff65b346a4f1ef64ca7e4169351a2d0
at sun.reflect.NativeConstructorAccessorImpl.newInstance0(Native Method)
```

Figure 11

Let us re-add the https protocol

```
5 public class Browsers {
6
7     public static void main(String[] args) {
8         System.setProperty("webdriver.chrome.driver",
9         ChromeDriver cd = new ChromeDriver();
10        cd.get("https://google.com");
```

Figure 12

So this is how we work with chrome browser to automate our scripts.

Let us comment the 3 lines code that we have written for chrome browser

```
/*System.setProperty("webdriver.chrome.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\chromedriver.exe");
ChromeDriver cd = new ChromeDriver();
cd.get("https://google.com");*/
```

Figure 13

Working with Firefox Browser:

Create an instance of FirefoxDriver & navigate to a url, write below 2 lines:

```
FirefoxDriver fd = new FirefoxDriver();
fd.get("https://yahoo.com");
```

Make sure to *import org.openqa.selenium.firefox.FirefoxDriver;*

```
1+ import org.openqa.selenium.firefox.FirefoxDriver;
4
5 public class Browsers {
6
7     public static void main(String[] args) {
8
9         FirefoxDriver fd = new FirefoxDriver();
10        fd.get("https://yahoo.com");
```

Figure 14

Run, we will get IllegalStateException saying that gecko driver is missing, see below

```

<terminated> Browsers [Java Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe (23-Nov-2019, 2:29:53 PM)
Timed out connecting to Chrome, retrying...
g.openqa.selenium.remote.ProtocolHandshake createSession
S
java.lang.IllegalStateException: The path to the driver executable must be set by the webdriver.gecko.driver system property;
on.base.Preconditions.checkState(Preconditions.java:847)
nium.remote.service.DriverService.findExecutable(DriverService.java:134)
nium.firefox.GeckoDriverService.access$100(GeckoDriverService.java:44)

```

Figure 14

Go to <https://selenium.dev/thirdparty/>, you would see 'Mozilla GeckoDriver' link

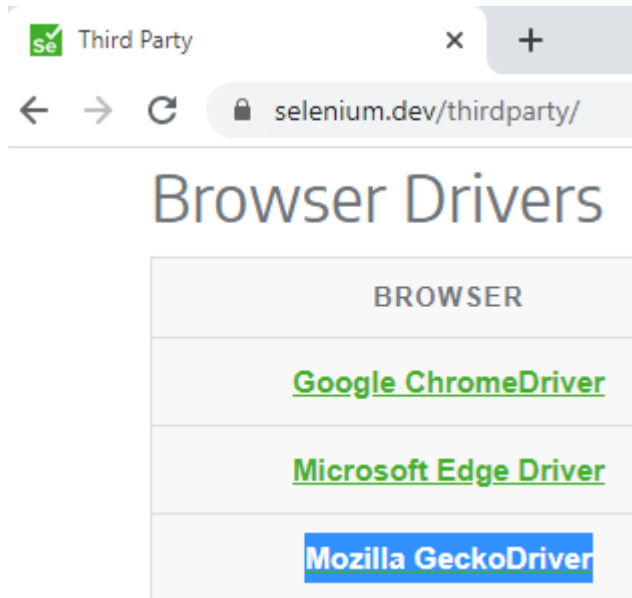


Figure 15

Click this link, below page comes up where you would see 'Releases' under 'Downloads' section

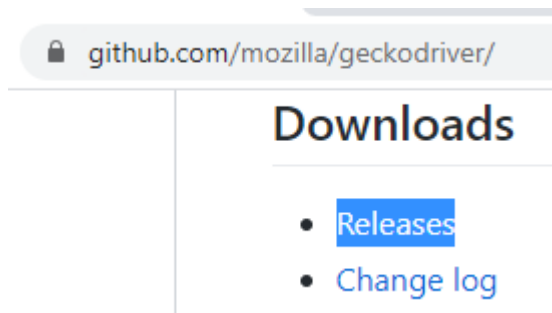


Figure 16

Click 'Releases', come to the page bottom, download & unzip geckodriver win64 in your local m/c

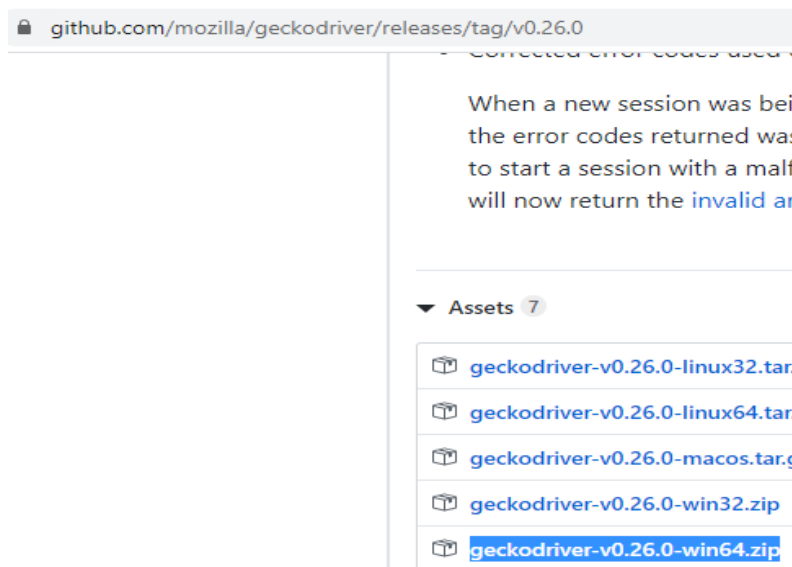


Figure 17

Now add below line

```
public class Browsers {  
    public static void main(String[] args) {  
        System.setProperty("webdriver.gecko.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\geckodriver.exe");  
        FirefoxDriver fd = new FirefoxDriver();  
        fd.get("https://facebook.com");  
    }  
}
```

Figure 18

Run, you might still get WebDriverException, a blank firefox window might open that does not navigate to url (see figure 20)

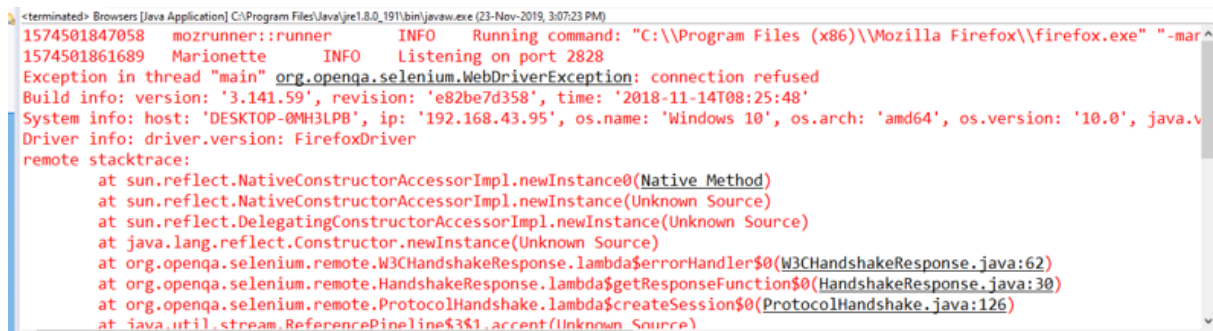


Figure 19

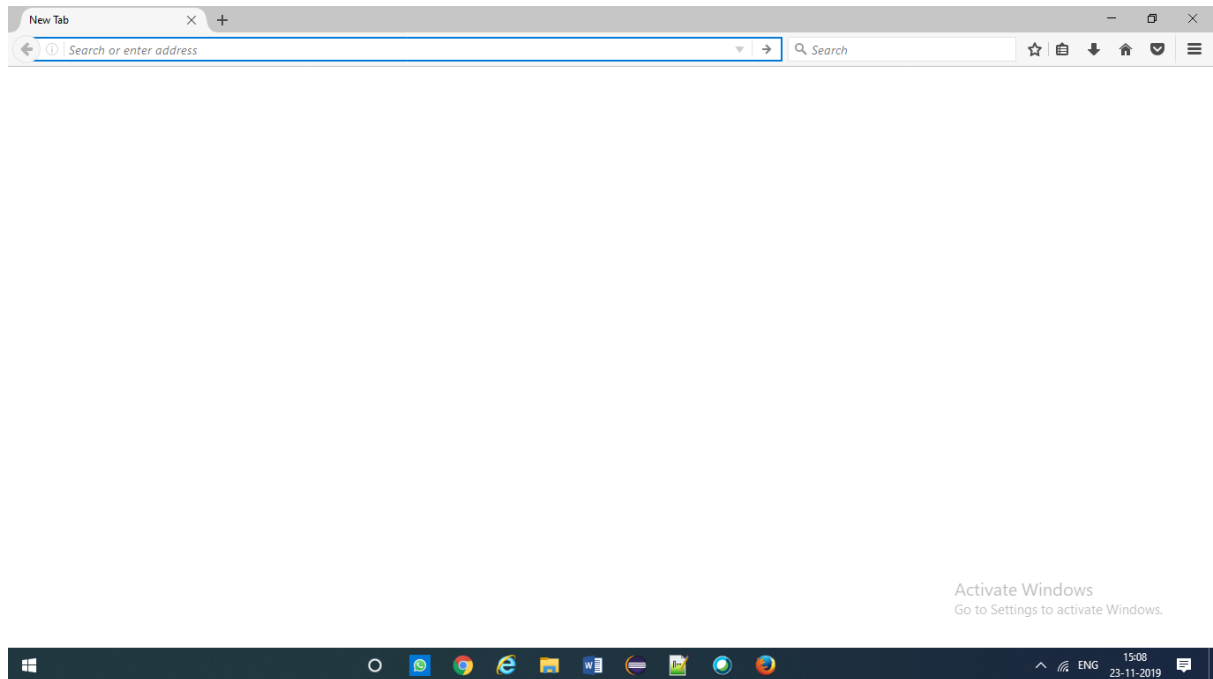


Figure 20

To fix this issue, install latest FF version <https://www.mozilla.org/en-US/firefox/new/>
 After installing latest firefox, re-run the script, the error should get resolved, firefox browser should launch & navigate to facebook.com

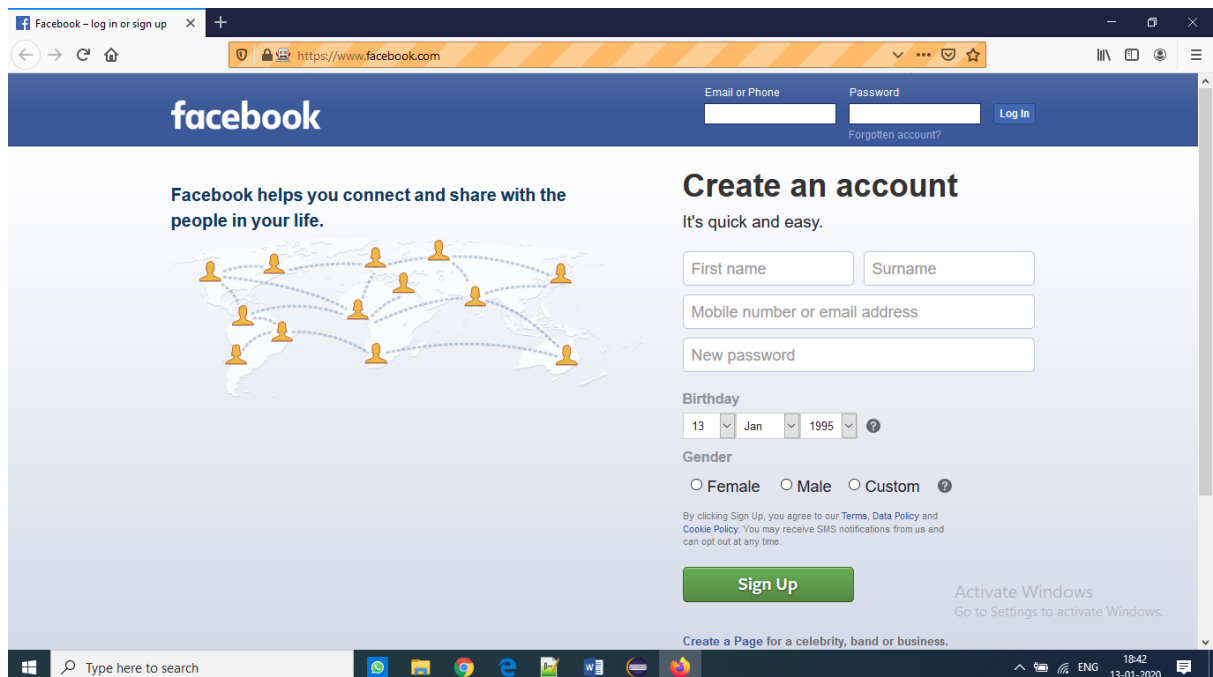


Figure 21

So this is how we work with firefox browser to automate our scripts.
 Let us comment the 3 lines code that we have written for firefox browser

Working with Internet Explorer browser:

Create an instance of InternetExplorerDriver & navigate to a url, write below 2 lines:


```
InternetExplorerDriver ie = new InternetExplorerDriver();
ie.get("https://gmail.com");
```

Make sure to **import** `org.openqa.selenium.ie.InternetExplorerDriver`;

```
1+import org.openqa.selenium.ie.InternetExplorerDriver;
4
5 public class Browsers {
6
7     public static void main(String[] args) {
8
9         InternetExplorerDriver ie = new InternetExplorerDriver();
10        ie.get("https://gmail.com");
11    }
```

Figure 22

Run, we will get an `IllegalStateException`

```
java.lang.IllegalStateException: The path to the driver executable must be set by the webdriver.ie.driver system property; for
on.base.Preconditions.checkNotNull(Preconditions.java:847)
nium.remote.service.DriverService.findExecutable(DriverService.java:134)
nium.ie.InternetExplorerDriverService.access$000(InternetExplorerDriverService.java:35)
nium.ie.InternetExplorerDriverService$Builder.findDefaultExecutable(InternetExplorerDriverService.java:175)
nium.remote.service.DriverService$Builder.build(DriverService.java:355)
nium.ie.InternetExplorerDriver.setupService(InternetExplorerDriver.java:281)
nium.ie.InternetExplorerDriver.<init>(InternetExplorerDriver.java:211)
nium.ie.InternetExplorerDriver.<init>(InternetExplorerDriver.java:150)
rowsers.java:16)
```

Figure 23

Go to <https://selenium.dev/downloads/> & download 64 bit Windows IE

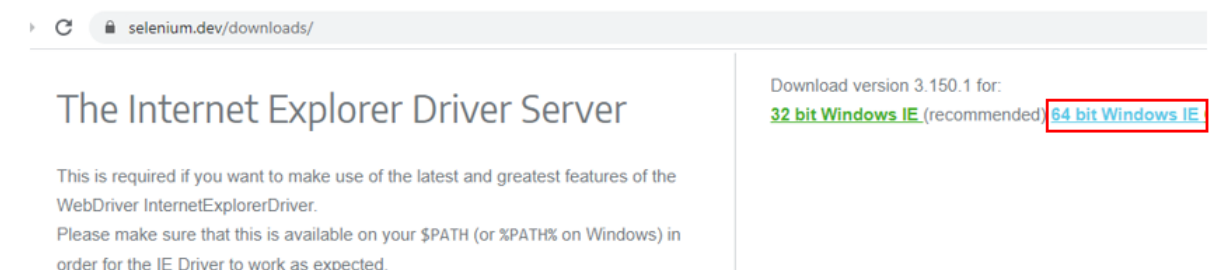


Figure 24

Let us add the below line

```
1+import org.openqa.selenium.ie.InternetExplorerDriver;
4
5 public class Browsers {
6
7     public static void main(String[] args) {
8
9         System.setProperty("webdriver.ie.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\IEDriverServer.exe");
10        InternetExplorerDriver ie = new InternetExplorerDriver();
11        ie.get("https://gmail.com");
12    }
```

Figure 25

Run the script, IE browser opens & navigates to gmail.com

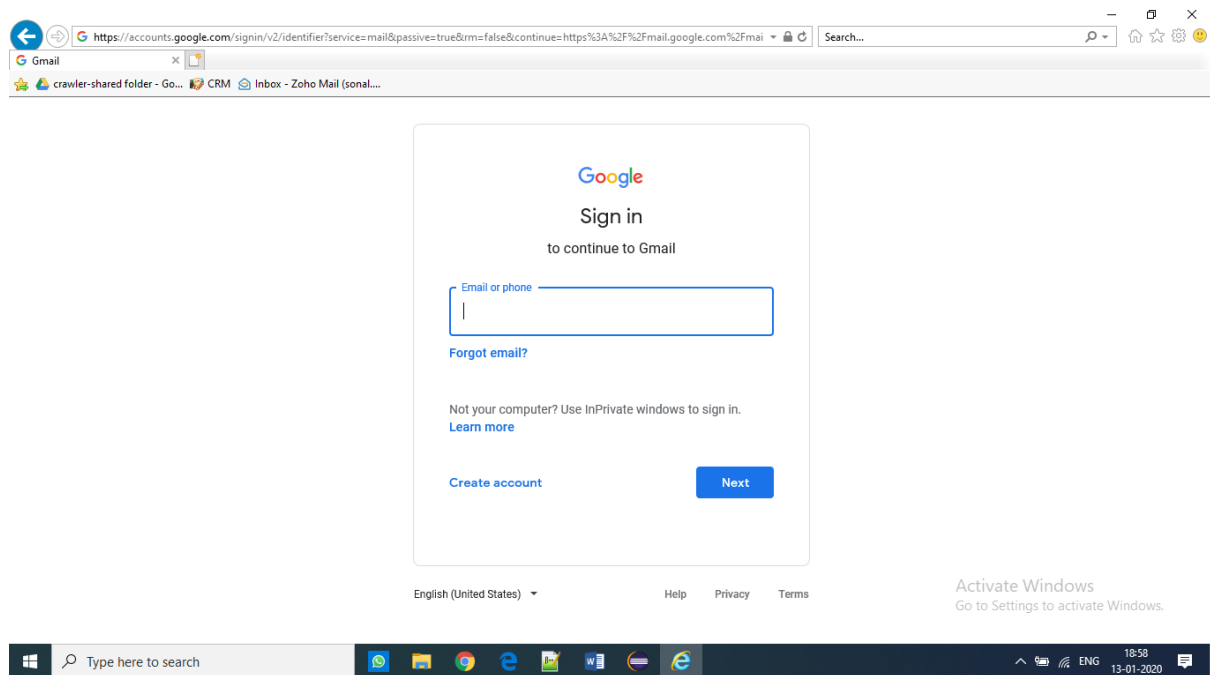


Figure 26

Launch all the 3 browsers:

Let us uncomment all 3 browsers

```
Browsers.java
1 import org.openqa.selenium.ie.InternetExplorerDriver;
2 import org.openqa.selenium.firefox.FirefoxDriver;
3 import org.openqa.selenium.chrome.ChromeDriver;
4
5 public class Browsers {
6
7     public static void main(String[] args) {
8
9         System.setProperty("webdriver.ie.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\IEDriverServer.exe");
10        InternetExplorerDriver ie = new InternetExplorerDriver();
11        ie.get("https://gmail.com");
12
13        System.setProperty("webdriver.gecko.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\geckodriver.exe");
14        FirefoxDriver fd = new FirefoxDriver();
15        fd.get("https://facebook.com");
16
17        System.setProperty("webdriver.chrome.driver", "C:\\Users\\DELL\\Desktop\\TRAINING\\Software\\chromedriver.exe");
18        ChromeDriver cd = new ChromeDriver();
19        cd.get("https://google.com");
20    }
21 }
```

Figure 27

Run, we see 3 browsers open

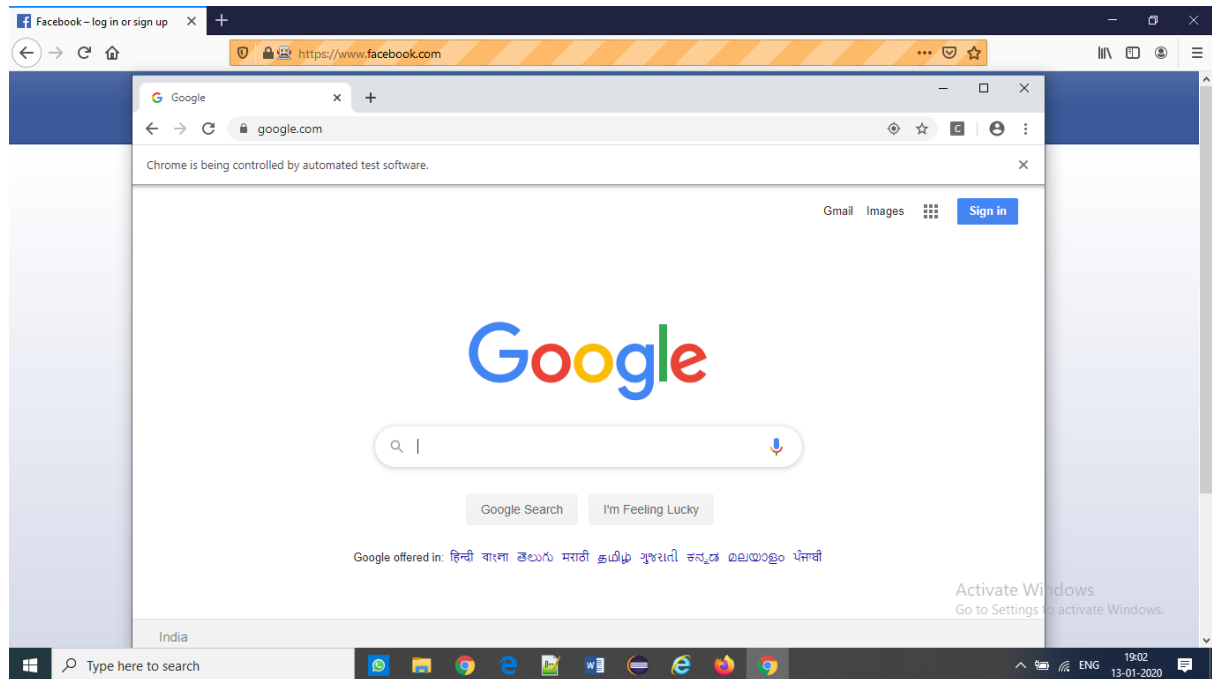


Figure 28

So in this tutorial, we have seen how to work with different browser types: chrome, firefox, IE.
Thank you for reading!