

**Deccan Education Society's**

**Navinchandra Mehta Institute of Technology  
and Development**

**C E R T I F I C A T E**

This is to certify that Mr. / Miss. Nimesh Bharat Trivedi of M.C.A. Semester III with Roll No. C22127 has completed All practicals of MCAL35 Software Testing and Quality Assurance Lab under my supervision in this college during the year 2023-24.

<b>CO</b>	<b>R1 (Journal)</b>	<b>R2 (Performance during lab session)</b>	<b>R3 (Implementation using different problem solving techniques)</b>	<b>R4 (Mock Viva)</b>
CO1				
CO2				
CO3				
CO4				

Practical-in-charge

Head of Department

MCA Department

## MCAL35 Software Testing and Quality Assurance Lab Index

Sr. No.	Topic Name	Date	CO	Sign
<b>Manual Testing</b>				
1.	<b>Implementation of Black Box Testing</b> Prepare test cases for below given applications using Boundary Value Analysis and Equivalence Class Partitioning <ul style="list-style-type: none"> <li>i. BMI Calculator:               <ul style="list-style-type: none"> <li>Input: Person's Weight and Height</li> <li>Output: Body Mass Index</li> <li>The range of Weight : 3 kg to 300 kg</li> <li>The range of Height : 0.3 meter to 2.4 meter</li> </ul> </li> <li>ii. Triangle Problem :               <ul style="list-style-type: none"> <li>Triangle Problem accepts three integers – a, b, c as three sides of the triangle. It returns the type of triangle (Scalene, Isosceles, Equilateral, Not a Triangle) formed by a, b, c.</li> </ul> </li> </ul>		CO1	
2.	<b>Implementation of White Box Testing</b> Data Flow Analysis, Control Flow Analysis, Cyclomatic Complexity		CO1	
3.	i. Prepare test cases on ATM Machine using Unit and System Testing ii. Prepare a test cases on Login Page of Gmail using Unit and System Testing iii. Prepare a test cases on Calculator using Unit and System Testing		CO1	
<b>Automation Testing</b>				
4.	<b>Introduction to Selenium</b> <ul style="list-style-type: none"> <li>i. Write down a steps and process of Selenium IDE Installation on any 1 browser.(eg.Firefox)</li> <li>ii. Record and run test cases on demotour website for login page through Mozilla Firefox.</li> <li>iii. Record and run test cases on demotour website for login page through Google Chrome.</li> <li>iv. Record and run test cases on Registration form of any website</li> <li>v. Record and run test cases on any website to check the validations of elements. (eg. IRCTC , MSRTC , etc )</li> </ul>		CO2	
5	Implement <b>Web Drivers</b> on Chrome & Firefox Browsers.		CO2	
6	Demonstrate handling multiple frames in selenium		CO2	
7	Implement Browser command and navigation Commands.		CO2	
8	Implement the find element command		CO2	
9	Demonstrate the Locator(id,css selector, path)		CO2	
10	Demonstrate different types of alerts		CO2	

<b>11</b>	Demonstrate : <ul style="list-style-type: none"><li>• Handling Drop Down,</li><li>• List Boxes</li><li>• Command Button,</li><li>• Radio buttons &amp; text boxes.</li><li>• Waits command in selenium</li></ul>		<b>CO2</b>	
<b>12</b>	Installation of TestNg , running testNg		<b>CO3</b>	
<b>13</b>	TestNg annotations		<b>CO3</b>	
<b>14</b>	Demonstrate Validation testing		<b>CO4</b>	
<b>15</b>	Perform regression testing		<b>CO4</b>	

## Implementation of White Box Testing

### i. Data Flow Analysis

- Statements where variables receive values,
- Statements where these values are used or referenced.
- A variable is defined but not used or referenced,
- A variable is used but never defined,
- A variable is defined twice before it is used
- To find a variable that is used but never defined,
- To find a variable that is defined but never used,
- To find a variable that is defined multiple times before it is used,
- Deallocating a variable before it is used.
- Time consuming and costly process
- Requires knowledge of programming languages

**Data Flow Testing** is a type of structural testing. It is a method that is used to find the test paths of a program according to the locations of definitions and uses of variables in the program. It has nothing to do with data flow diagrams.

It is concerned with:

If a statement is a loop or if condition then its DEF set is empty and USE set is based on the condition of statement s.

Data Flow Testing uses the control flow graph to find the situations that can interrupt the flow of the program.

Reference or define anomalies in the flow of the data are detected at the time of associations between values and variables. These anomalies are:

### Advantages of Data Flow Testing:

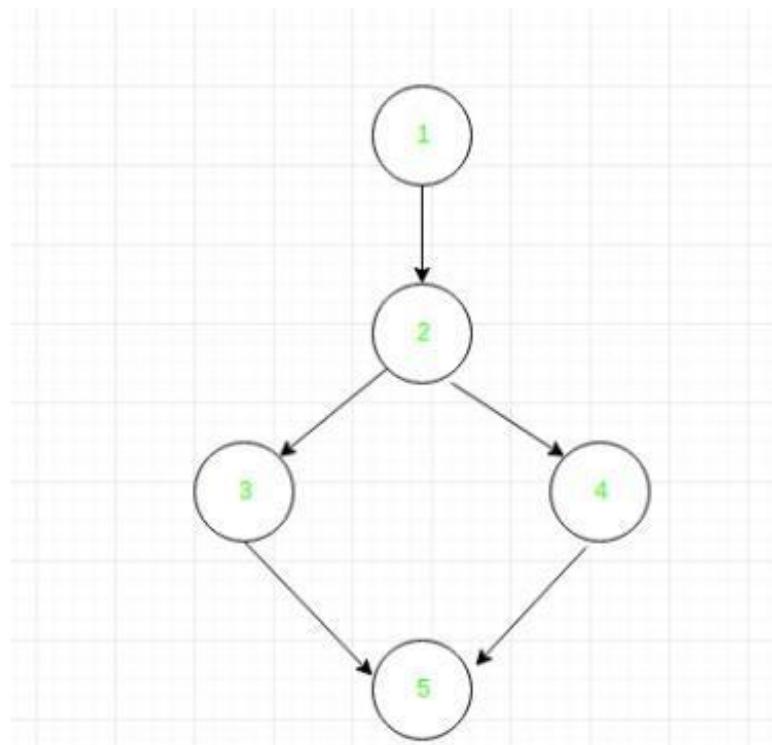
Data Flow Testing is used to find the following issues-

### Disadvantages of Data Flow Testing

**Example:**

1. read x, y;
2. if( $x > y$ ) 3.  $a = x + 1$  else
4.  $a = y - 1$
5. print a;

**Control flow graph of above example:**



**Define/use of variables of above example:**

Variable	Defined at node	Used at node
x	1	2, 3
y	1	2, 4
a	3, 4	5

## ii. Control Flow Analysis

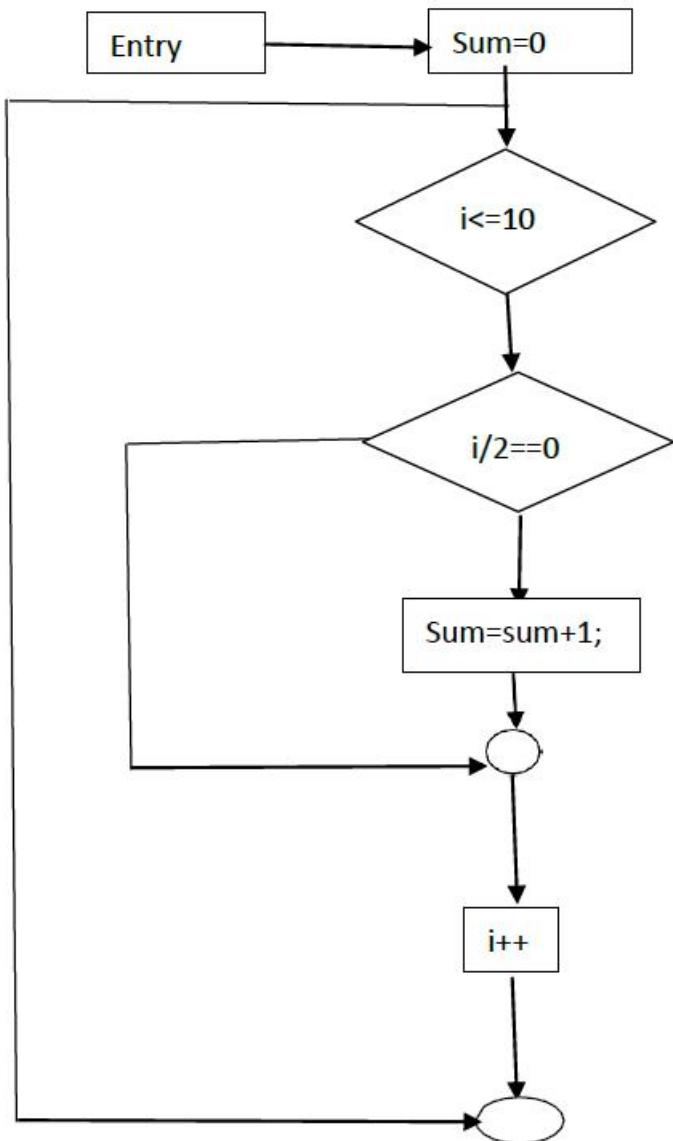
- Control flow testing uses the control structure of the program to develop the test cases for the program.
- The test cases are developed to sufficiently cover the whole structure of the program.
- The control structure of a program can be represented by the control flow graph of the program.

### Control Flow Graph:

```

int evensum(int i)
{
    int sum=0; while (i<=10)
  
```

```
{  
if(i/2==0) sum=sum+i; i++;  
}  
return sum;  
}
```



**Statement Converage = (Total number of executed Statement) \* 100**  
**Total no of Statement**

**Cyclomatic Complexity**

```
If A=354
Then If B > C
Then A = B
Else A = C
End If
Print A
```

### **Method 1:**

Cyclomatic Complexity = Total number of Closed regions in the + 1

$$=2+1$$

$$=3$$

### **Method 2:**

Cyclomatic complexity =  $E-N+2$ , E= Edges and N= Nodes

$$=8-7+2$$

$$=3$$

### **Method 3:**

Cyclomatic Complexity =  $P + 1$

$$=2+1$$

$$=3$$

### **Test cases**

**1. Prepare test cases on ATM Machine using Unit and System Testing**

TEST CASE NAME	TEST CASE DESCRIPTION	P	STEP NAME	STEP DESCRIPTION	TEST DATA	EXPECTED RESULT
TC01_Bank_Money withdrawal_verify card insertion with valid cards	This test case to validate card insertion functionality with valid card	P0	Step1	Insert valid card in the insertion point of atm	Valid atm card	Atm should display language page with following objects ENLISH,TELUGU,HINDI
TC02_Bank_Money withdrawal_verify card insertion with invalid cards	This test case to validate card insertion functionality with invalid card		Step1	Insert invalid card of other bank card in the insertion point of atm	Invalid card like other bank card	Atm should not accept the card and display a message "please insert valid atm card"
			Step2	Insert invalid card of expired atm card in the insertion point of atm	Invalid card like expired atm card	Atm should not accept the card and display a message "Sorry unable to process your request code 1234"
TC03_Bank_Money withdrawal_verify card insertion with valid cards in wrong angle	This test case to validate card insertion functionality with valid card in wrong angle		Step1	Insert invalid card of expired atm card in the insertion point of atm in wrong angle	Valid atm card	Atm should not accept the card and display a message "Sorry unable to process your request code 1222"
TC04_Bank_Money withdrawal_verify language selection	This test case to verify the language selection functionality		Step1	Insert valid card in the insertion point of atm	Valid atm card	Atm should display language page with following objects ENLISH,TELUGU,HINDI
			Step2	Click on corresponding language to be used		Atm should display the pin number page in corresponding language selected
TC04_Bank_Money withdrawal_verify pin number entry with valid pin number	This test case is to verify the functionality of pin number		Step1	Insert valid card in the insertion point of atm	Valid atm card	Atm should display language page with following objects ENLISH,TELUGU,HINDI
			Step2	Click on corresponding language to be used		Atm should display the pin number page in corresponding language selected
			Step3	Enter the valid pin number	Valid pin number	Atm should display the account type selection page

## 2. Prepare a test cases on Login Page of Gmail using Unit and System Testing

Sr.No	Action	Inputs	Expected	Actual	Result
1	EmailTextbox	nash123@gmail.com	Not Accepted	Accepted	Pass
2	EmailTextbox	abc@gmail	Not Accepted	Accepted	Pass
3	EmailTextbox	1st name and Last name not matched from Sign up	Not Accepted	Accepted	Fail
4	EmailTextbox	<a href="mailto:123@gmail.com">123@gmail.com</a>	Not Accepted	Accepted	Fail
5	Password Box	Passwd	Not Accepted	Accepted	Pass
6	Password Box	abc123@	Not Accepted	Accepted	Fail
7	Password Box	Abc123@	Accepted	Accepted	Pass
8	Password Box	<a href="mailto:Abc12@">Abc12@</a>	Not Accepted	Accepted	Pass
9	Button	Email is Null and Only Password entered	Not Accepted	Accepted	Pass
10	Button	Email and Password not Matched with Sign up page	Not Accepted	Accepted	Pass

## 3. Prepare a test case on Calculator using Unit and System Testing

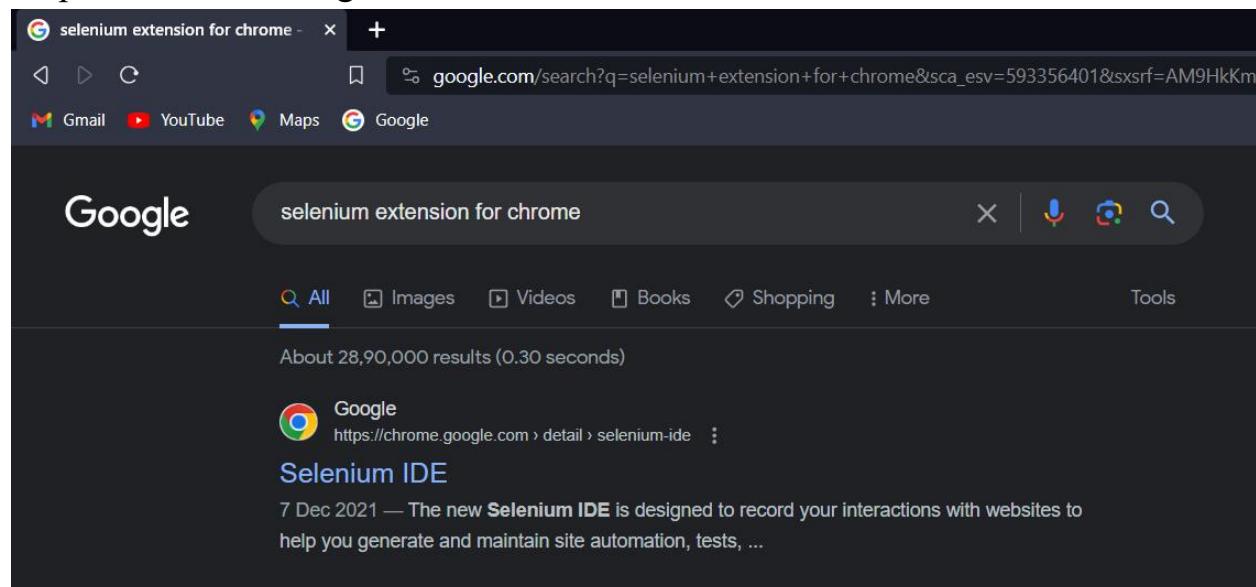
No.	TC-ID	Testcase Objective	Prerequisite	Steps	Input data	Expected Result	Actual Result	Remarks/ Status
1	TC1	To add two Integer and display the result on ten digit calculator	Calculator is switched on	1.Key in a valid integer from - 9999999999 to +9999999999 2.Key in operator + 3.Key in second operand,a valid integer from - 9999999999 To +9999999999	135 + 100	235(addition, above ten digits will be expressed in exponential form)	235	Pass
2	TC2	To subtract two Integer and display the result on ten digit calculator	Calculator is switched on	1.Key in a valid integer from - 9999999999 to +9999999999 2.Key in operator - 3.Key in second operand,a valid integer from - 9999999999 To +9999999999	135 - 100	35(subtraction,above ten digits will be expressed in exponential form)	35	Pass
3	TC3	To multiply two integer and display the result on ten digit calculator	Calculator is switched on	1.Key in a valid integer from - 9999999999 to +9999999999 2.Key in operator * 3.Key in second operand,a valid integer from - 9999999999 To +9999999999	100 x 400	40000(multiplication,above ten digits will be expressed in exponential form)	40000	Pass
4	TC4	To divide two integer and display the result on ten digit calculator	Calculator is switched on	1.Key in a valid integer from - 9999999999 to +9999999999 2.Key in operator / 3.Key in second operand,a valid integer from - 9999999999 To +9999999999	100 / 25	40(division,above ten digits will be expressed in exponential form)	40	Pass
5	TC5	To clear the screen	Calculator is switched on	Press C		Symbol '0' should appear on screen	Symbol '0' appears on screen	Pass

#### 4. Introduction to Selenium:

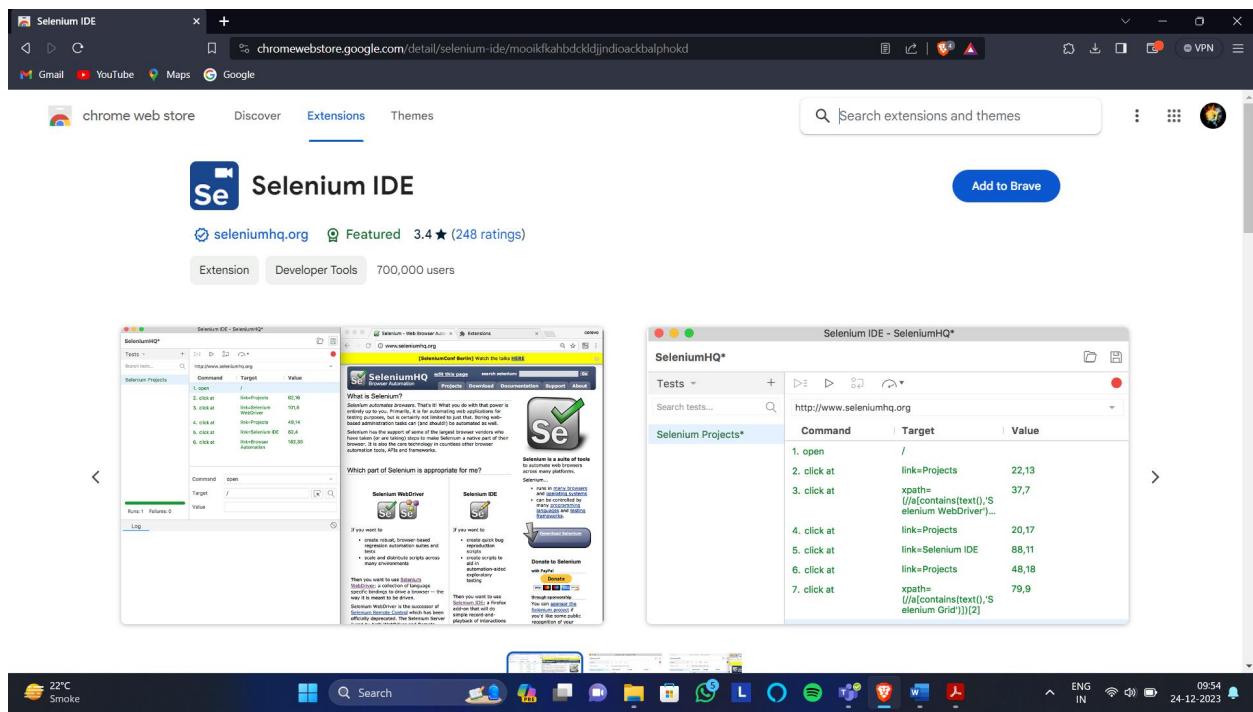
##### 1) Write down a steps and process of Selenium IDE Installation on any 1 browser (eg. Firefox).

Installation in Goolge Chrome:

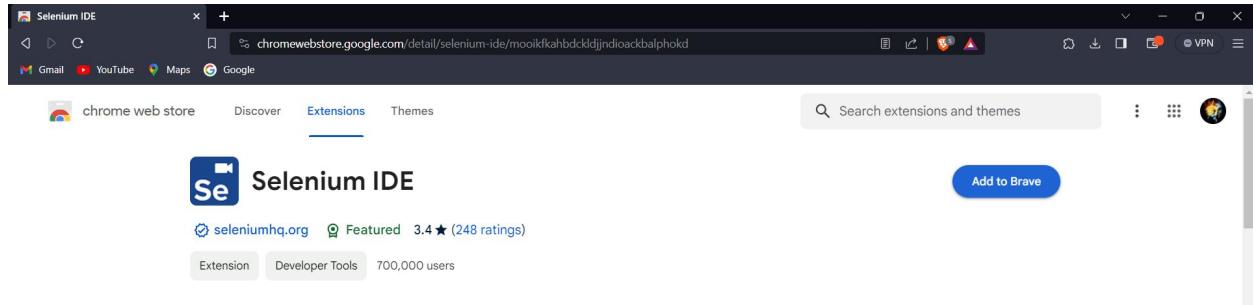
Step1: Search on Google chrome for “selenium extension for chrome”



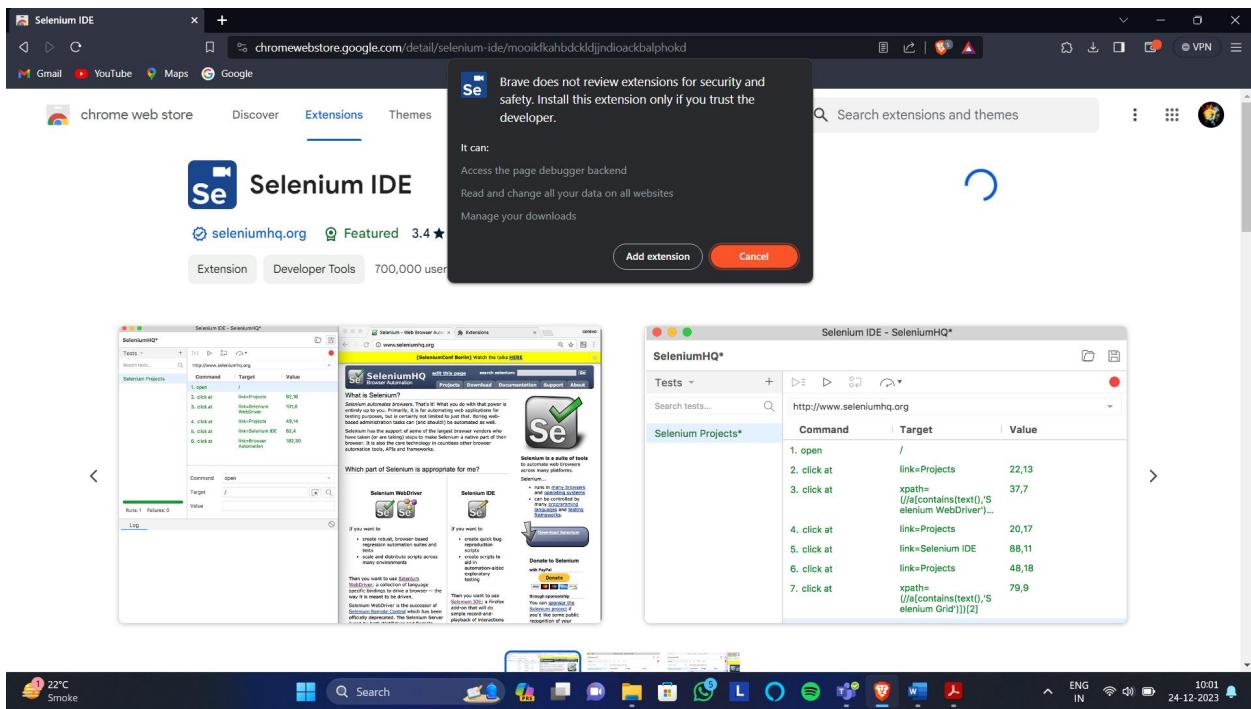
Step 2: click on add to chrome:



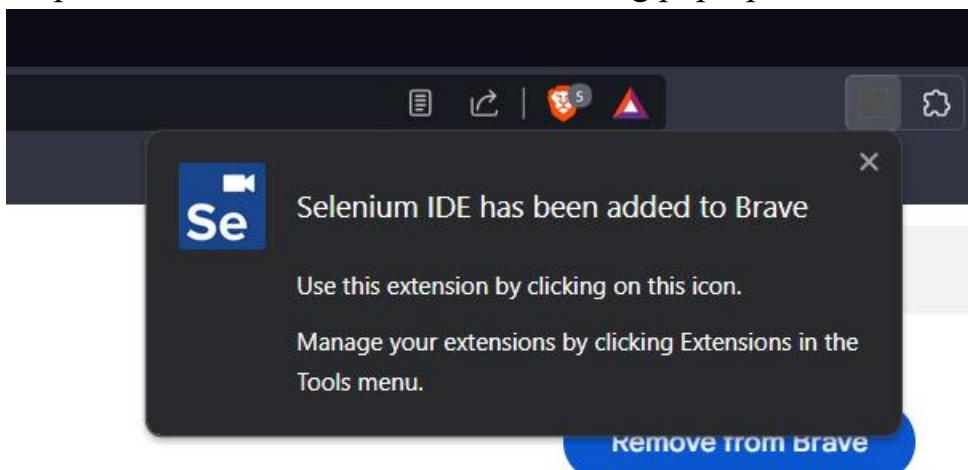
## Step : Click on Add to Chrome



## Step 4: Click on Add Extension



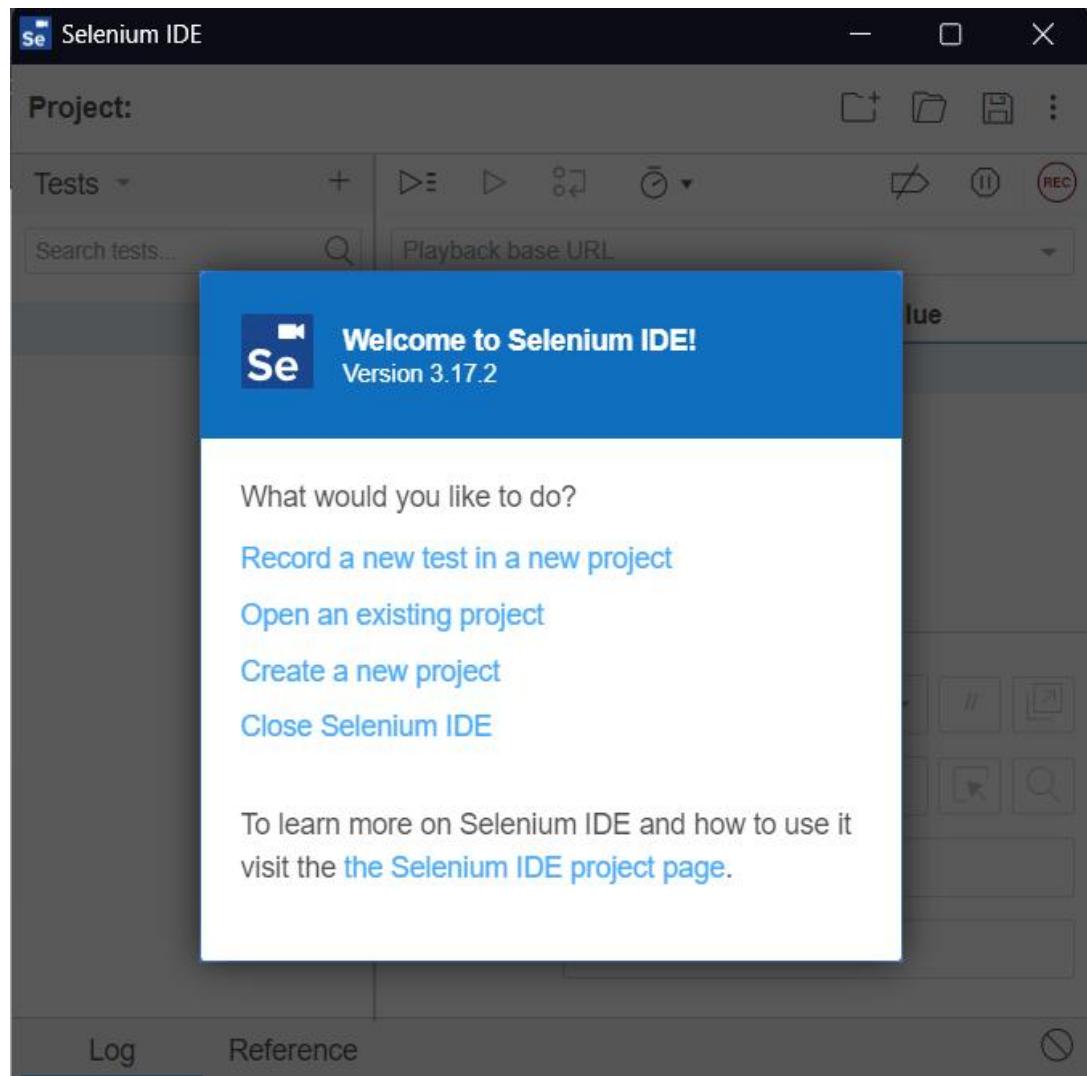
Step 5: Installation Done and the following pop-up will be shown



Step 6: To open Selenium in Chrome, Click on Following



Step 7: Selenium Window will open



**2)Record and run test cases on demotour website for login pagethrough Mozilla Firefox.**

Case1: Both username and password are incorrect

Extension: (Selenium IDE) - Selenium IDE - Demotour\_Moz\* — Mozilla Firefox

Project: Demotour\_Moz\*

Tests + ▶ Run current test Ctrl+R m/test/newtours/

	Command	Target	Value
✓ TestCase1*	4 ✓ type	name=userNa	mhvk
		me	
TestCase2*	5 ✓ click	name=passw	ord
TestCase3*	6 ✓ type	name=passw	ukhcyud
	7 ✓ click	name=submit	

Command

Target

Value

Description

Log	Reference	✖
2. setWindowSize on 1411x753	OK	23:43:24
3. click on name=userName	OK	23:43:24
4. type on name=userName with value mhvk	OK	23:43:26
5. click on name=password	OK	23:43:27
6. type on name=password with value ukhcyud	OK	23:43:27
7. click on name=submit	OK	23:43:27
'TestCase1' completed successfully		23:43:27

Case2: Username is correct but password is incorrect

Case3: Username is incorrect but password is correct

Extension: (Selenium IDE) - Selenium IDE - Demotour\_Moz\* — Mozilla Firefox

Project: Demotour\_Moz\*

Tests + Project: Demotour\_Moz\* Run Stop Save More

Search tests... Search

https://demo.guru99.com/test/newtours/

	Command	Target	Value
7	✓ type	name=userNa me	kvhjl
8	✓ click	name=passw ord	
9	✓ type	name=passw ord	sam
10	✓ click	name=submit	

Command Command Clear Copy

Target Target Clear Search

Value Value

Description Description

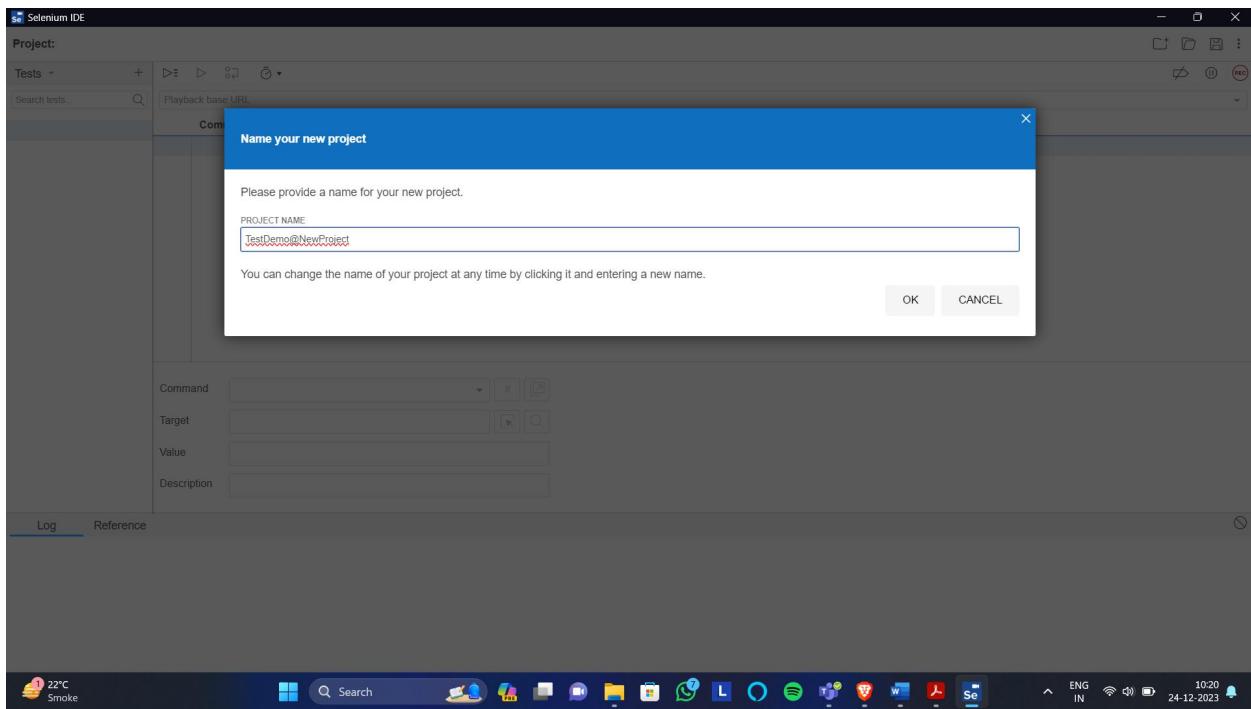
Log Reference Log Reference Close

Log	Reference
5. click on name=password OK	23:45:52
6. click on name=userName OK	23:45:53
7. type on name=userName with value kvhjl OK	23:45:53
8. click on name=password OK	23:45:53
9. type on name=password with value sam OK	23:45:53
10. click on name=submit OK	23:45:53
<b>'TestCase3' completed successfully</b>	23:45:53

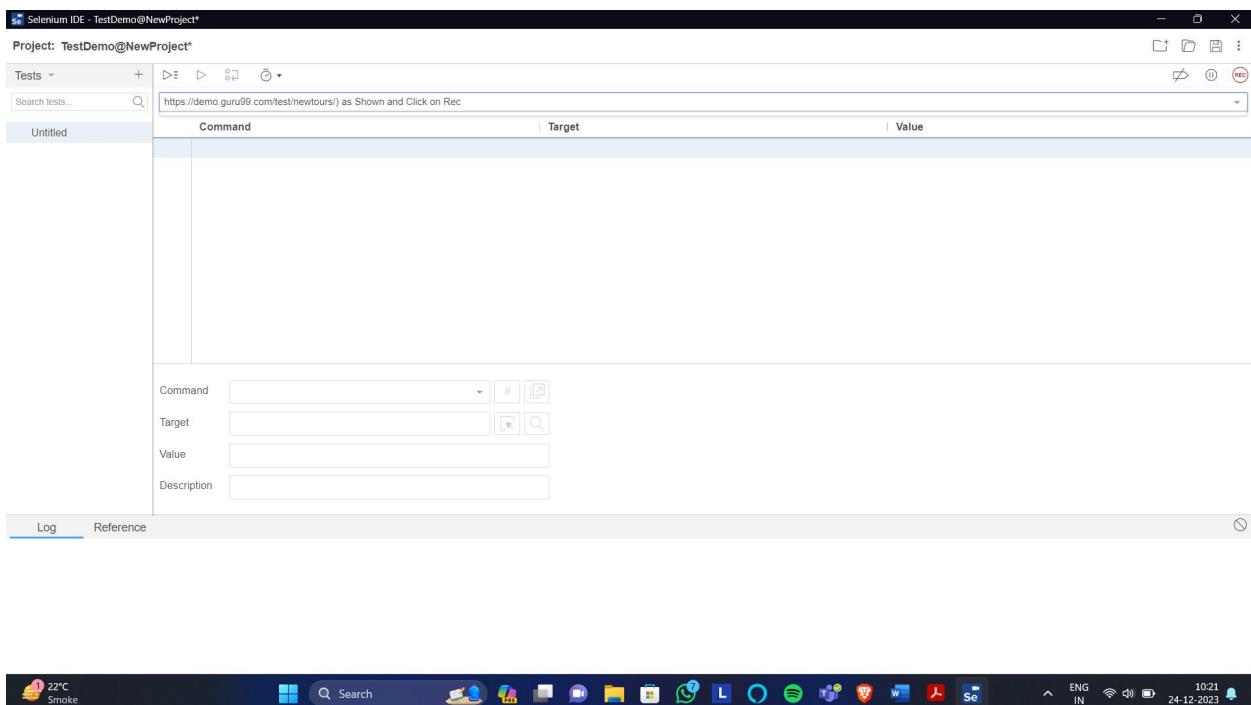
Case 4: Both Username and Password are correct

**3) Record and run test cases on demotour website for login page through Google Chrome.**

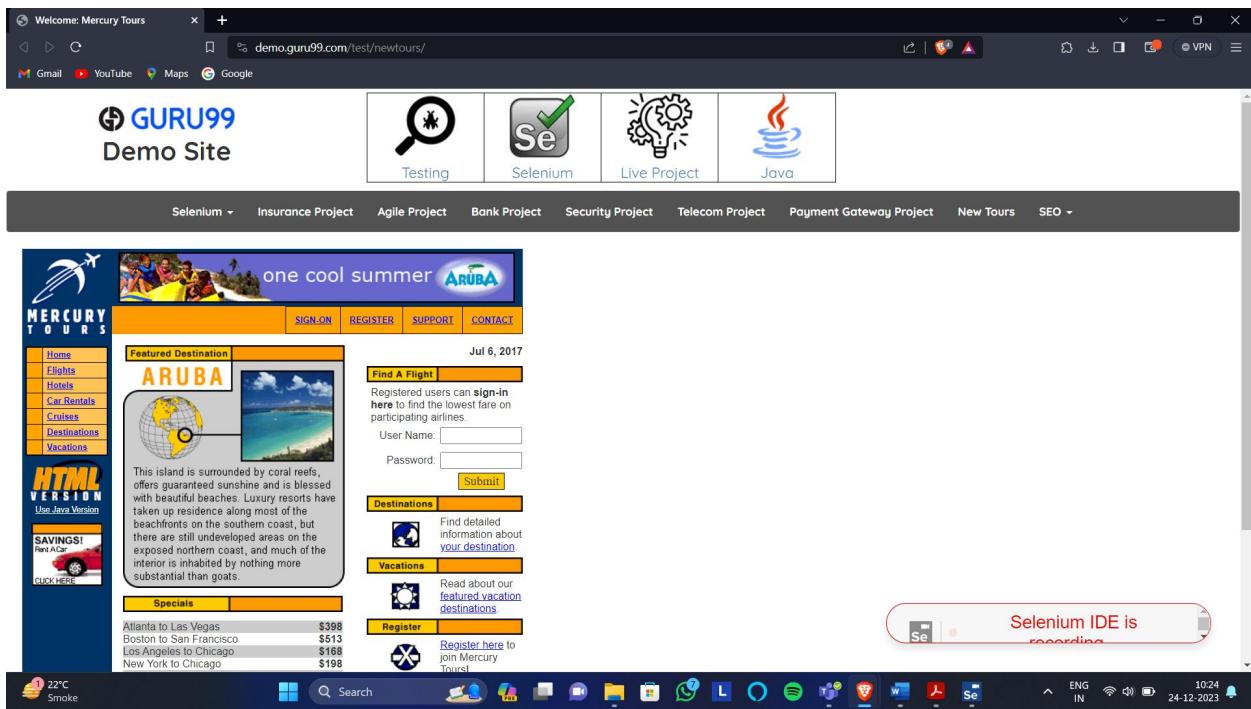
Step 1: Click on new Project and give the project name



Step 2: Paste the demotour website  
Link(<https://demo.guru99.com/test/newtours/>) as Shown and Click on Rec



Step 3: New window will open maximise that window



## First Test Case: Both the username and password is incorrect

## Second Test Case: Username is correct but Password is incorrect

3	type	name=userName	Pass@123
6	type	name=password	
7	click	name=submit	
8	click	name=userName	
9	type	name=userName	admin
10	type	name=password	12345
11	click	name=submit	

### Third test Case: Username is incorrect but Password is correct

10	click	name=userName	
11	type	name=userName	wrong123
12	type	name=password	pass145
13	click	name=submit	

### Fourth Test Case: Both Username and password is Correct

15	type	name=userName	admin
16	type	name=password	admin
17	send keys	name=password	\${KEY_ENTER}

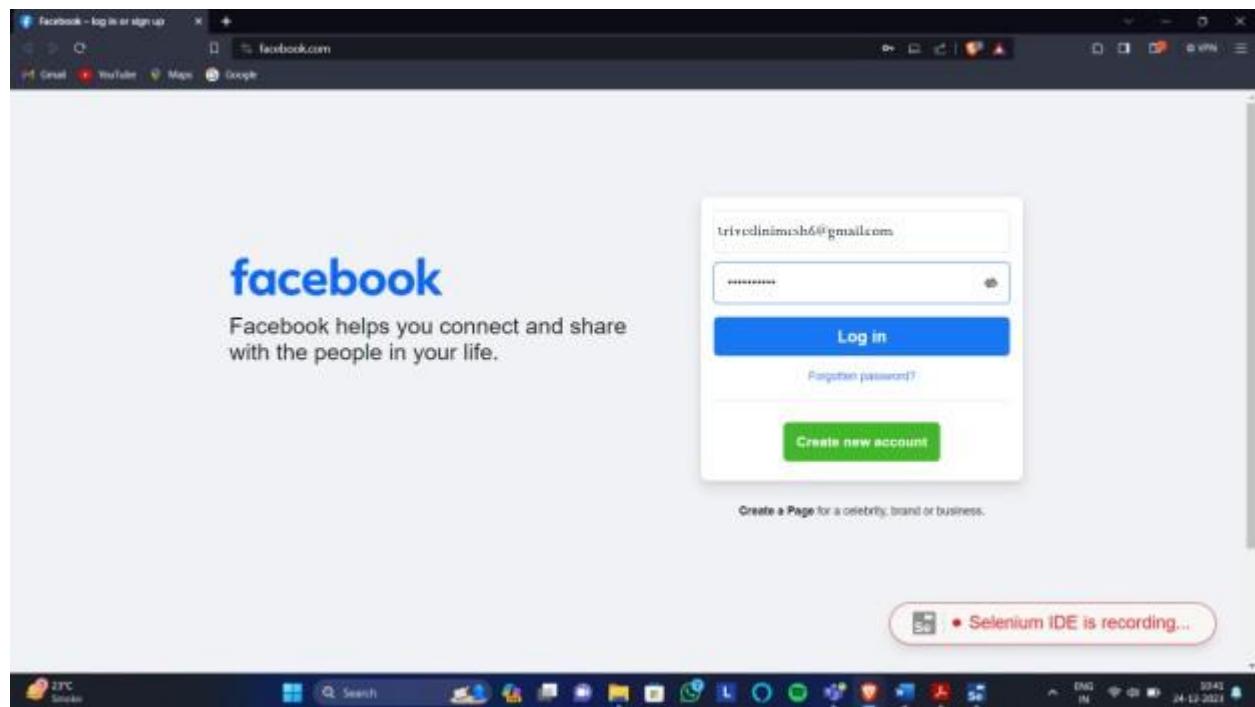
### 4)Record and run test cases on Registration form of any website

Project: Test@DemoTour\*

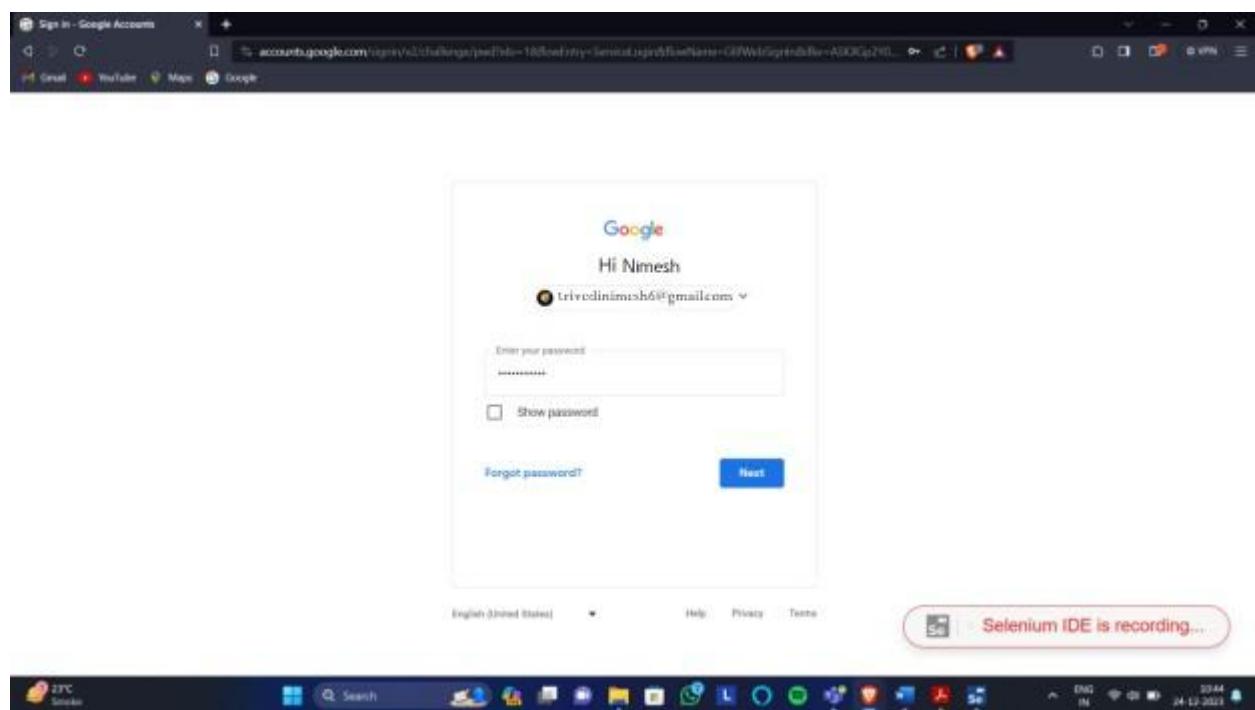
Tests	+	Search tests...	Q	https://demo.guru99.com/test/newtours/register.php	Se	①
Registration*	Untitled*	Command	Target	Value		
	1	open	https://demo.guru99.com/test/newtours/register.php			
	2	set window size	1066x612			
	3	click	name=firstName			
	4	type	name=firstName	hrushikesh		
	5	type	name=lastName	Zore		
	6	click	name=phone			
	7	type	name=phone	9833424548		
	8	type	id=userName	rushizore99@gmail.com		
	9	click	name=address1			

**5) Record and run test cases on any website to check the validations of elements. (eg. IRCTC, MSRTC, etc):**

### TestCase1: facebook Username and password incorrect



### TestCase2: Gmail

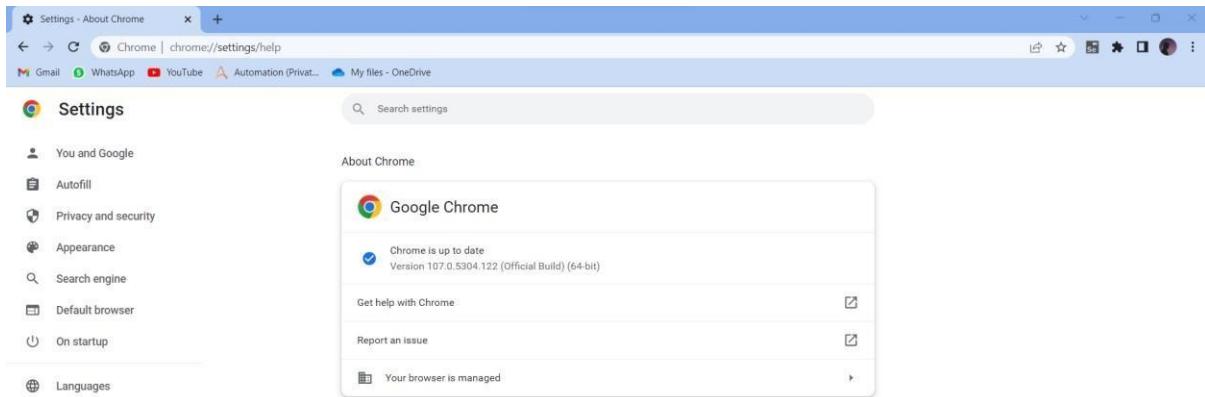


## 6)Implement Web Drivers on Chrome & Firefox Browsers.

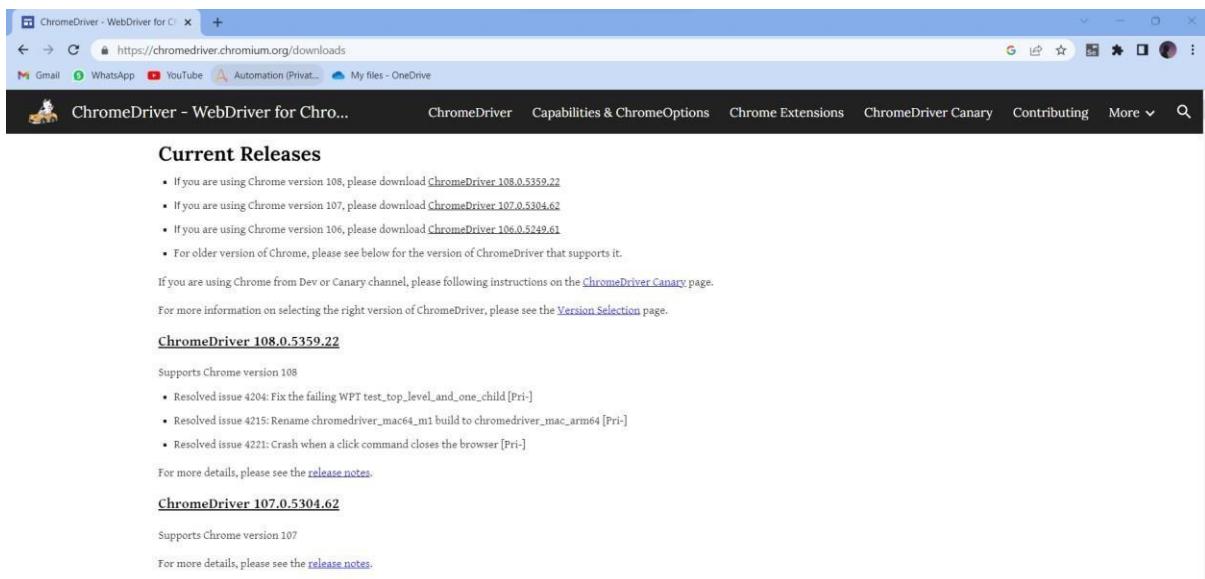
WebDriver in Chrome:

Installation Steps:

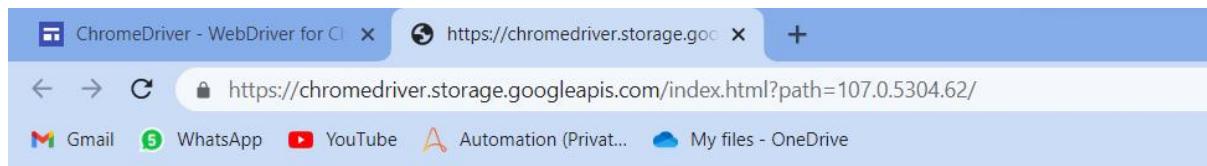
Step 1: Check the version of Chrome



Step2: Search for the Driver in google by giving command “selenium driver forchrome”



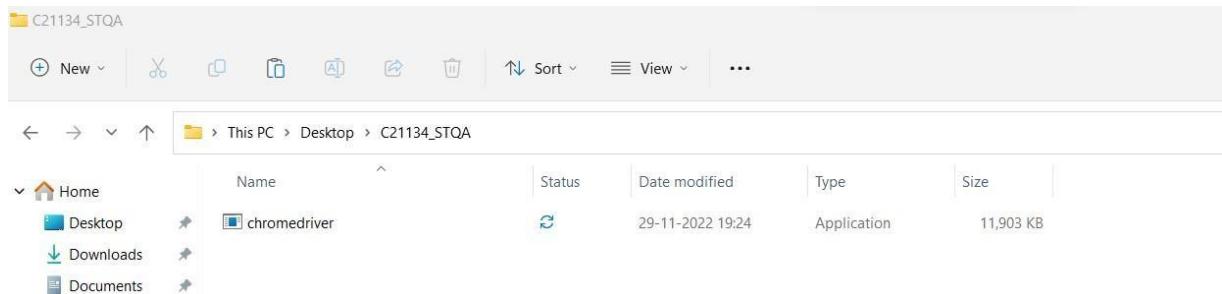
Step3: Click on Respective version and Download the zip file and Create the Separatefolder of the name driver and extract the zip file in that folder



ChromeDriver - WebDriver for C x https://chromedriver.storage.goo x +  
https://chromedriver.storage.googleapis.com/index.html?path=107.0.5304.62/  
Gmail 5 WhatsApp YouTube Automation (Private) My files - OneDrive

## Index of /107.0.5304.62/

Name	Last modified	Size	ETag
<a href="#">Parent Directory</a>		-	
<a href="#">chromedriver_linux64.zip</a>	2022-10-25 12:20:56	7.26MB	90d3353f17fcbd755626d528e94a1d9a
<a href="#">chromedriver_mac64.zip</a>	2022-10-25 12:20:57	8.41MB	652c969a3b8d47e7fa9518d90b411fba
<a href="#">chromedriver_mac_arm64.zip</a>	2022-10-25 12:20:59	7.72MB	dba9920d41a8ec9fb847326ae0f68200
<a href="#">chromedriver_win32.zip</a>	2022-10-25 12:21:00	6.46MB	a5040d2731fe174c9a7b026edb3fe271
<a href="#">notes.txt</a>	2022-10-25 12:21:05	0.00MB	936b74dab32b11addaffb0a624d9894a



C21134\_STQA

New Sort View ...

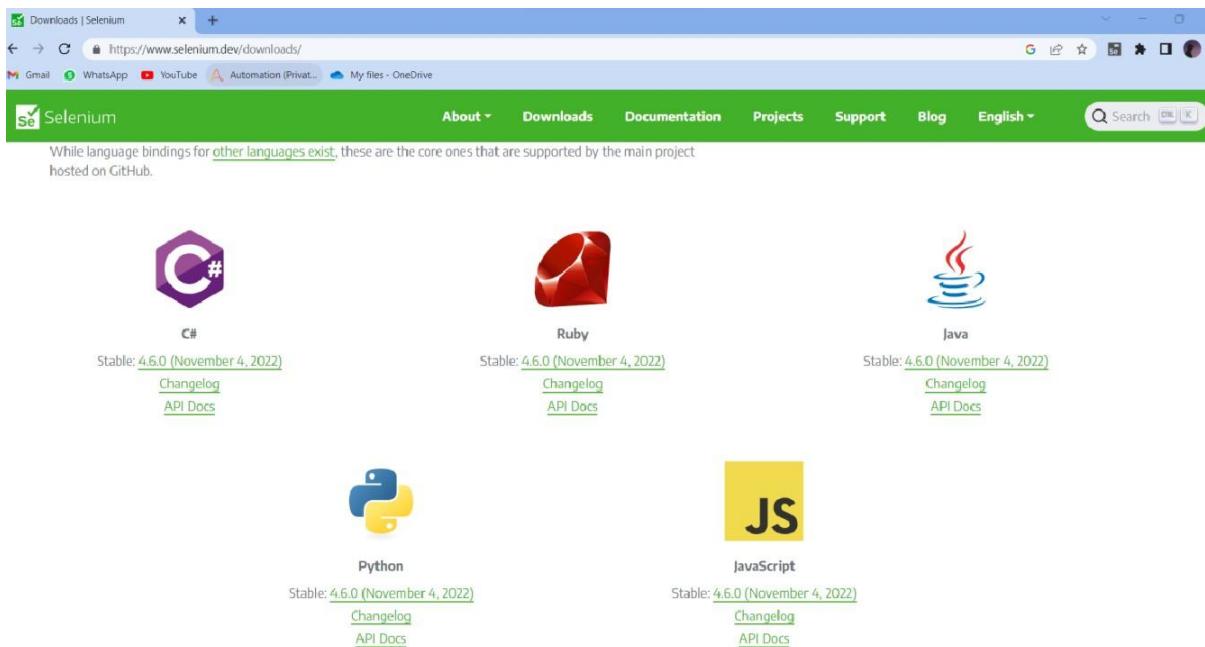
← → ↑ This PC > Desktop > C21134\_STQA

Name	Status	Date modified	Type	Size
chromedriver		29-11-2022 19:24	Application	11,903 KB

Home

- Desktop
- Downloads
- Documents

Step 4: Download the jar file by typing the following query “selenium jar files download” ,Zip file will be downloaded extract the zip file in the Separate dedicated folder.



While language bindings for other languages exist, these are the core ones that are supported by the main project hosted on GitHub.

Language	Stable Version	Changelog	API Docs
C#	4.6.0 (November 4, 2022)	<a href="#">Changelog</a>	<a href="#">API Docs</a>
Ruby	4.6.0 (November 4, 2022)	<a href="#">Changelog</a>	<a href="#">API Docs</a>
Java	4.6.0 (November 4, 2022)	<a href="#">Changelog</a>	<a href="#">API Docs</a>
Python	4.6.0 (November 4, 2022)	<a href="#">Changelog</a>	<a href="#">API Docs</a>
JavaScript	4.6.0 (November 4, 2022)	<a href="#">Changelog</a>	<a href="#">API Docs</a>

sekunium jar files

File Explorer showing the contents of the 'sekunium jar files' folder on the Desktop. The folder contains several files and subfolders:

- lib (File folder)
  - CHANGELOG (File)
  - LICENSE (File)
  - NOTICE (File)
  - selenium-api-4.6.0 (Executable Jar File)
  - selenium-api-4.6.0-sources (Executable Jar File)
  - selenium-chrome-driver-4.6.0 (Executable Jar File)
  - selenium-chrome-driver-4.6.0-sources (Executable Jar File)
  - selenium-chromium-driver-4.6.0 (Executable Jar File)
  - selenium-chromium-driver-4.6.0-sources (Executable Jar File)
  - selenium-devtools-v85-4.6.0 (Executable Jar File)
  - selenium-devtools-v85-4.6.0-sources (Executable Jar File)

## Step 5: Install Eclipse if not there

Step 6: Open Eclipse and create a java Project, give the project name, Create a package in that Project Give a package name, Create a Class give a name to the class

C21134\_STQA - eclipse IDE

File Edit Source Refactor Navigate Search Project Run Window Help

Package Expl... JRE System Library [Java src]

New Java Package

Java Package

Creates folders corresponding to packages.

Source folder: C21134\_Selenium\_Test\_Cases/src

Name: Demo\_Test

Create package-info.java  Generate comments (configure templates and default value [here](#))

Finish Cancel

New Java Class

Java Class

**⚠ This package name is discouraged. By convention, package names usually start with a lowercase letter**

Source folder: C21134\_Selenium\_Test\_Cases/src

Package: Demo\_Test

Enclosing type:

Name: Demo\_Test

Modifiers:  public  package  private  protected  
 abstract  final  static  
 none  sealed  non-sealed  final

Superclass: java.lang.Object

Interfaces:

Which method stubs would you like to create?

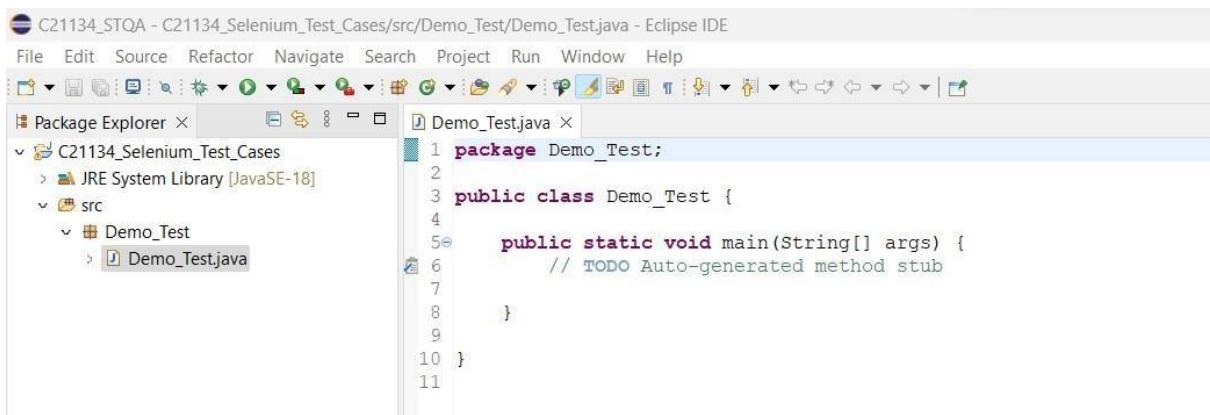
public static void main(String[] args)  
 Constructors from superclass  
 Inherited abstract methods

Do you want to add comments? (Configure templates and default value [here](#))

Generate comments

?

Finish Cancel

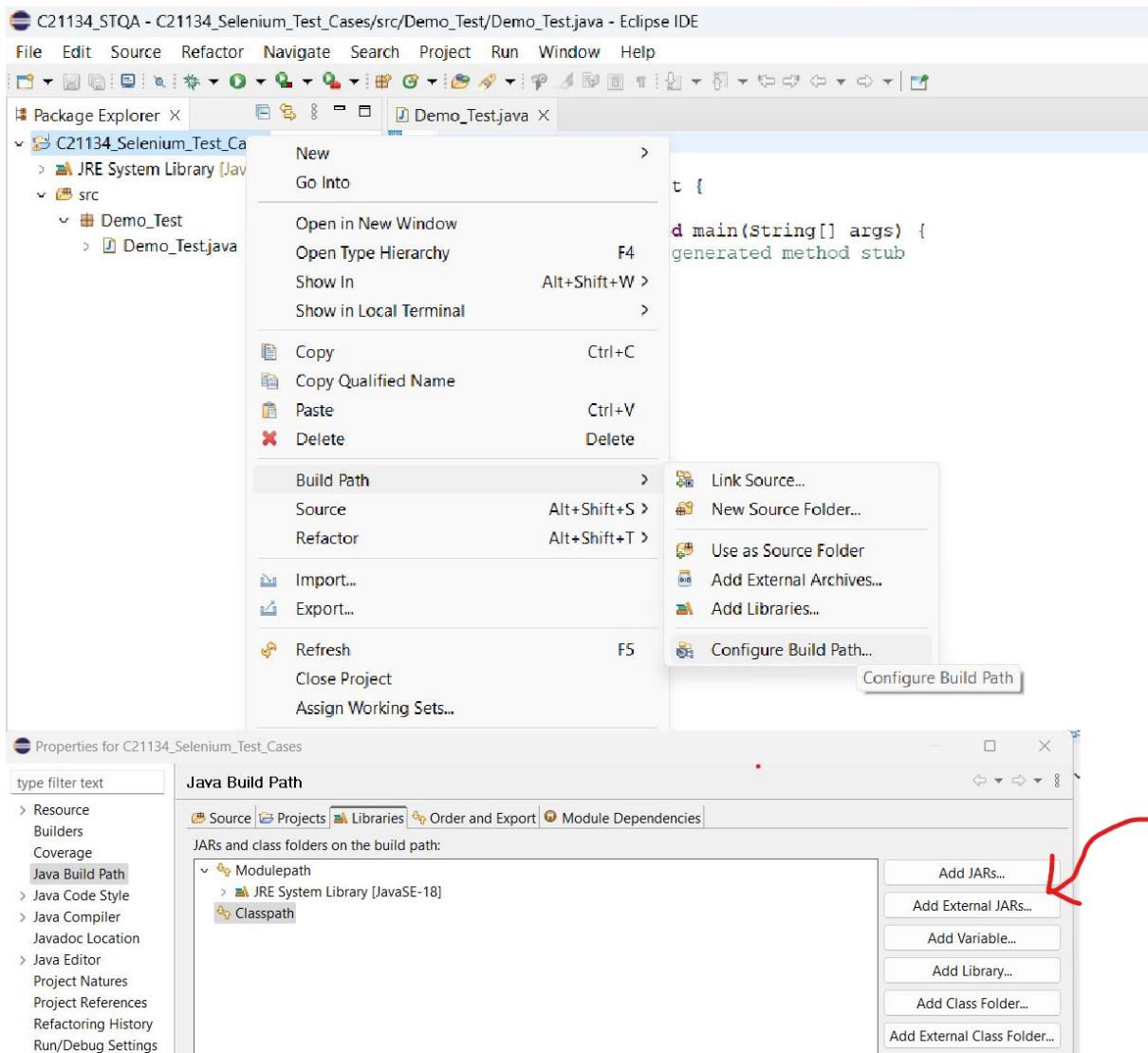


```

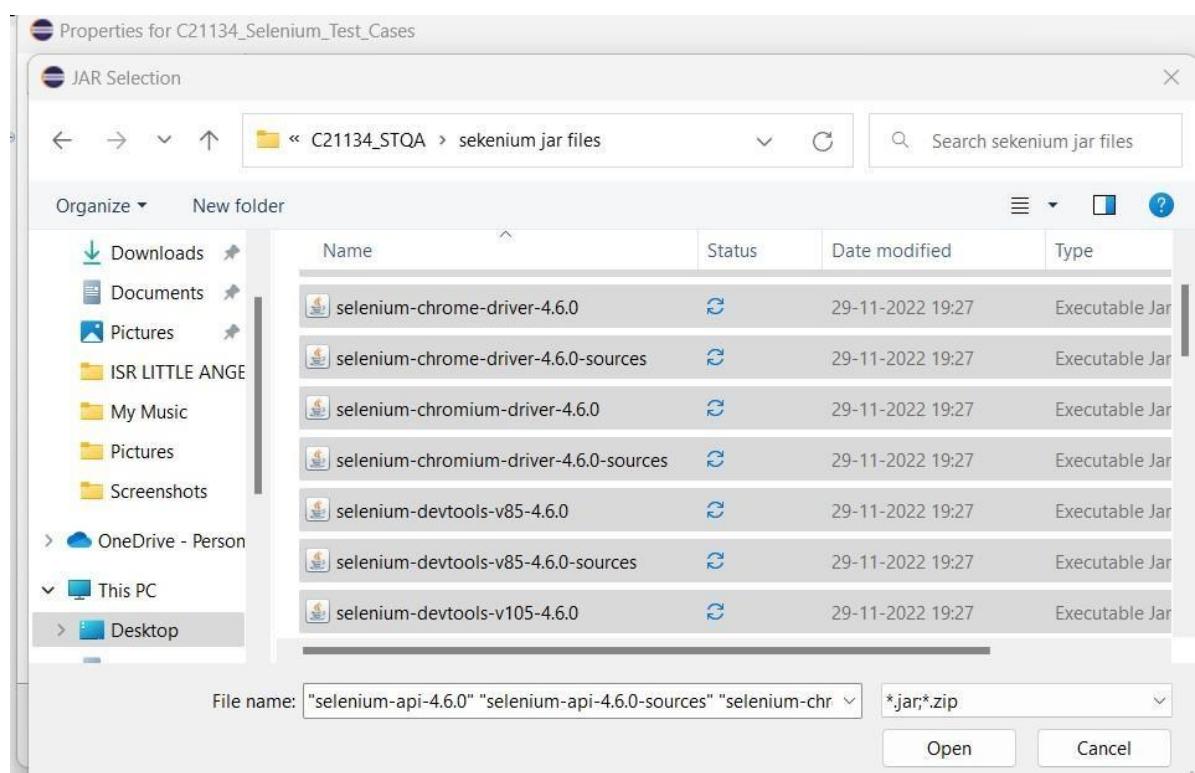
C21134_STQA - C21134_Selenium_Test_Cases/src/Demo_Test/Demo_Test.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer X Demo_Test.java X
C21134_Selenium_Test_Cases
  JRE System Library [JavaSE-18]
  src
    Demo_Test
      Demo_Test.java
1 package Demo_Test;
2
3 public class Demo_Test {
4
5   public static void main(String[] args) {
6     // TODO Auto-generated method stub
7
8   }
9
10 }
11

```

Step7: Import the jar file of selenium in eclipse, Right click on project goto properties, Gotojava build path, Goto Libraries, Click on Classpath , Click on add External jar



Step 8: Select all the jar files inside of lib folder too

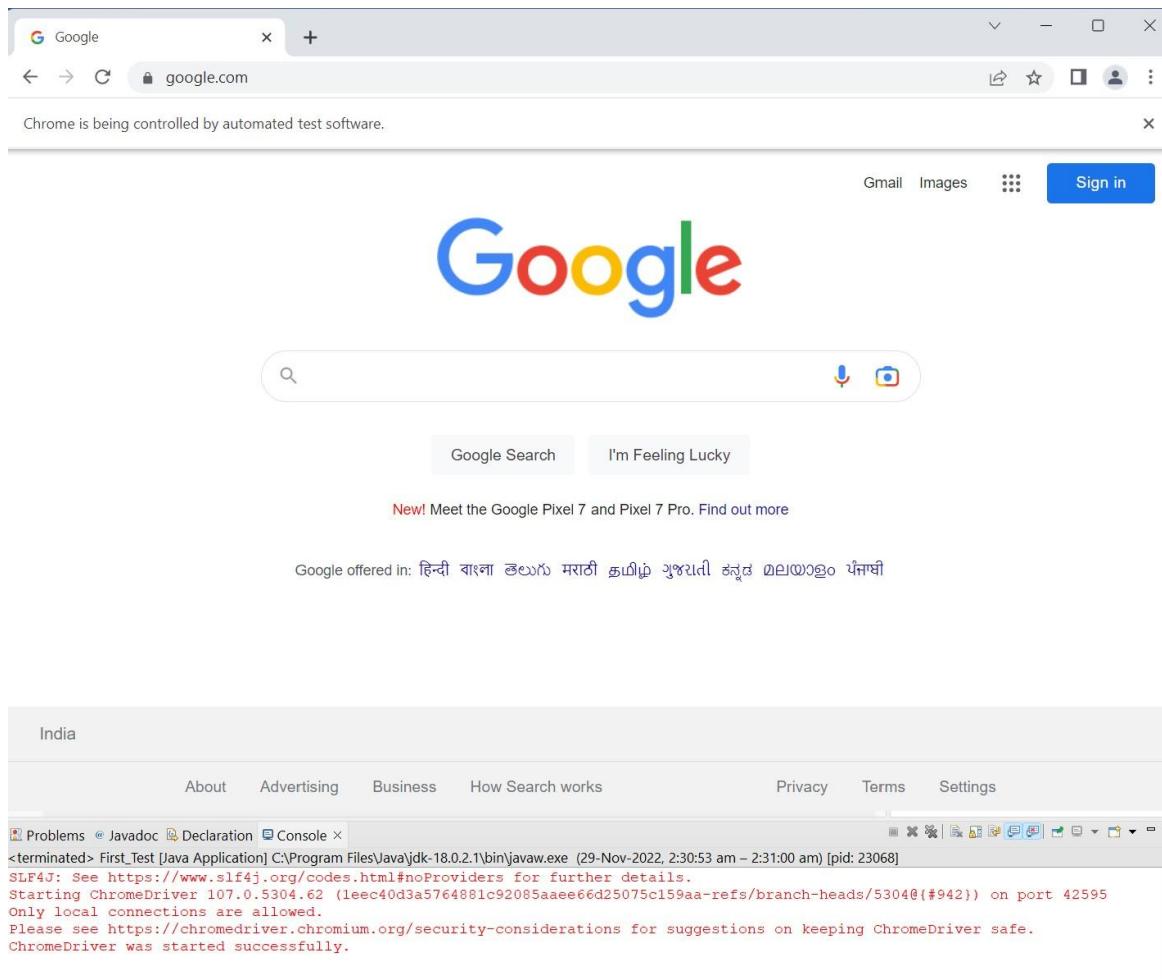


Step 9: Setup is ready know check the basic program for driverCode:

```
package TestCases;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
public class First_Test
{
    public static void main(String[] args)
    { System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA\\\\chromedriver.exe"
    }
}
```

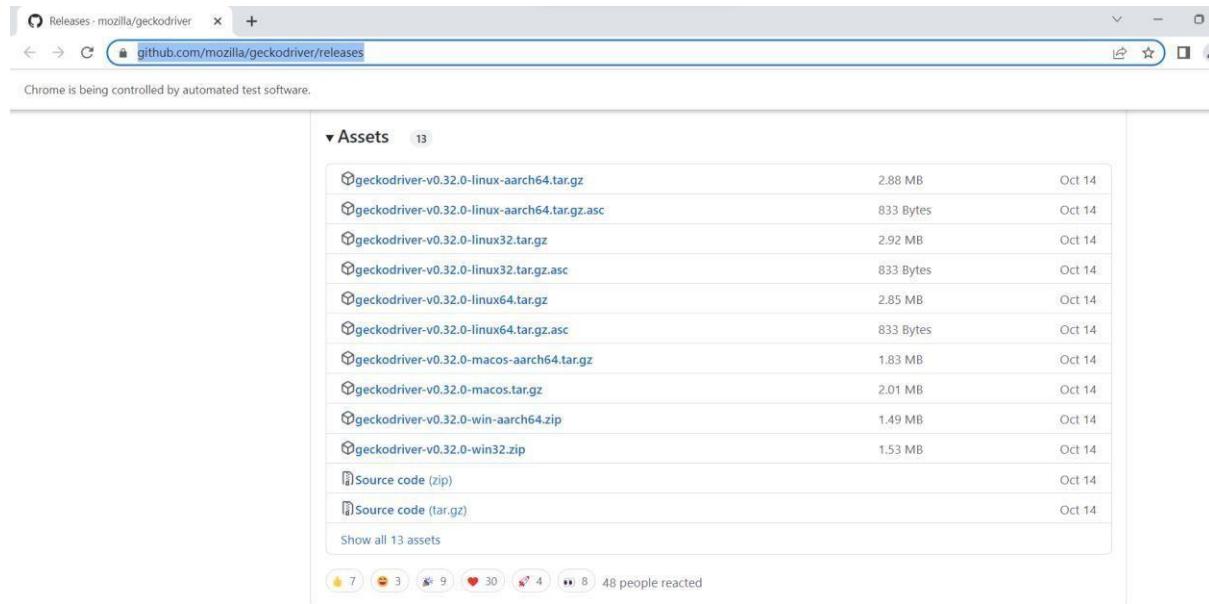
Output :



## WebDriver in Firefox:

Step 1. the zip file of diver click on link

<https://github.com/mozilla/geckodriver/releases> and download it and Extract the zip file and save it to the Divers folder

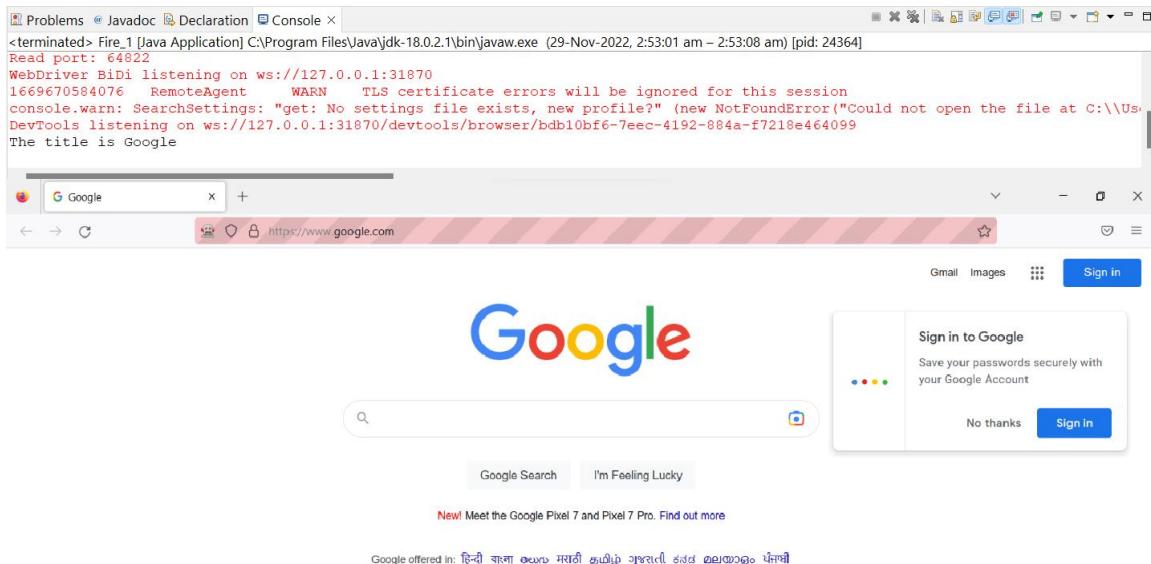


Repeat the same steps from step 4 to step 8

Step 9: Setup is ready know check the basic program for driver package TestCases;

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
public class Fire_1
{
    public static void main(String[] args)
    {
        System.setProperty("Webdriver.gecko.driver",
        "C:\\STQA\\Drivers\\geckodriver.exe");
        WebDriver driver = new FirefoxDriver();
        driver.get("https://www.google.com/"); String title = driver.getTitle();
        System.out.println("The title is "+title);
    }
}
```

Output :



## Demonstrate handling multiple frames in selenium

Code:

```
package TestCases;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
public class Multi_Frames
```

```
{
```

```
    public static void main(String[] args)
```

```
{
    System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneD
rive\\\\Desktop\\\\C21134_STQA
\\\\chromedriver.exe");
```

```
    WebDriver driver = new ChromeDriver();
    driver.get("http://demo.guru99.com/test/guru99home/");
```

```
// navigates to the page consisting an iframe
```

```
    driver.manage().window().maximize(); driver.switchTo().frame("a077aa5e");
```

```

System.out.println("We are switch to the iframe");
driver.findElement(By.xpath("html/body/a/img")).click();

//Clicks the iframe

System.out.println("*We are done*");

}
}

```

**Output:**



The screenshot shows the Eclipse IDE interface. The 'Console' tab is active, displaying the following text:

```

Problems @ Javado Declaration Console X
<terminated> Multi_Frames [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (29-Nov-2022, 2:57:53 am - 2:58:02 am) [pid: 13468]
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
We are switch to the iframe
*We are done*

```

Below the console, the 'Output:' label is visible. The browser window shows the Guru99 Selenium Live Project page. The page title is 'Selenium Live Project: FREE Real Time Project for Practice'. It features a 'Project Summary' section with a sub-section for 'Hifi'. The summary text states: 'This project will put you in an online Corporate Test Environment. You will be automating Selenium test cases for a demo banking website. You will create & execute automation scripts and have an opportunity to compare it with sample scripts created by our experts in real-time.' There are buttons for 'Download Now' and 'Join Here'. To the right of the summary, there are two promotional banners: one for 'AVATAR THE WAY OF WATER' and another for a clothing store.

Implement Browser command and navigation Commands. Code:

```

package TestCases;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.chrome.ChromeDriver;

public class Navigation {

```

```
public static void main(String[] args)
{ System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA
\\chromedriver.exe");

WebDriver driver = new ChromeDriver();

//driver.get("https://www.google.com");
driver.navigate().to("https://www.google.com");
driver.findElement(By.linkText("Images")).click(); try {

Thread.sleep(2000);

} catch (InterruptedException e) {

// TODO Auto-generated catch block e.printStackTrace();

}

driver.navigate().back();

try {

Thread.sleep(1000);

} catch (InterruptedException e) {

// TODO Auto-generated catch block e.printStackTrace();

}

System.out.println("back done  ");

driver.navigate().forward();

try {

Thread.sleep(1000);

} catch (InterruptedException e) {

// TODO Auto-generated catch block e.printStackTrace();

}

System.out.println("Forward done.      ");
```

```
driver.navigate().refresh();

try {

Thread.sleep(1000);

} catch (InterruptedException e) {

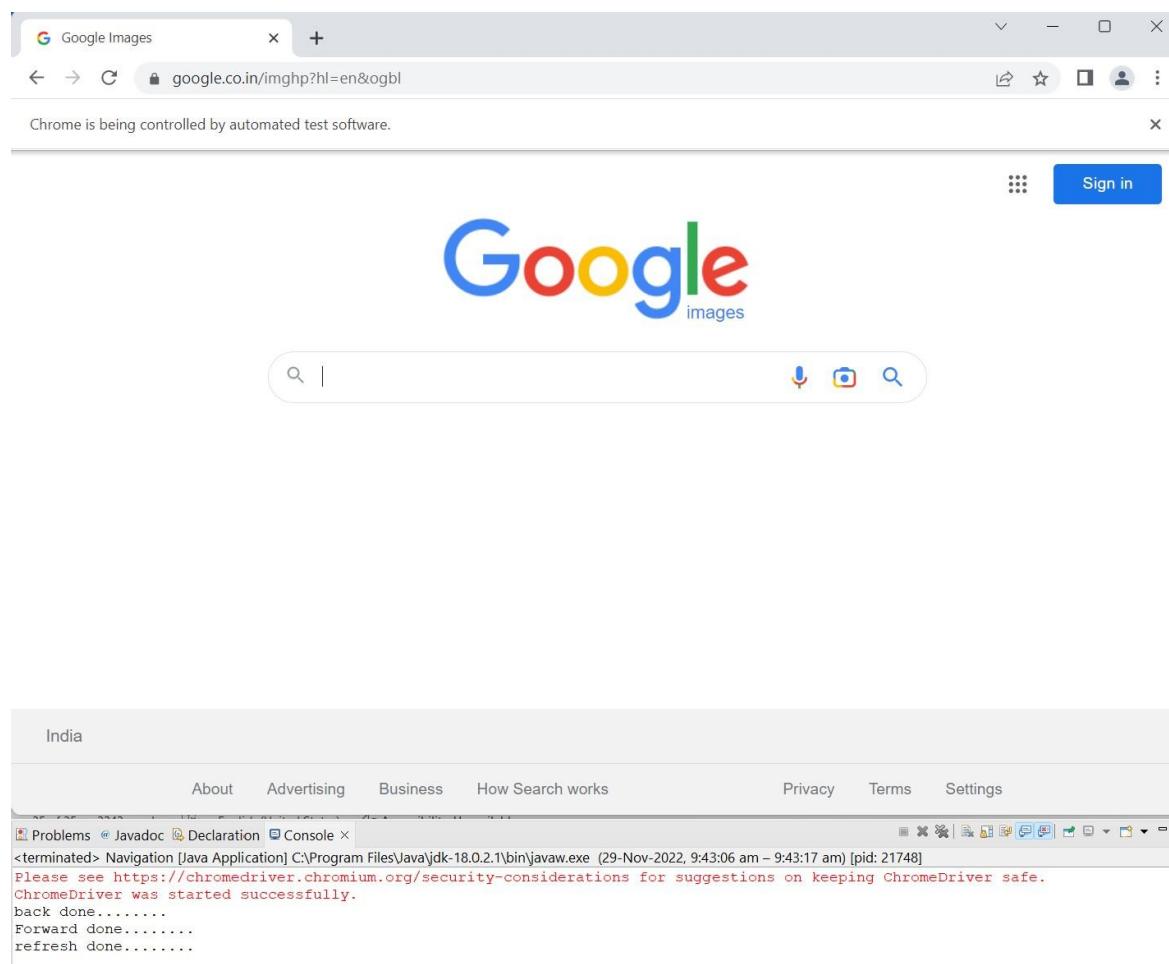
// TODO Auto-generated catch block e.printStackTrace();

}

System.out.println("refresh done.      ");

}
```

### **Output:**



Implement the find element command

Code:

```
package TestCases;

import org.openqa.selenium.By;

import org.openqa.selenium.WebDriver;

import org.openqa.selenium.WebElement;

import org.openqa.selenium.chrome.ChromeDriver;

public class Find_Element {

    public static void main(String[] args)
    { System.setProperty("webdriver.chrome.driver", "C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA
    \\\chromedriver.exe");

        WebDriver driver = new ChromeDriver();

        //driver.get("https://www.google.com");
        driver.navigate().to("https://www.facebook.com/"); WebElement el =
        driver.findElement(By.id("email")); el.sendKeys("hanchatesameer@gmail.com");
        WebElement el2 = driver.findElement(By.id("pass")); el2.sendKeys("123456");

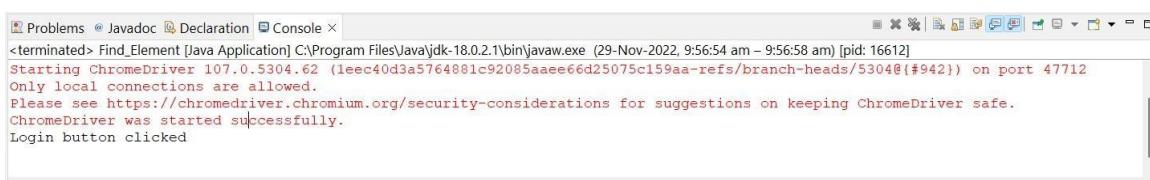
        WebElement el3 = driver.findElement(By.name("login")); el3.click();

        System.out.println("Login button clicked");

    }

}
```

**Output:**



```
Problems Javadoc Declaration Console
<terminated> Find_Element [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (29-Nov-2022, 9:56:54 am - 9:56:58 am) [pid: 16612]
Starting ChromeDriver 107.0.5304.62 (1eecd40d3a5764881c92085aaee66d25075c159aa-refs/branch-heads/5304@{#942}) on port 47712
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Login button clicked
```

Forgotten password? Link button testing By Find Element: Code:

```
package TestCases;

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 FindElemnt2 {

public static void main(String[] args)
{ System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA
\\chromedriver.exe");

WebDriver driver = new FirefoxDriver();

//driver.get("https://www.google.com");
driver.navigate().to("https://www.facebook.com/");

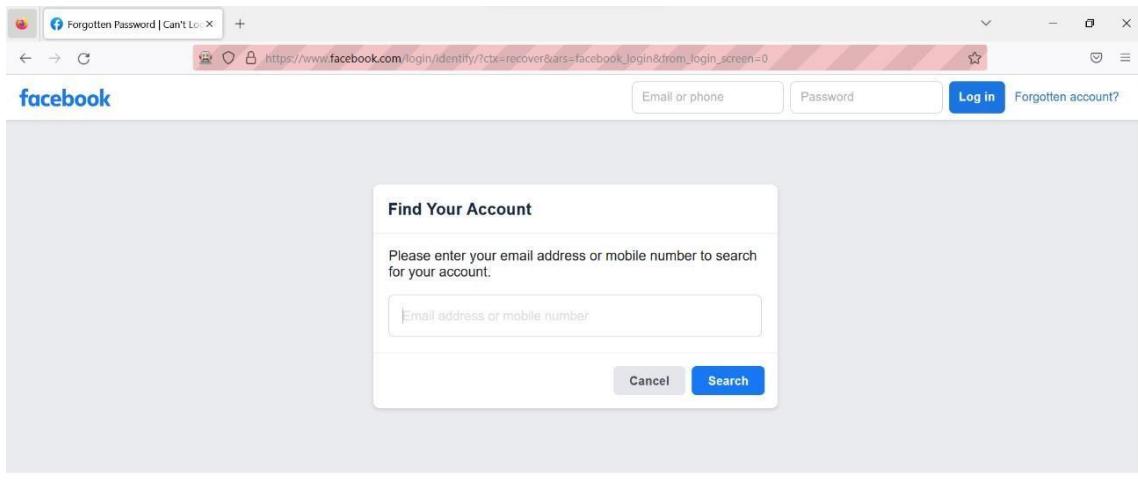
WebElement el = driver.findElement(By.linkText("Forgotten password?")); el.click();

System.out.println("Forgotten password? Clicked");

}

}
```

Output:



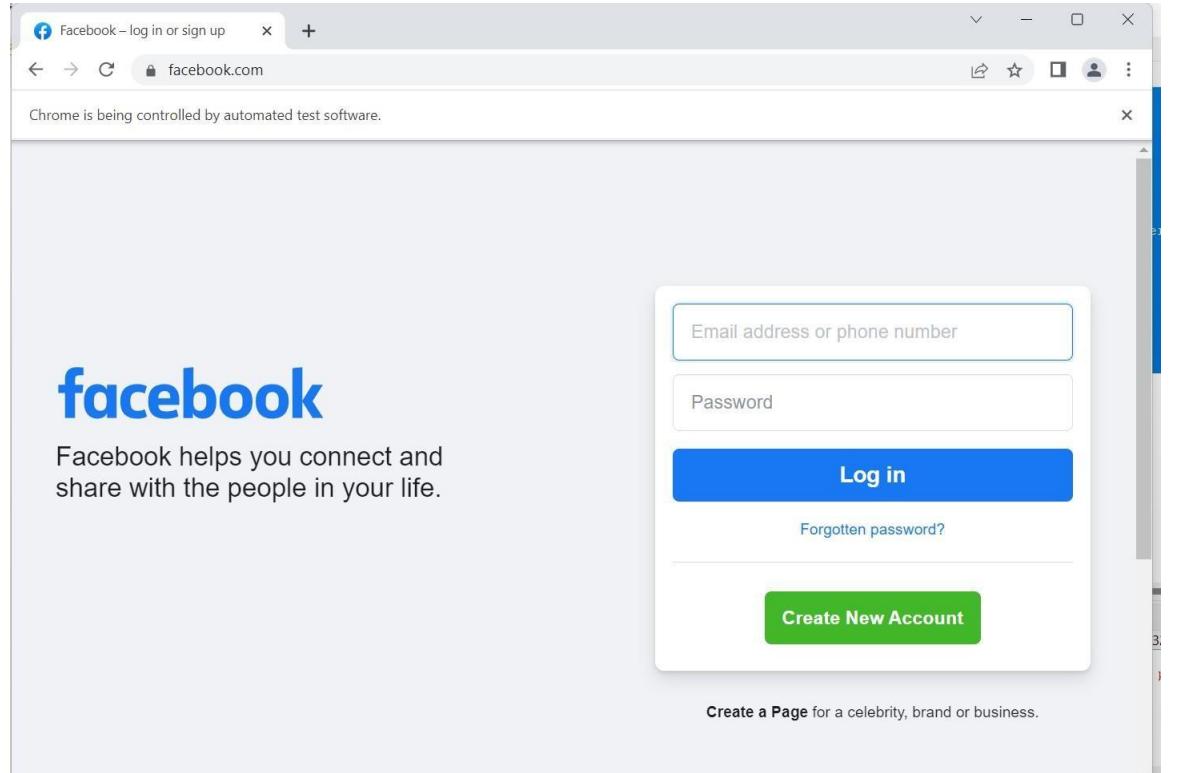
To Get the URL and Title:

Code:

```
package TestCases;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
public class URL_Title {
    public static void main(String[] args)
    { System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA
    \\\chromedriver.exe");
    WebDriver driver = new ChromeDriver();
    //driver.get("https://www.google.com");
    driver.navigate().to("https://www.facebook.com/");
    System.out.println(driver.getTitle()); System.out.println(driver.getCurrentUrl());
    }
}
```

{

**Output:**

```
Problems @ Javadoc Declaration Console <terminated> URL_Title [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (29-Nov-2022, 11:08:26 am – 11:08:32 am) [pid: 4284]
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Facebook log in or sign up
https://www.facebook.com/
```

**To Test Attributes and Tag name:****Code:**

```
package TestCases;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
public class Tag_Name {
```

```
public static void main(String[] args)
{ System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA
\\chromedriver.exe");

WebDriver driver = new ChromeDriver();

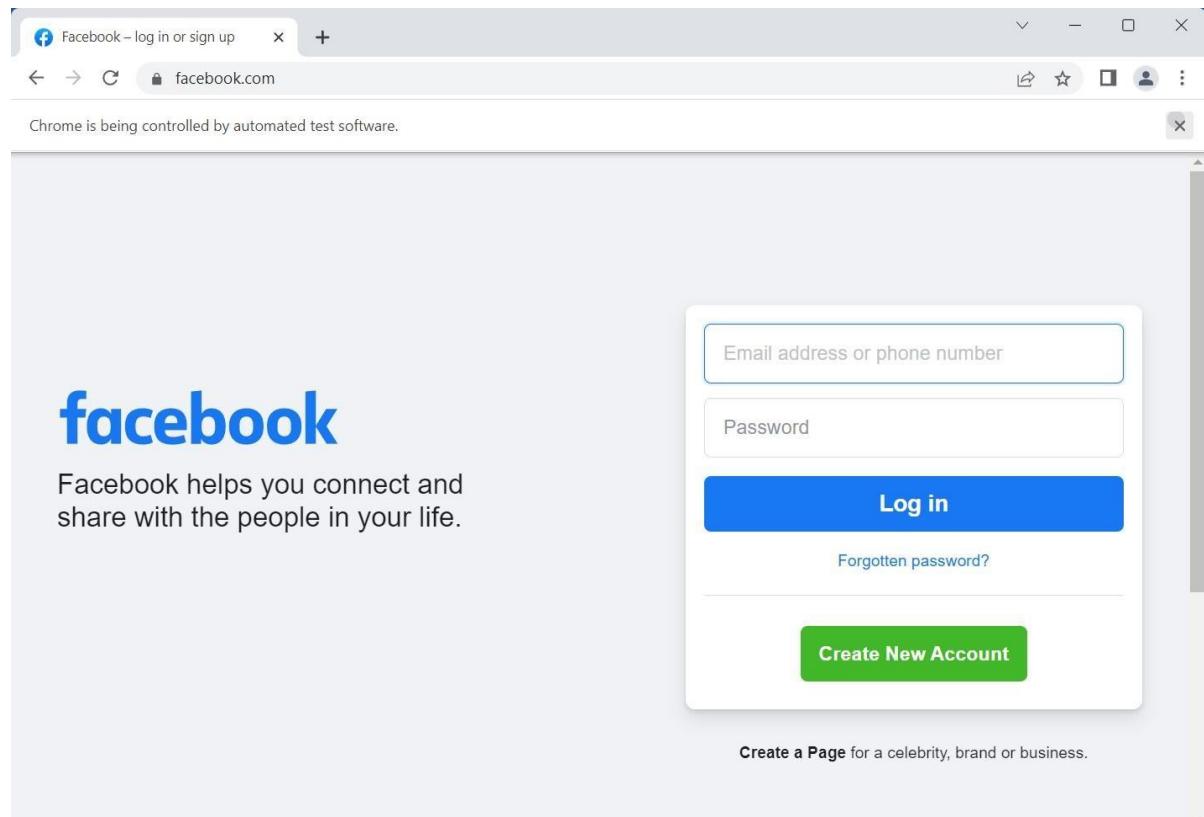
//driver.get("https://www.google.com");
driver.navigate().to("https://www.facebook.com/"); String title = driver.getTitle();
System.out.println("Title is : "+title);

WebElement el = driver.findElement(By.id("email"));
System.out.println(el.getAttribute("class")); System.out.println(el.getTagName());

}

}
```

Output:



```
Problems Javadoc Declaration Console <terminated> Tag_Name [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (29-Nov-2022, 11:16:10 am – 11:16:19 am) [pid: 24692]
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
Title is : Facebook log in or sign up
inputtext _55rl _6luy
input
```

Demonstrate the Locator (id, CSS selector, path)

XPath Locator:

Code:

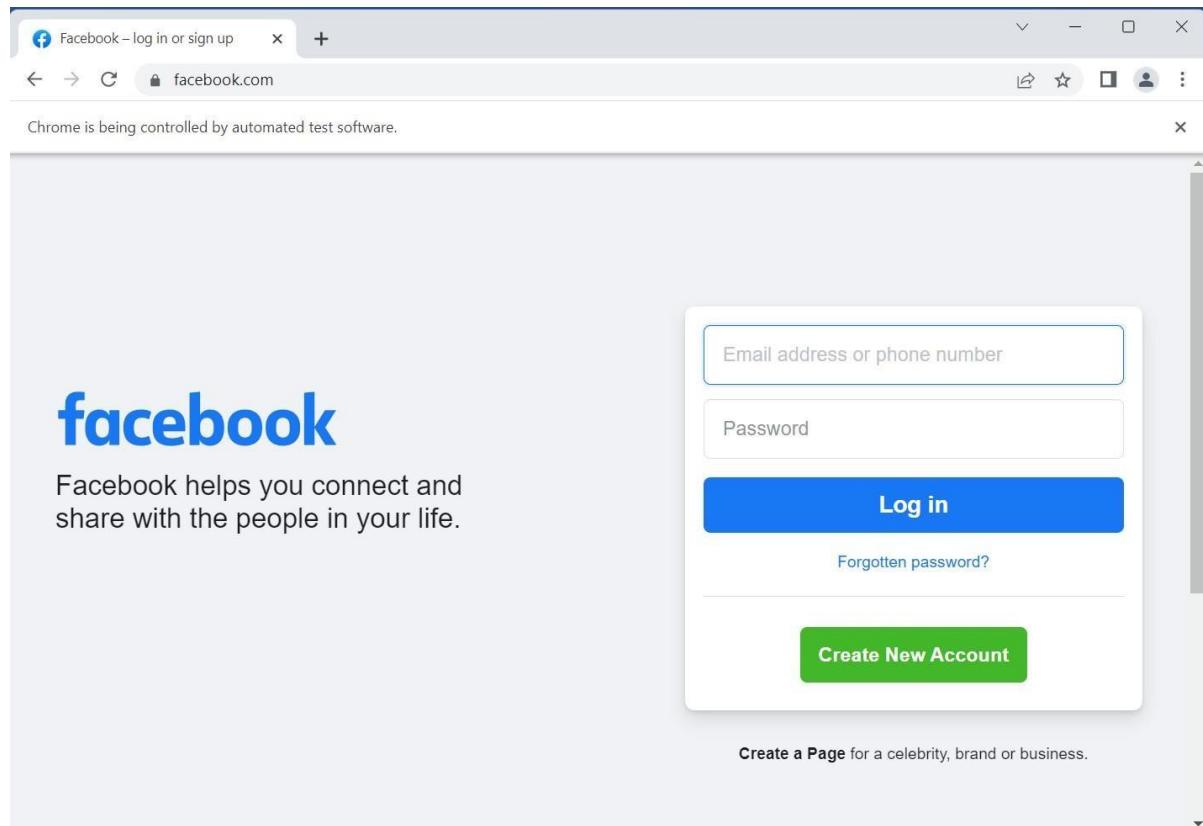
```
package TestCases;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;
public class Locators {
    public static void main(String[] args) {
        System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA
        \\\chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.get("https://www.facebook.com/");
        WebElement img = driver.findElement(By.xpath("//*[@id='email']"));
        System.out.println(img.isDisplayed()); System.out.println(img.isEnabled());
        System.out.println(img.isSelected());
    }
}

System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA
        \\\chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.get("https://www.facebook.com/");
```

```
WebElement img = driver.findElement(By.xpath("//*[@id='email']"));
System.out.println(img.isDisplayed()); System.out.println(img.isEnabled());
System.out.println(img.isSelected());  
}  
}
```

Output:



```
Problems Javadoc Declaration Console
<terminated> Locators [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (29-Nov-2022, 11:20:55 am – 11:21:00 am) [pid: 24928]
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
true
true
false
```

ID Locator:

Code:

```
package TestCases;
import org.openqa.selenium.By;
```

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.ChromeDriver;

public class Locators {

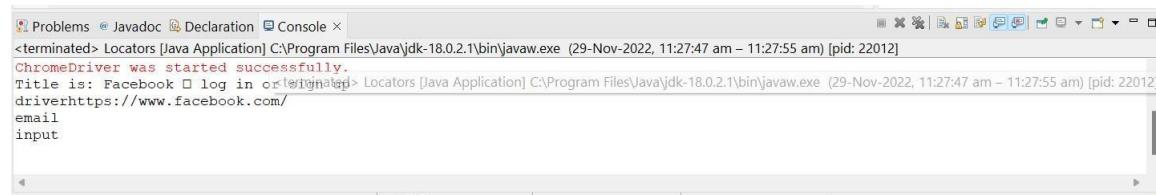
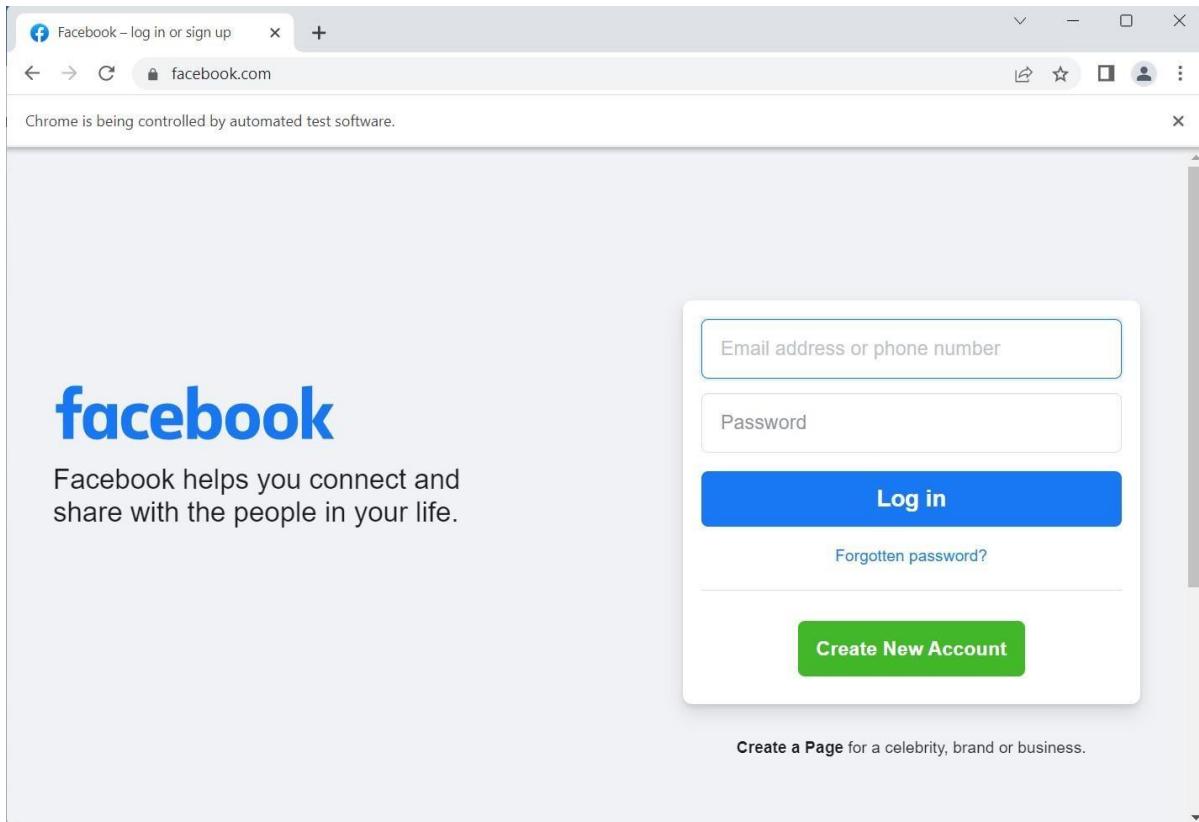
    public static void main(String[] args)
    { System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA
\\chromedriver.exe");

    WebDriver driver = new ChromeDriver(); driver.get("https://www.facebook.com/);

        String title = driver.getTitle();
        System.out.println("Title is: " + title);
        System.out.println("driver"+driver.getCurrentUrl());
        WebElement unm= driver.findElement(By.id("email"));
        System.out.println(unm.getAttribute("id"));

        System.out.println(unm.getTagName());      //Html tag name is ID
    }
}

Output:
```



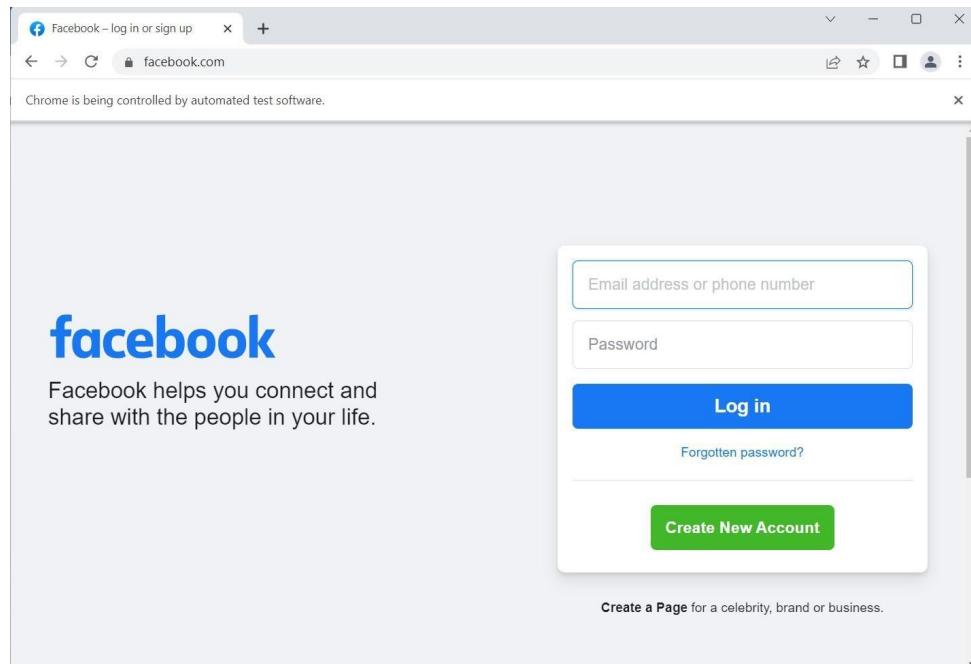
## Locator By Using CSS Selector:

Code:

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

```
public class Locators {  
  
    public static void main(String[] args)  
    {  
        System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA  
        \\chromedriver.exe");  
  
        WebDriver driver = new ChromeDriver();  
        driver.get("https://www.facebook.com/");  
  
        WebElement el = driver.findElement(By.cssSelector("input[name='email']"));  
        System.out.println(el.getTagName());  
  
    }  
  
}
```

Output:





```
<terminated> Locators [Java Application] C:\Program Files\Java\jdk-18.0.2\bin\javaw.exe (29-Nov-2022, 11:44:29 am – 11:44:36 am) [pid: 18296]
Starting ChromeDriver 107.0.5304.62 (1eec40d3a5764881c92085aaee66d25075c159aa-refs/branch-heads/5304@{#942}) on port 26241
Only local connections are allowed.
Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
ChromeDriver was started successfully.
input
```

Demonstrate different types of alerts

Code:

```
package TestCases;

import org.openqa.selenium.Alert;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
public class Alerts {

    public static void main(String[] args)
    { System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA
    \\\chromedriver.exe");

    WebDriver driver = new FirefoxDriver();

    //driver.get("https://www.google.com");
    driver.navigate().to("https://demo.guru99.com/test/delete_customer.php");
    driver.findElement(By.name("cusid")).sendKeys("35");
    driver.findElement(By.name("submit")).click();

    Alert alt = driver.switchTo().alert();

    String alert_msg = driver.switchTo().alert().getText(); System.out.println(alert_msg);
    try {
```

```
Thread.sleep(500);

} catch (InterruptedException e) {

// TODO Auto-generated catch block e.printStackTrace();

}

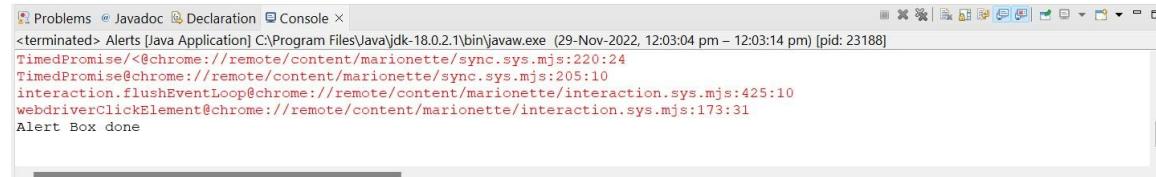
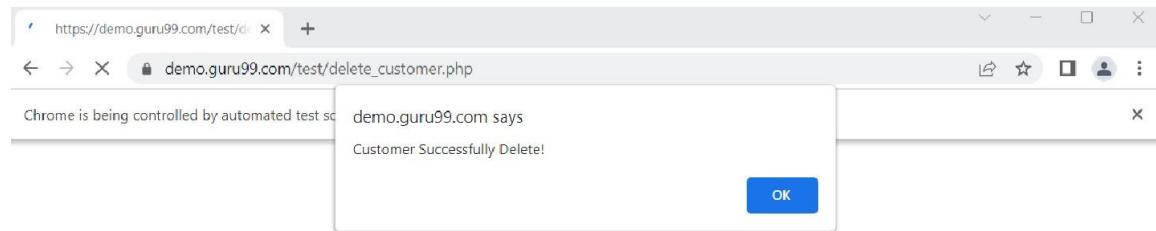
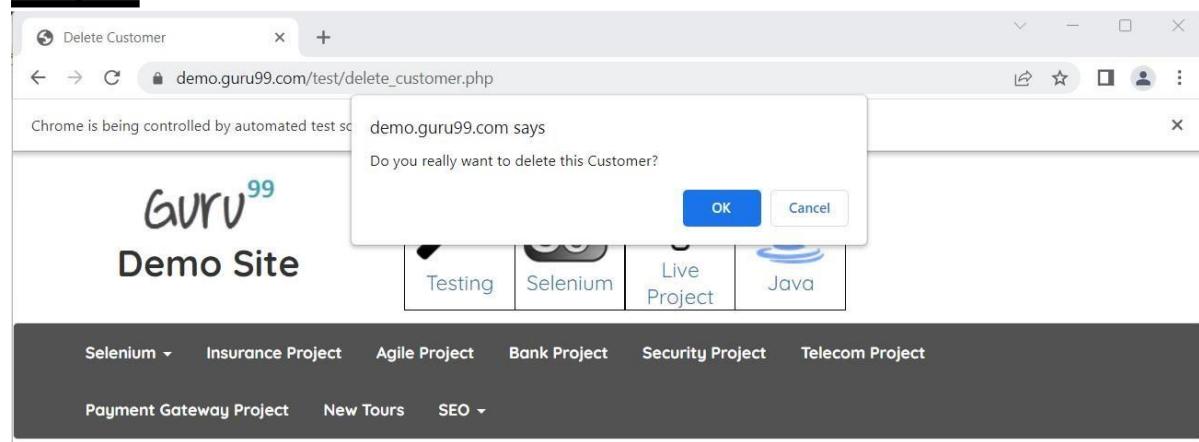
alt.accept();

System.out.println("Alert Box done");

}

}
```

## Output:



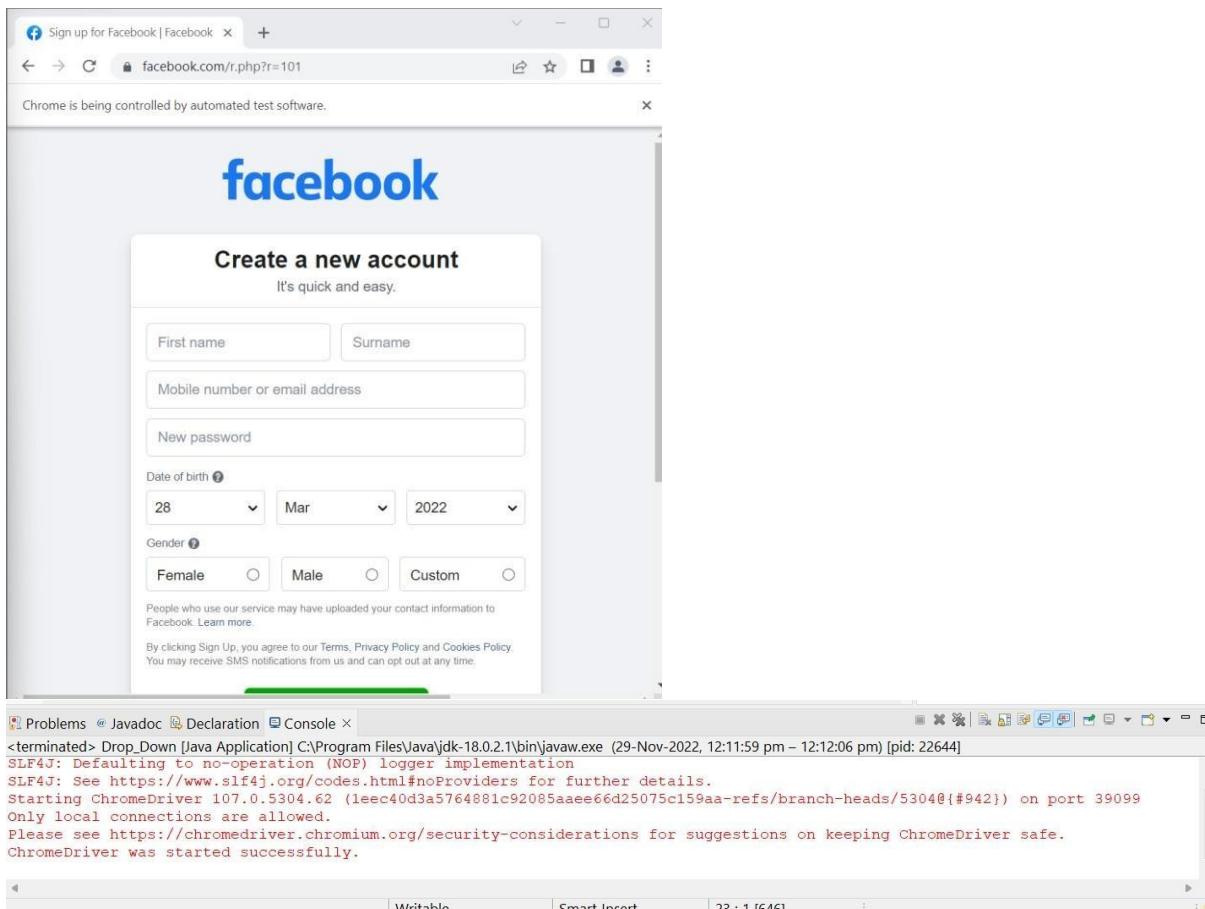
11]Demonstrate:

Handling Drop Down

Code:

```
package TestCases;  
  
import org.openqa.selenium.By;  
  
import org.openqa.selenium.WebDriver;  
  
import org.openqa.selenium.chrome.ChromeDriver;  
  
import org.openqa.selenium.support.ui.Select;  
  
public class Drop_Down {  
  
    public static void main(String[] args)  
    {  
        System.setProperty("webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA  
        \\chromedriver.exe");  
  
        WebDriver driver = new ChromeDriver();  
  
        //driver.get("https://www.google.com");  
        driver.navigate().to("https://www.facebook.com/r.php?r=101");  
        Select month= new  
        Select(driver.findElement(By.id("month")));  
  
        //month.deselectByVisibleText("Oct");  
        month.selectByIndex(2);  
    }  
}
```

Output:



## List Boxes

Code:

```
package TestCases;

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.support.ui.Select;

public class Drop_Down {
```

```
public static void main(String[] args)
{ System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA
\\chromedriver.exe");

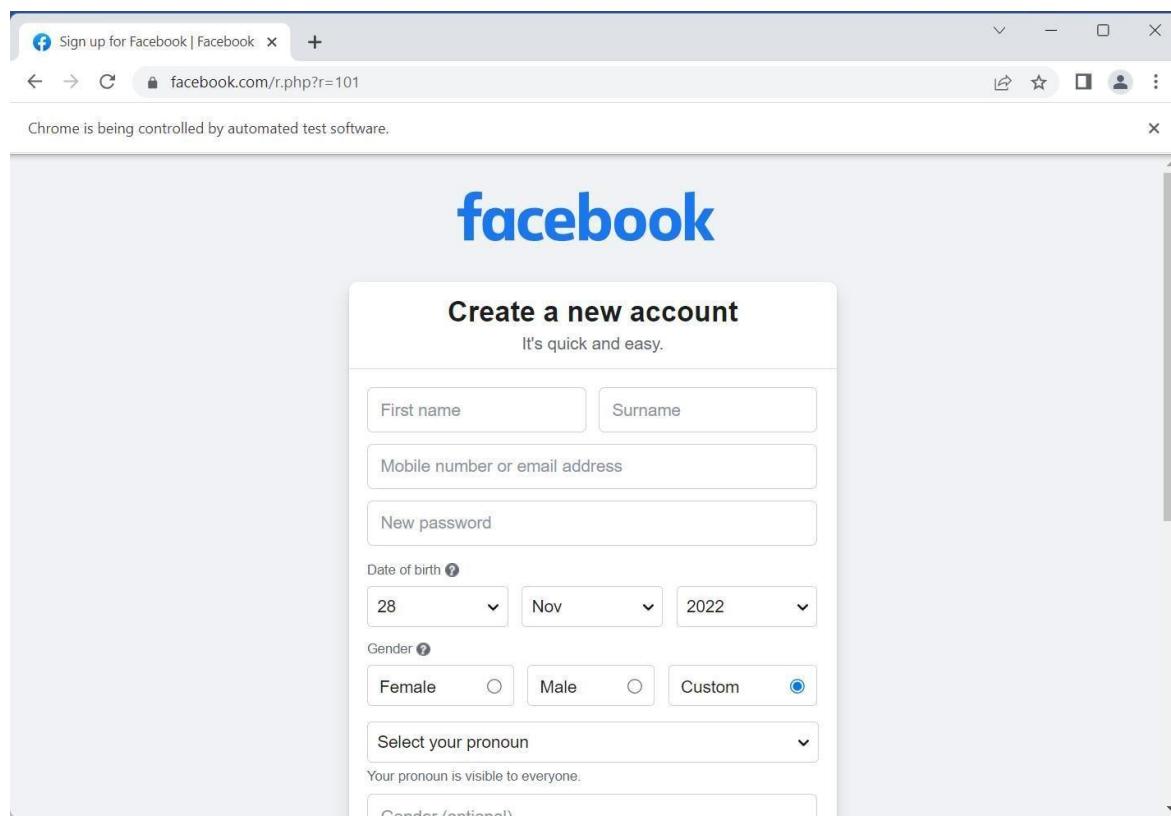
WebDriver driver = new ChromeDriver();

//driver.get("https://www.google.com");
driver.navigate().to("https://www.facebook.com/r.php?r=101"); Select month= new
Select(driver.findElement(By.id("month"))); List <WebElement> gender =
driver.findElements(By.name("sex")); int cnt = gender.size();

System.out.println(cnt);
```

```
for(int i=0;i<=cnt-1;i++)  
{  
String text = gender.get(i).getText(); System.out.println(text); gender.get(i).click();  
try {  
Thread.sleep(200);  
} catch (InterruptedException e) {  
// TODO Auto-generated catch block e.printStackTrace();  
}  
}  
}  
}  
}  
}
```

### **Output:**





```
Problems @ Javadoc Declaration Console x
<terminated> Drop_Down [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (29-Nov-2022, 12:49:40 pm – 12:49:48 pm) [pid: 14676]
ChromeDriver was started successfully.
3
```

## Command Button

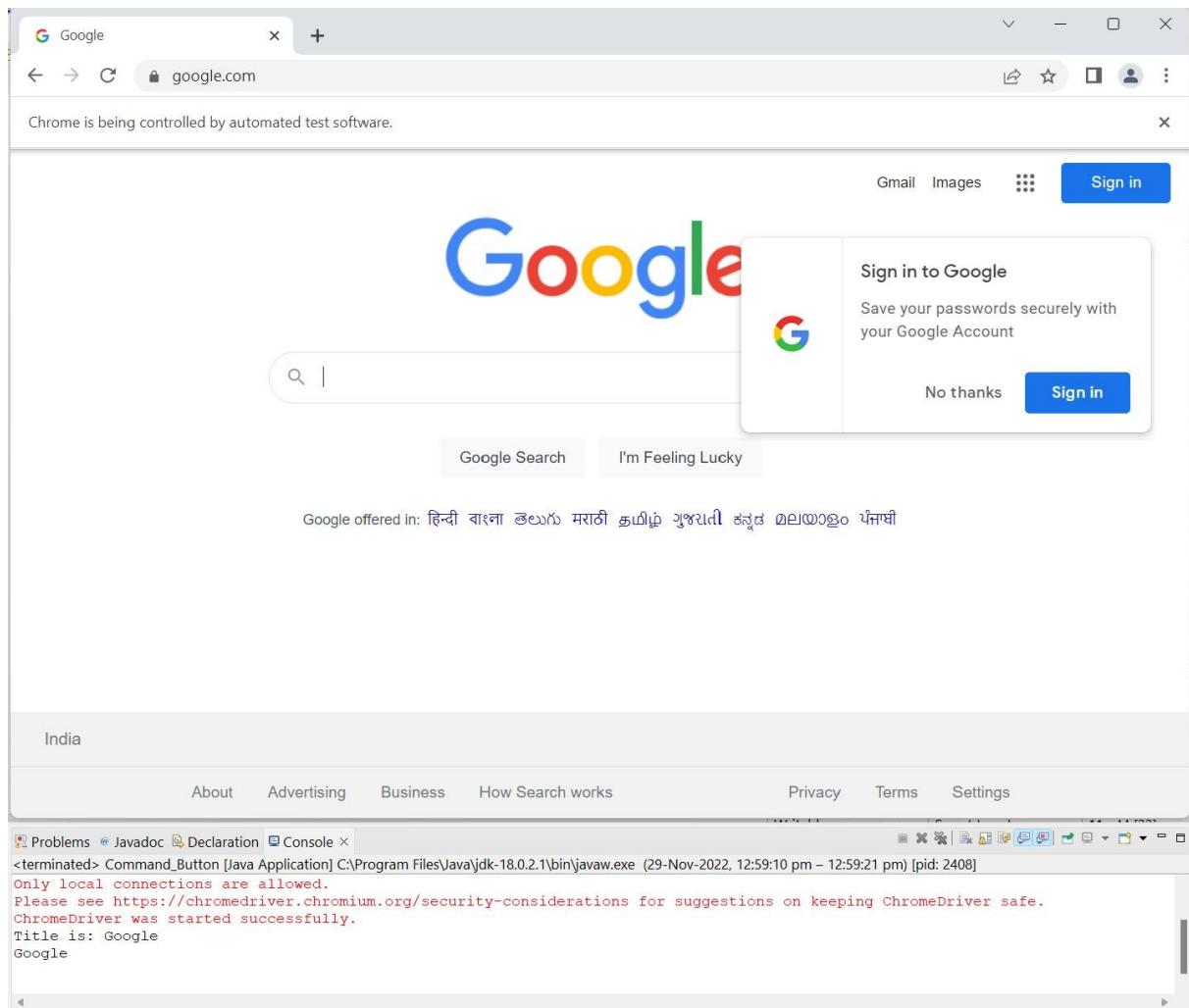
Get Title:

```
package TestCase;

import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
public class Command_Button {

    public static void main(String[] args)
    { System.setProperty("Webdriver.chrome.driver","C:\\\\Users\\\\rushi\\\\OneDrive\\\\Desktop\\\\C21134_STQA
    \\\chromedriver.exe");

    WebDriver driver = new ChromeDriver(); driver.get("https://www.google.com/");
    String title = driver.getTitle(); System.out.println("Title is: "+title);
    System.out.println(driver.getTitle());
    }
}
```



## Radio buttons & text boxes

First, we Create the html file:

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

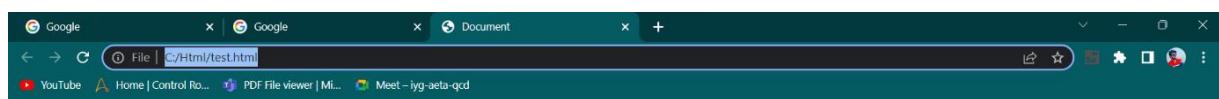
<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Document</title>

</head>
```

```
<body>  
<h1>Html page</h1>  
  
<input type="radio" name="course" value="MCA">MCA</br></br>  
<input type="radio" name="course" value="MMS">MMS</br></br>  
<input type="radio" name="course" value="BCA">BCA</br></br>  
</body>  
</html>
```



Code:

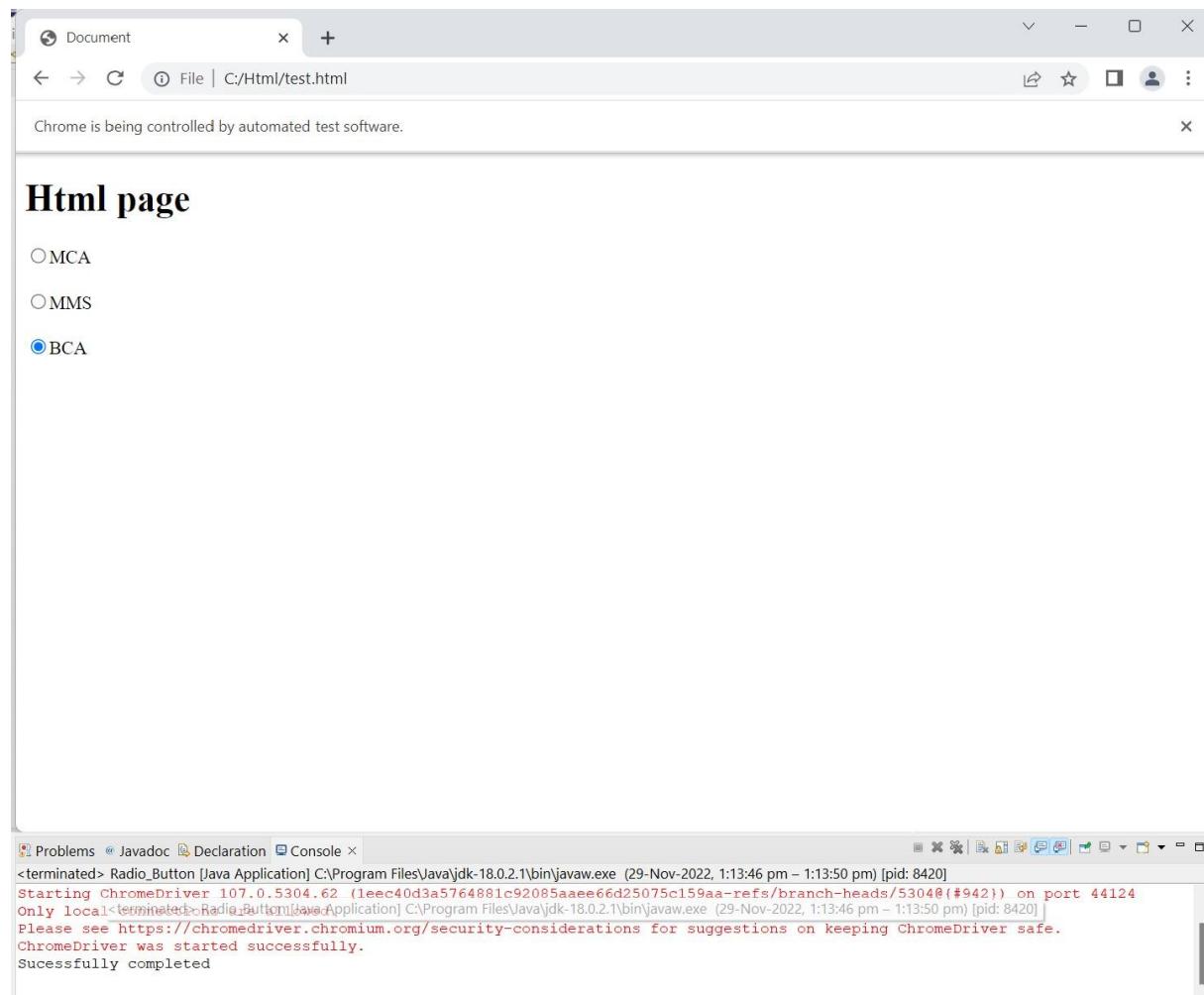
```
package TestCases;  
  
import org.openqa.selenium.By;  
  
import org.openqa.selenium.WebDriver;  
  
import org.openqa.selenium.chrome.ChromeDriver;  
  
public class Radio_Button {  
  
    public static void main(String[] args)  
    {  
        System.setProperty("Webdriver.chrome.driver","C:\\Users\\rushi\\OneDrive\\Desktop\\C21134_STQA  
        \\chromedriver.exe");  
  
        WebDriver driver = new ChromeDriver();  
  
        //driver.get("https://www.google.com");  
        driver.navigate().to("file:///C:/Html/test.html");  
    }  
}
```

```
driver.findElement(By.xpath("/html/body/input[3]")).click();
System.out.println("Sucessfully completed");
```

```
}
```

```
}
```

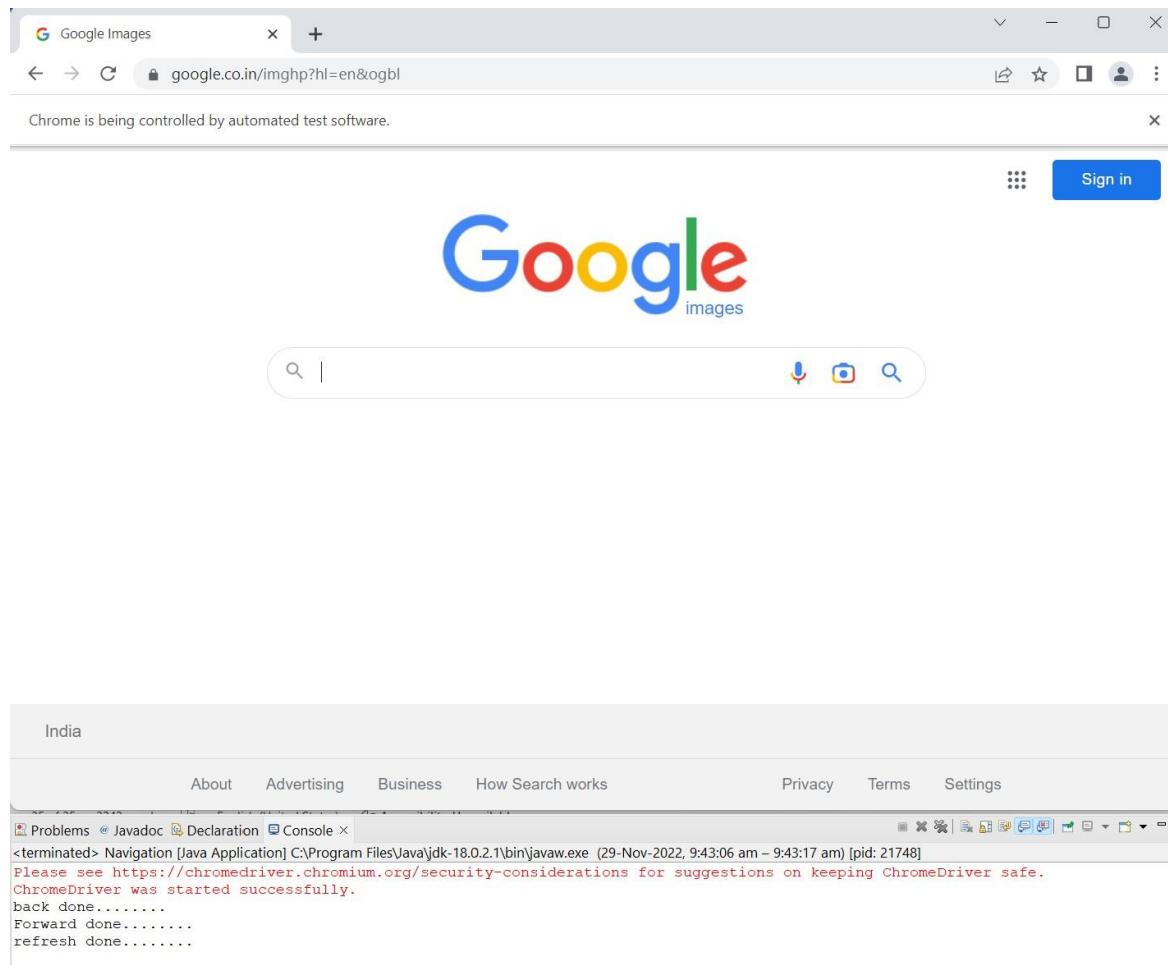
Output:



Waits command in selenium

Thread.sleep() method use for wait command for the process. which we can see the process very easily.

Code:



## Installation of TestNG, Running TestNG:

### TestNg

TestNG is an advance framework designed in a way to leverage the benefits by both the developers and testers.

TestNG is an automation testing framework in which NG stands for “Next Generation”. TestNG is inspired by [JUnit](#) which uses the annotations (@). TestNG overcomes the disadvantages of JUnit and is designed to make [end-to-end testing](#) easy.

Using TestNG, you can generate a proper report, and you can easily come to know how many test cases are passed, failed, and skipped. You can execute the failed test cases separately.

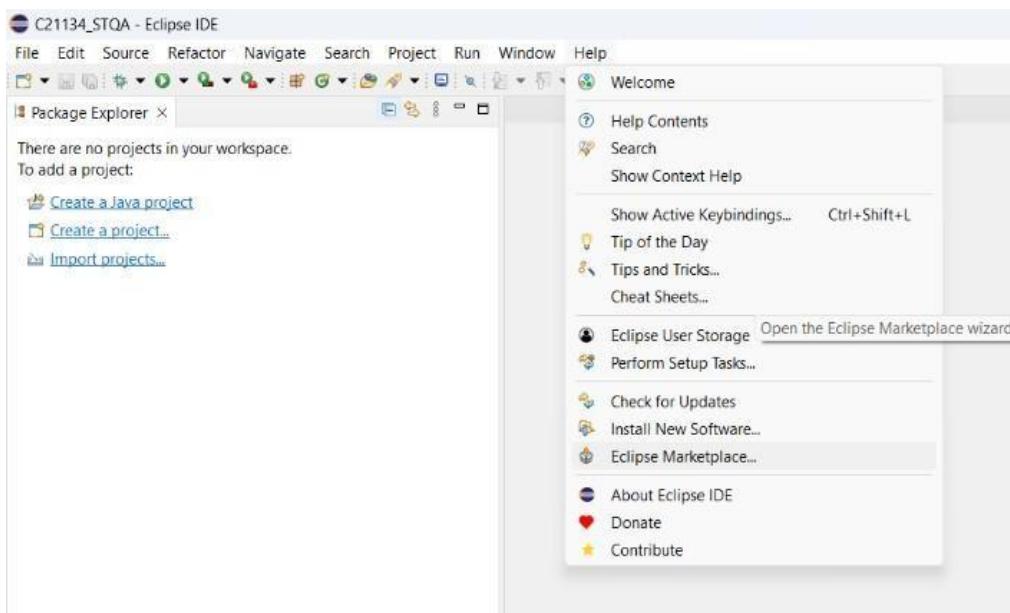
For example:

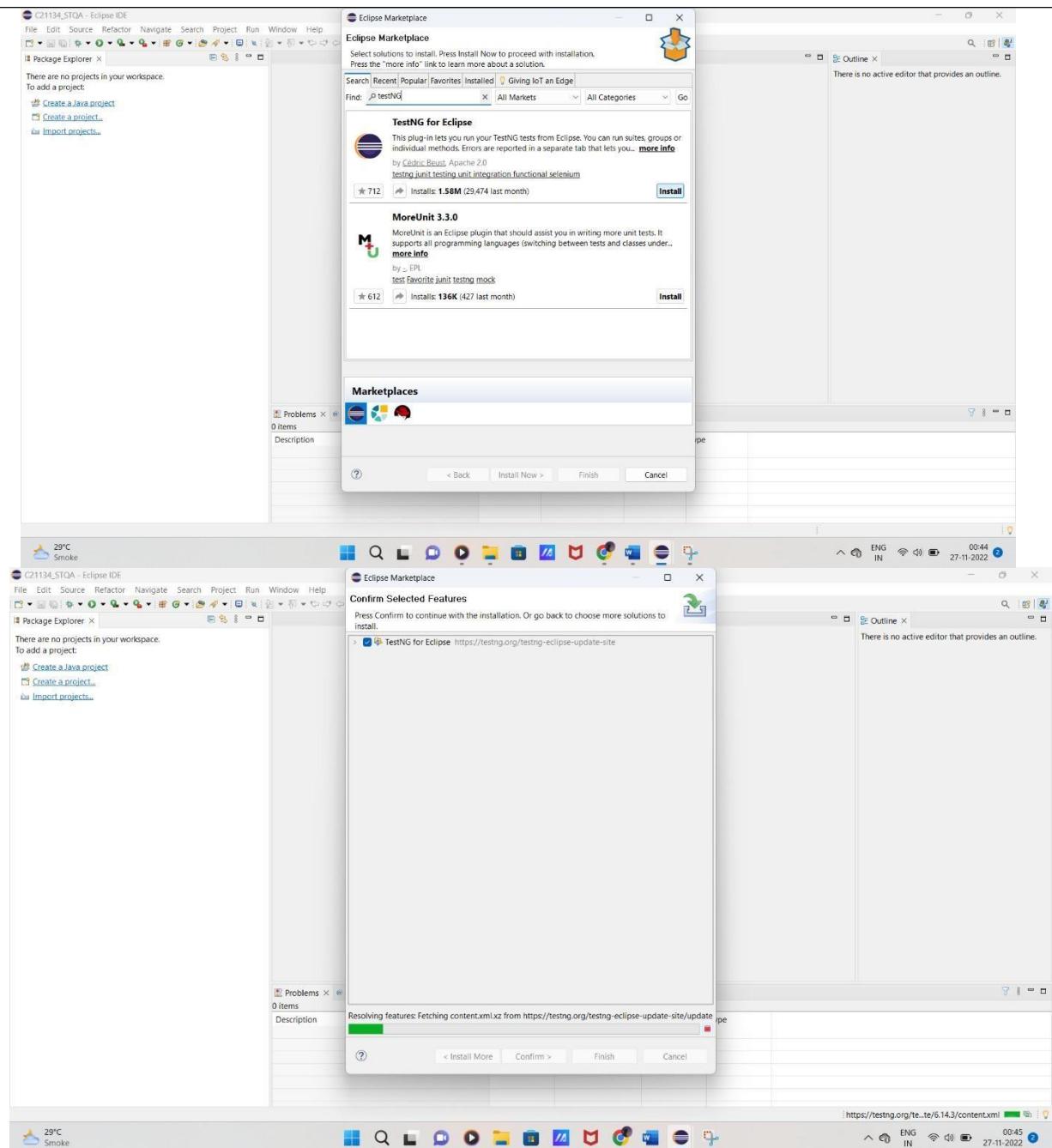
Suppose, you have five test cases, one method is written for each test case (Assume that the program is written using the main method without using testNG). When you

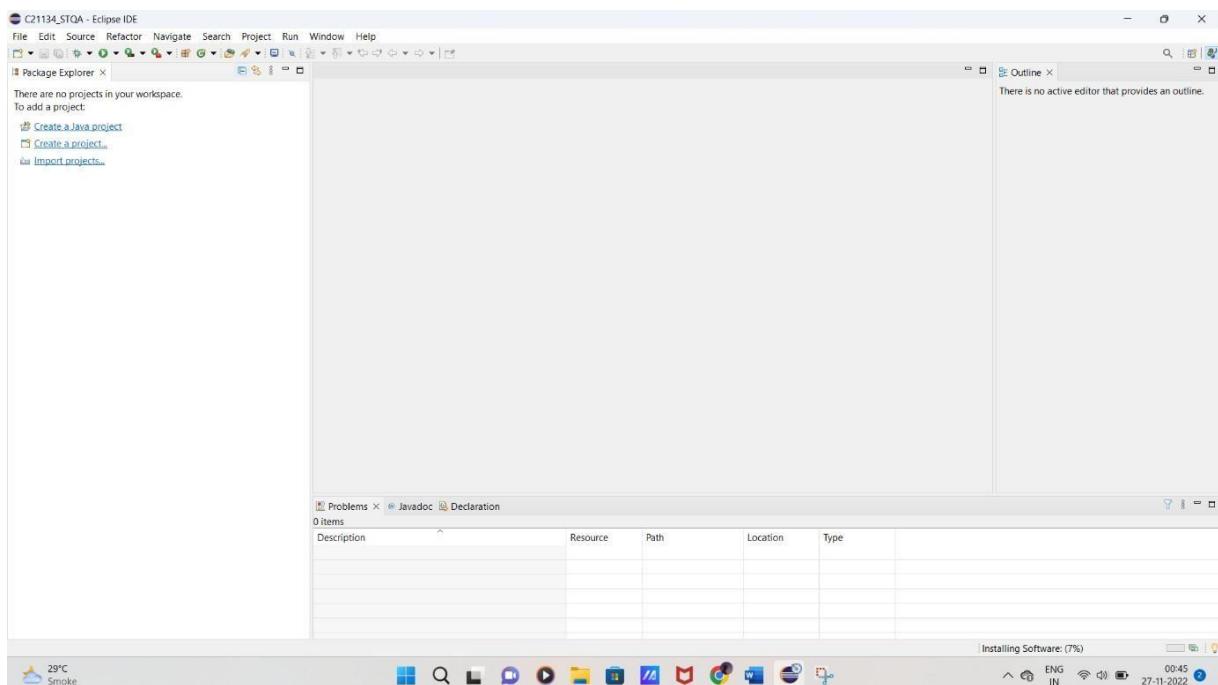
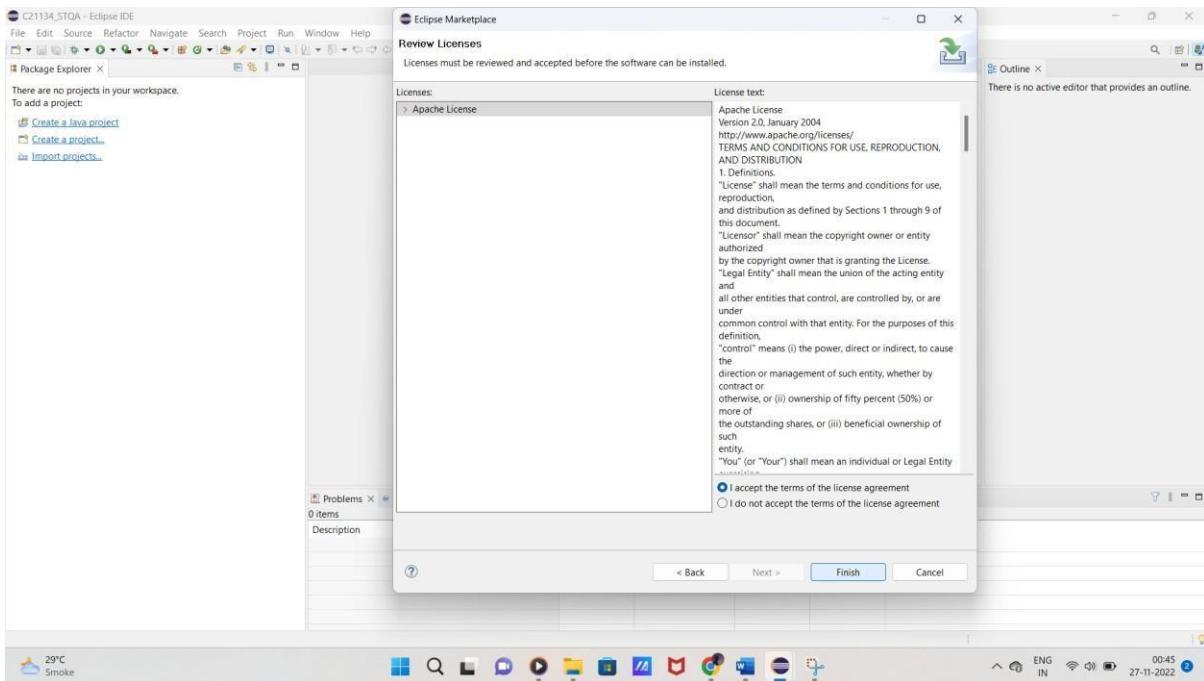
run this program first, three methods are executed successfully, and the fourth method is failed. Then correct the errors present in the fourth method, now you want to run only fourth method because first three methods are anyway executed successfully. This is not possible without using TestNG.

The TestNG in Selenium provides an option, i.e., testng-failed.xml file in test-output folder. If you want to run only failed test cases means you run this XML file. It will execute only failed test cases.

## Installation





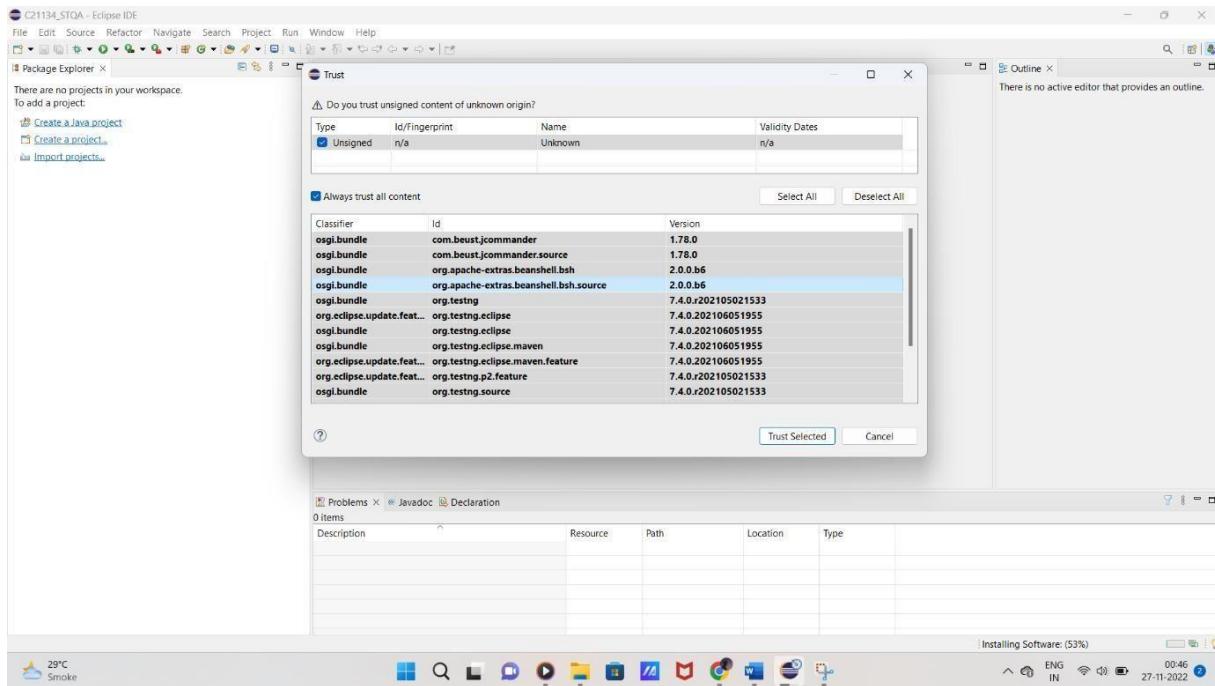


Step 5) After accept the licence agreement, wait for installation.

ignore security warning if occurs

If you encounter a Security warning, just click “Install Anyway”.

Or select all trust issues

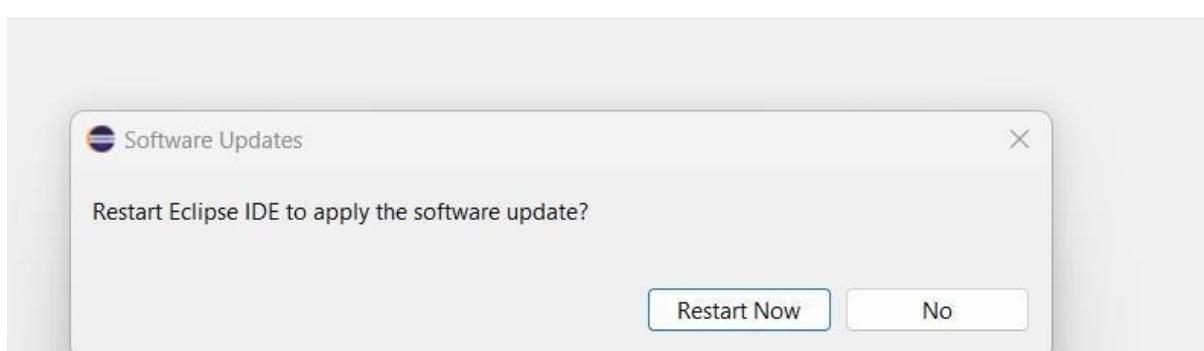


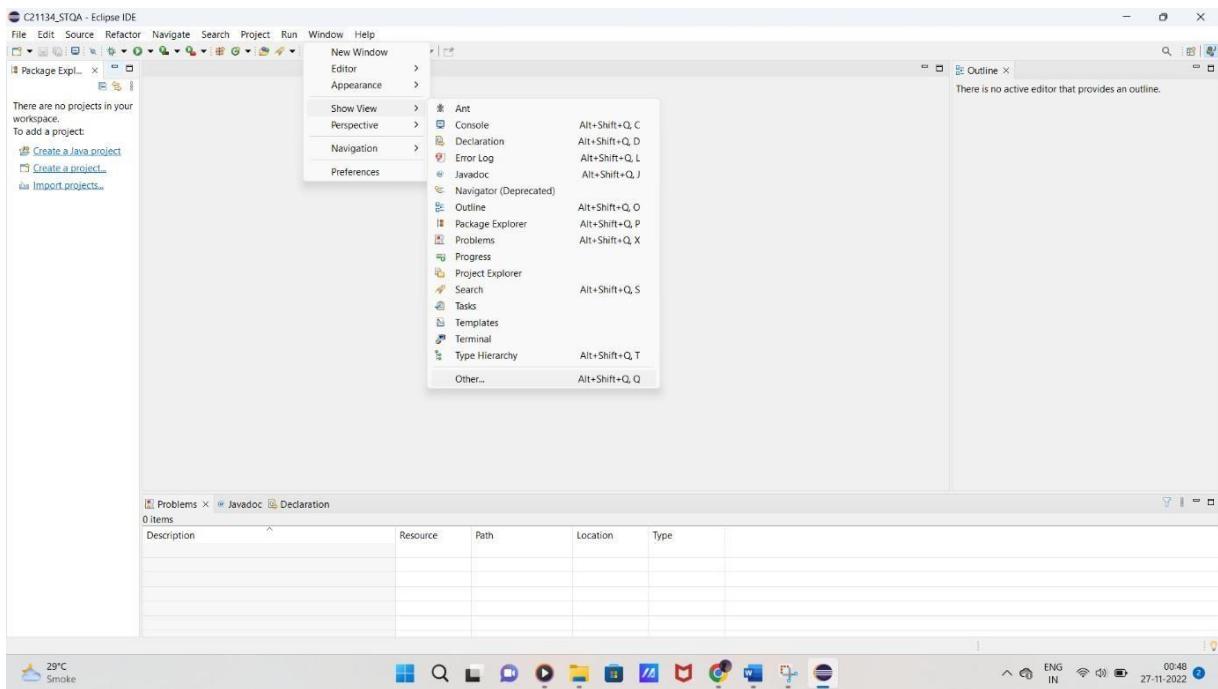
Finish the installation and restart your system

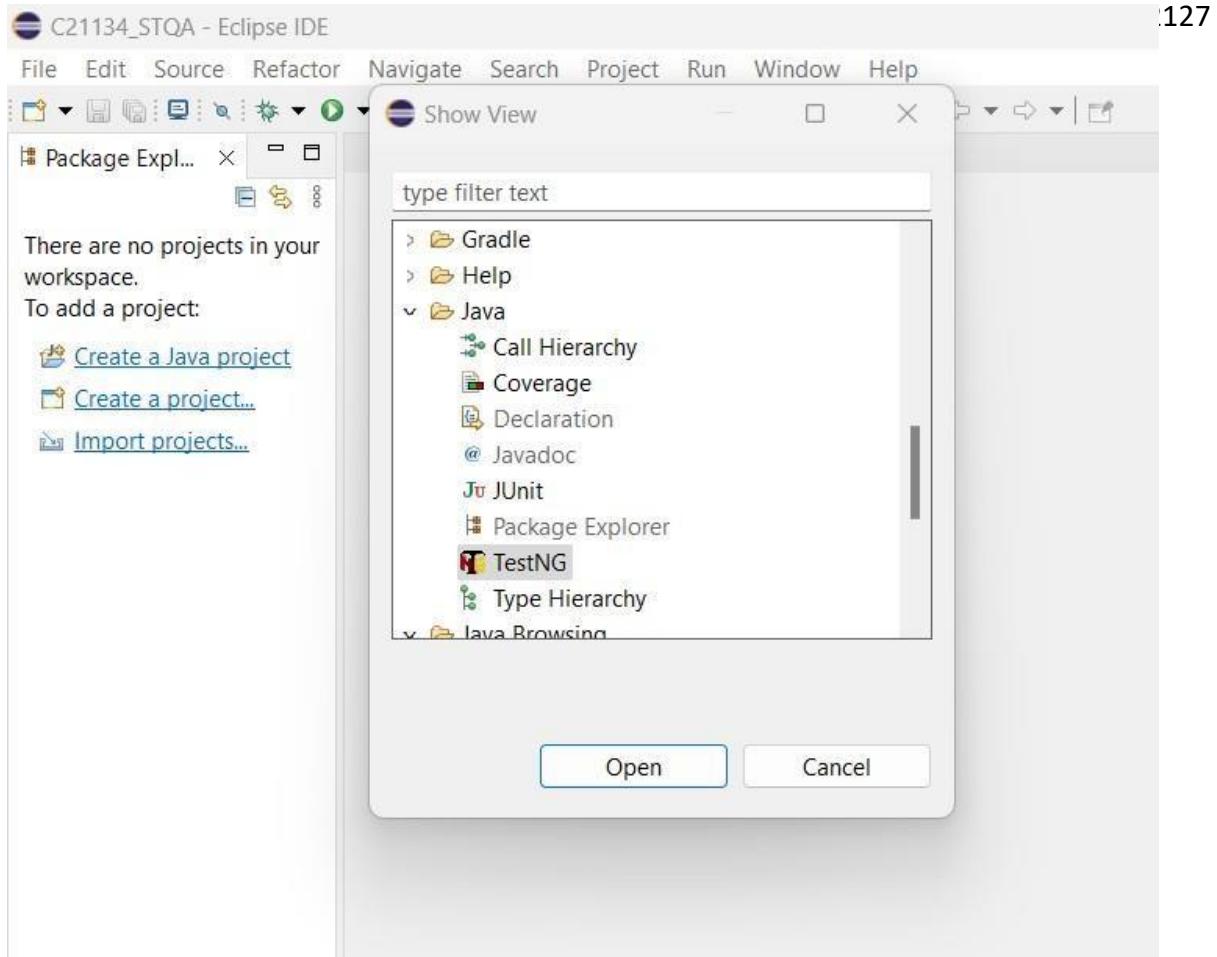
Wait for the TestNG install in Eclipse to finish. When Eclipse prompts you for a restart, click “Restart now.”

Verify if the installation is done properly

After the restart, verify if TestNG for Eclipse was indeed successfully installed. Click Window > Show View > Other.







Click on open and that's it..Now see the changes in console.. It has opened Test NG Terminal also



Running TestNG Annotations:

TestNG1.java:

```
package TestNGFrameworkDemo;  
  
import org.openqa.selenium.By;  
  
import org.openqa.selenium.Keys;  
  
import org.openqa.selenium.WebDriver;  
  
import org.openqa.selenium.chrome.ChromeDriver;  
  
import org.testng.annotations.Test;
```

```
public class TestNG1 {  
    public String baseUrl = "https://www.google.com/";  
    String driverPath = "E:\\C21134 Hrushikesh\\chromedriver\\chromedriver.exe";  
    public WebDriver driver;  
    @Test  
    public void f() throws InterruptedException { System.out.println("Launching chrome browser"); System.setProperty("Webdriver.chrome.driver", driverPath); driver = new ChromeDriver();  
    driver.get(baseUrl);  
    driver.findElement(By.name("q")).sendKeys("DES NMITD", Keys.ENTER);  
    Thread.sleep(2000);  
    }  
}
```

TestNG2.java:

```
package TestNGFrameworkDemo; import org.openqa.selenium.By; import  
org.openqa.selenium.Keys;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.chrome.ChromeDriver;  
import org.testng.annotations.Test;  
public class TestNG2 { @Test  
    public void TestGoogle() throws InterruptedException  
    { System.setProperty("webdriver.chrome.driver", "E:\\C21134  
Hrushikesh\\chromedriver\\chromedriver.exe");  
    WebDriver driver = new ChromeDriver(); driver.get("https://www.google.co.in/");  
    driver.findElement(By.name("q")).sendKeys("DES's NMITD", Keys.ENTER);  
    Thread.sleep(2000);  
    }  
}
```

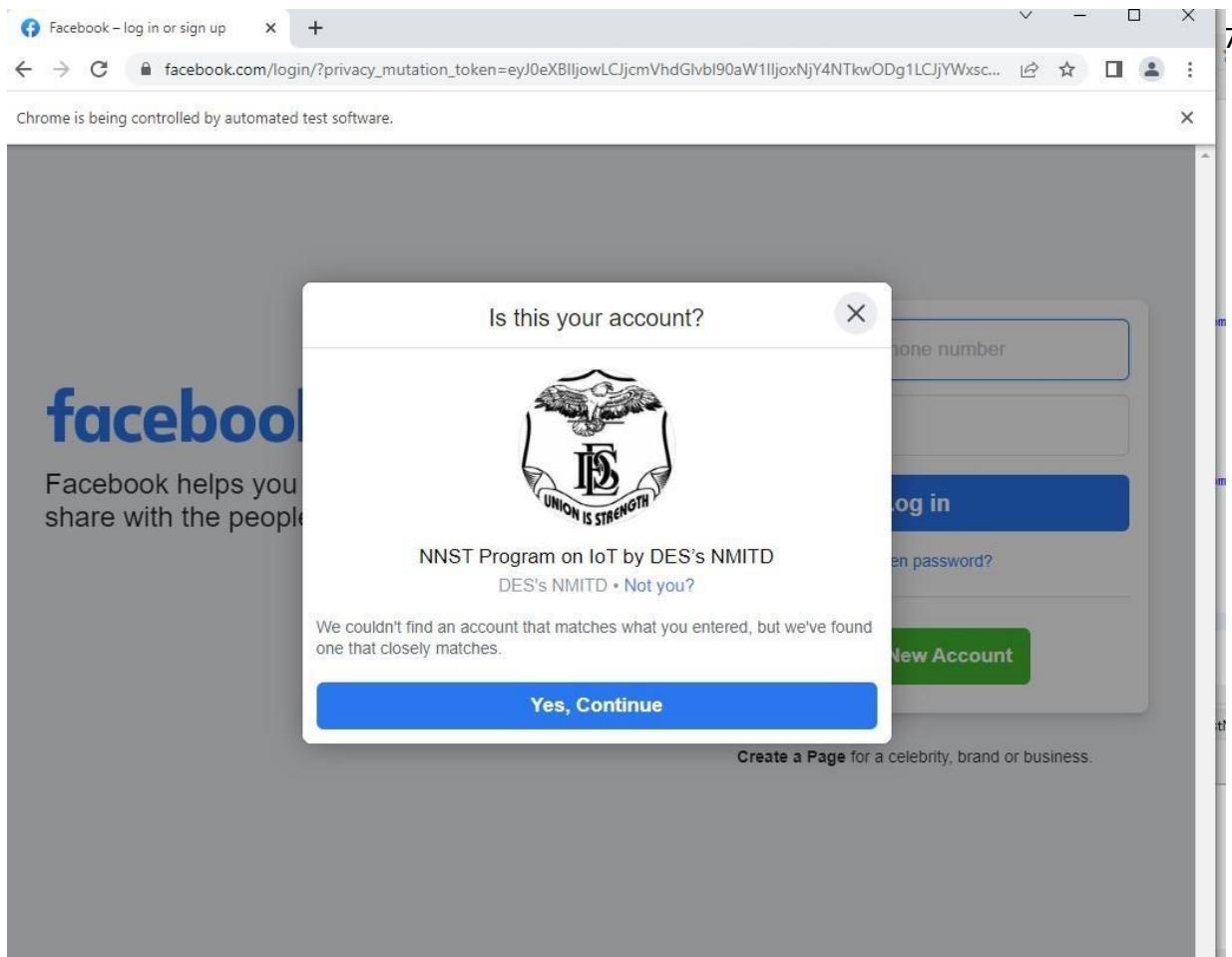
```
@Test
```

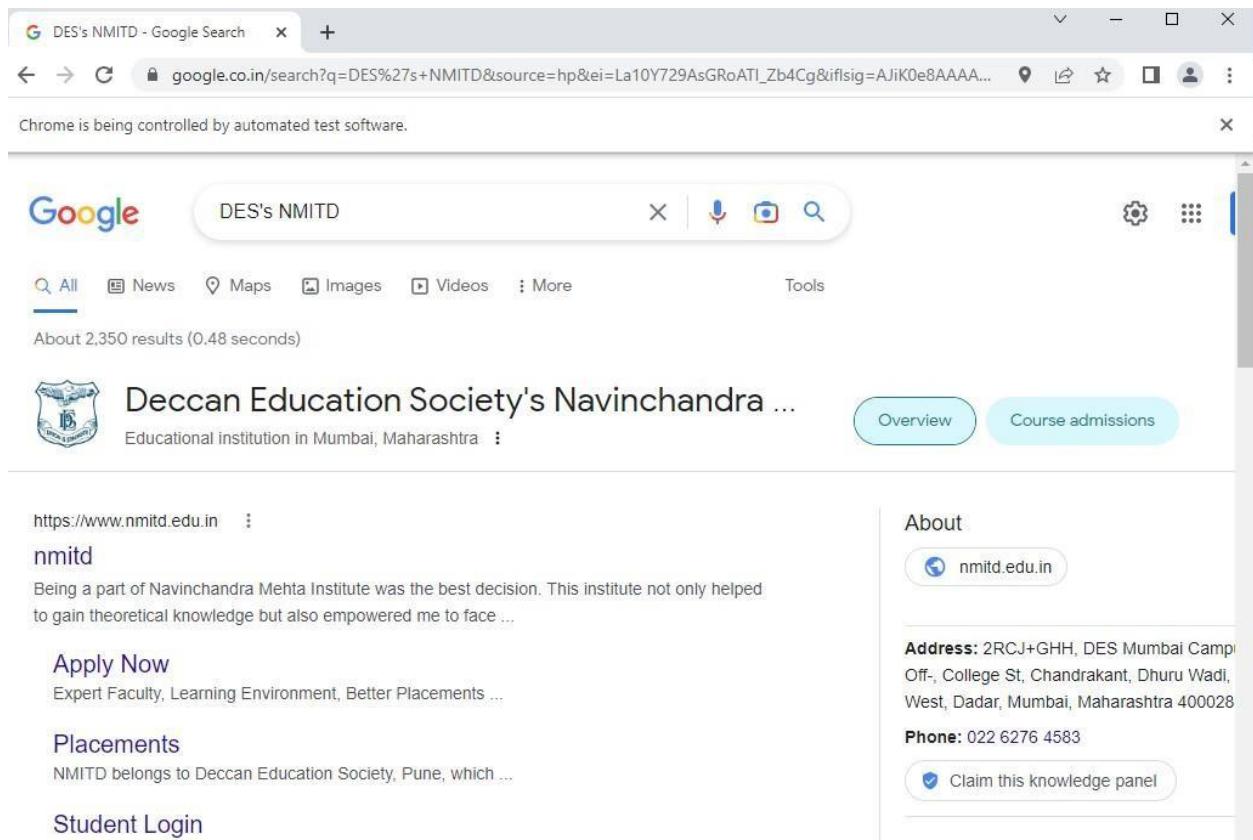
```
public void TestFacebook() throws InterruptedException
{ System.setProperty("webdriver.chrome.driver", "E:\\C21134
Hrushikesh\\chromedriver\\chromedriver.exe");

WebDriver driver = new ChromeDriver(); driver.get("https://www.facebook.com/");
driver.findElement(By.name("email")).sendKeys("DES's NMITD",Keys.ENTER);
Thread.sleep(2000);

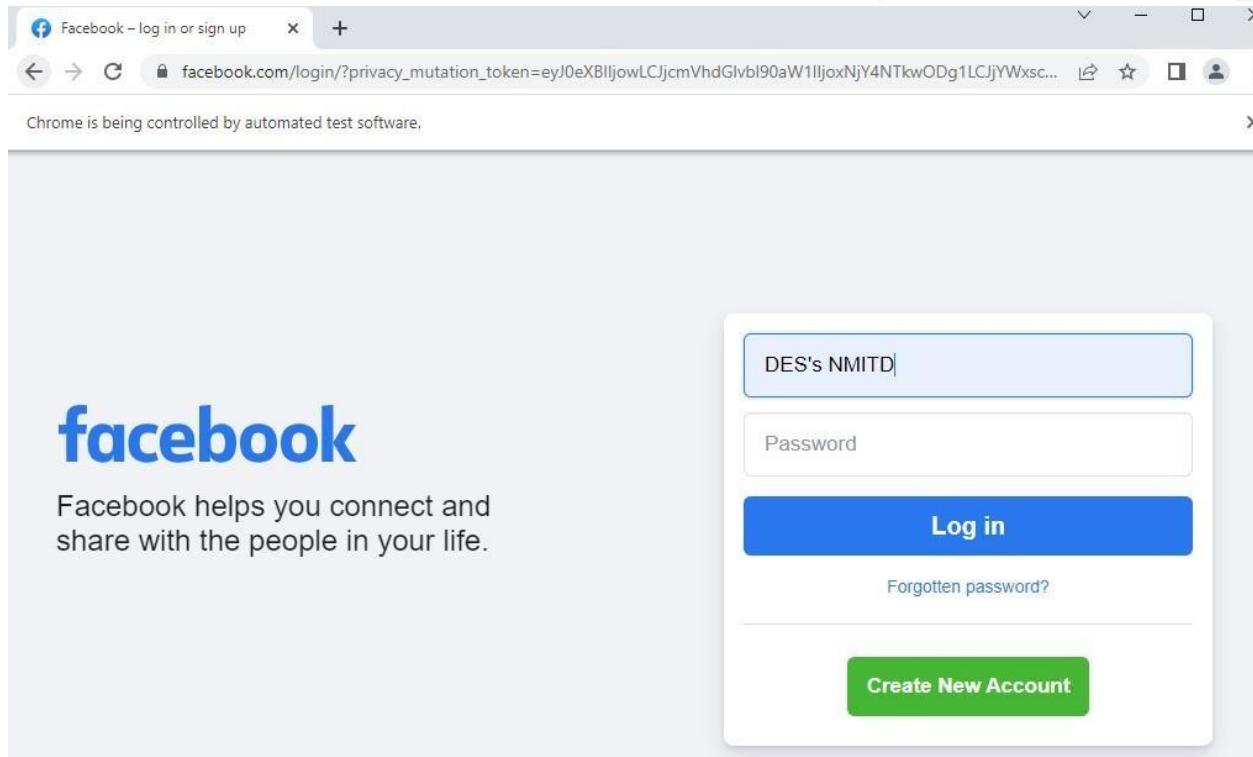
}
```

Output:





Google search results for "DES's NMITD". The top result is for "Deccan Education Society's Navinchandra ...". The page includes a snippet of a testimonial, sections for "Apply Now" and "Placements", and a "Student Login" form. The "About" section on the right provides the website URL (nmitd.edu.in), address (2RCJ+GHH, DES Mumbai Campus, Off-, College St, Chandrakant, Dhru Wadi, West, Dadar, Mumbai, Maharashtra 400028), and phone number (022 6276 4583). A "Claim this knowledge panel" button is also present.

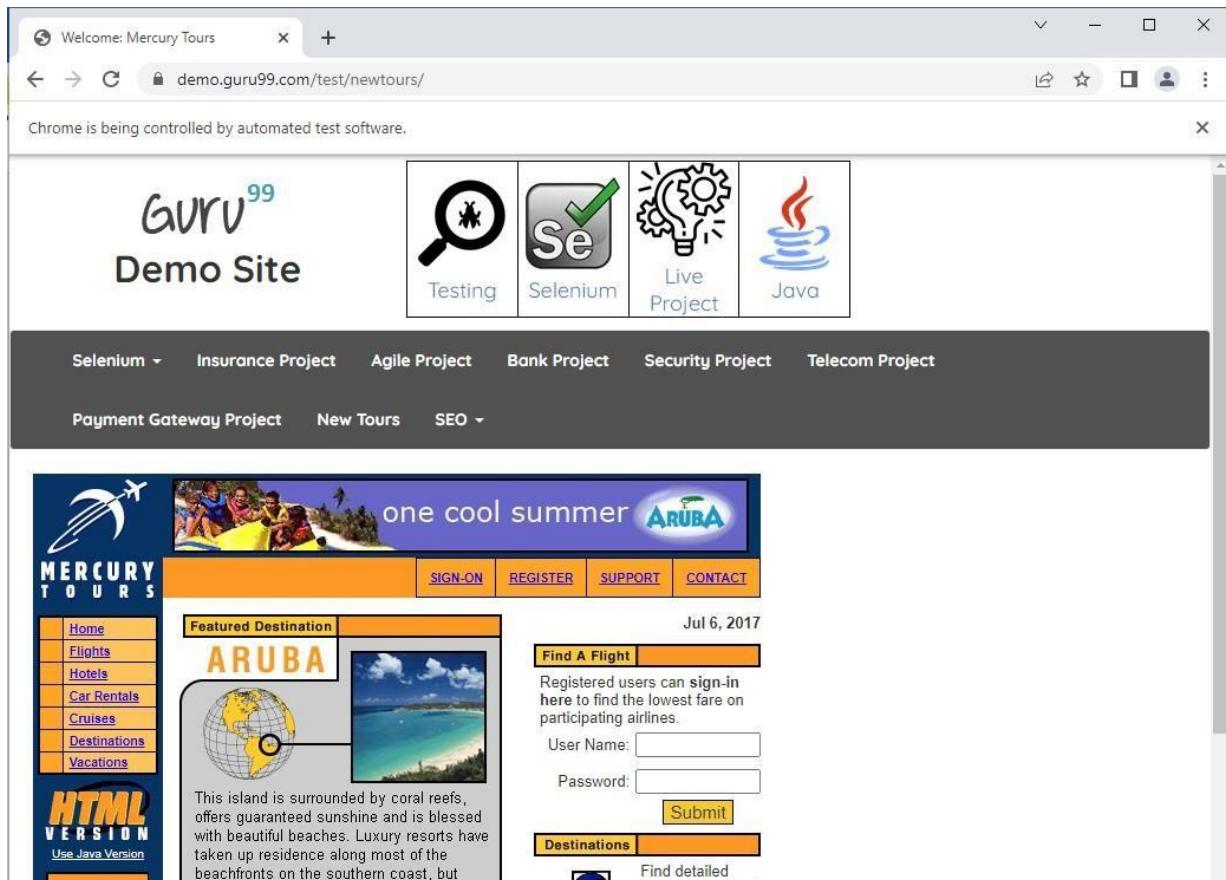


Facebook login page. The page features the Facebook logo and the tagline "Facebook helps you connect and share with the people in your life." On the right, there is a login form with fields for "Email or phone" and "Password", a "Log in" button, a "Forgotten password?" link, and a "Create New Account" button.

```
package TestNGFrameworkDemo;  
import org.testng.annotations.Test;
```

```
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.annotations.BeforeTest;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.testng.Assert;
import org.testng.annotations.AfterTest;
public class TestNG3 {
    String actualTitle,expectedTitle; @BeforeTest
    public void launchBrowser() {
        System.out.println("launching Google chrome browser");
        System.setProperty("webdriver.chrome.driver", "E:\\C21134
Hrushikesh\\chromedriver\\chromedriver.exe");
        WebDriver driver = new ChromeDriver();
        driver.get("https://demo.guru99.com/test/newtours/");
    }
    @Test
    public void verifyHomepageTitle() {
        String expectedTitle = "Welcome: Mercury Tours"; String ActualTitle =
        driver.getTitle(); Assert.assertEquals(actualTitle, expectedTitle);
    }
    @AfterTest
    public void terminateBrowser() { driver.close();
    }
```

{

**Output:**

Demonstrate Validation testing

Code:

```
package TestCases;
```

```
import org.openqa.selenium.By;  
import org.openqa.selenium.WebDriver;  
import org.openqa.selenium.chrome.ChromeDriver;  
public class Validations_Test {
```

```
public static void main(String []args)
{
System.setProperty("Webdriver.chrome.driver","C:\\STQA\\Drivers\\chromedriver.exe");
WebDriver driver = new ChromeDriver();

driver.get("https://www.google.com/");

String title =driver.getTitle(); // Check the validation of title
System.out.println("title is" +title);
System.out.println(driver.getCurrentUrl()); //Check the validation of URL

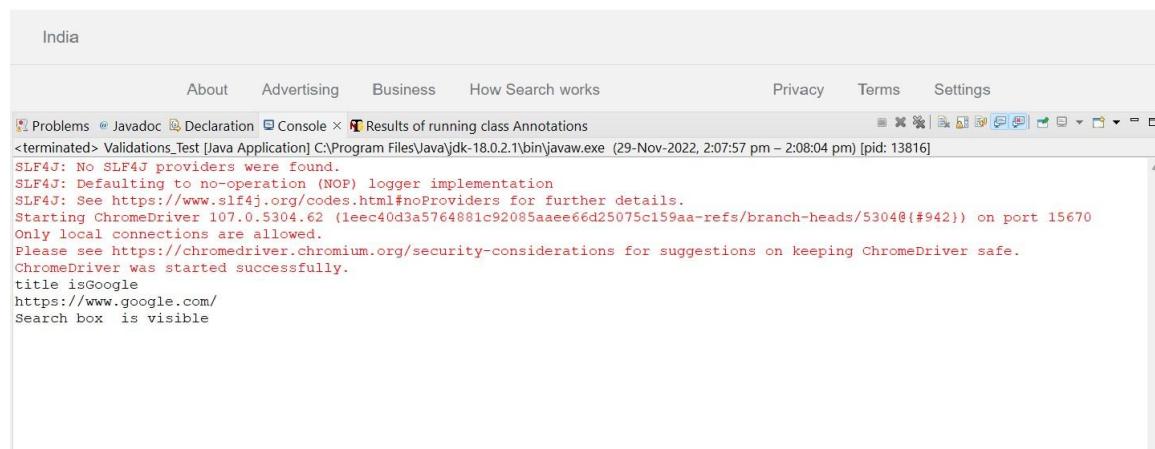
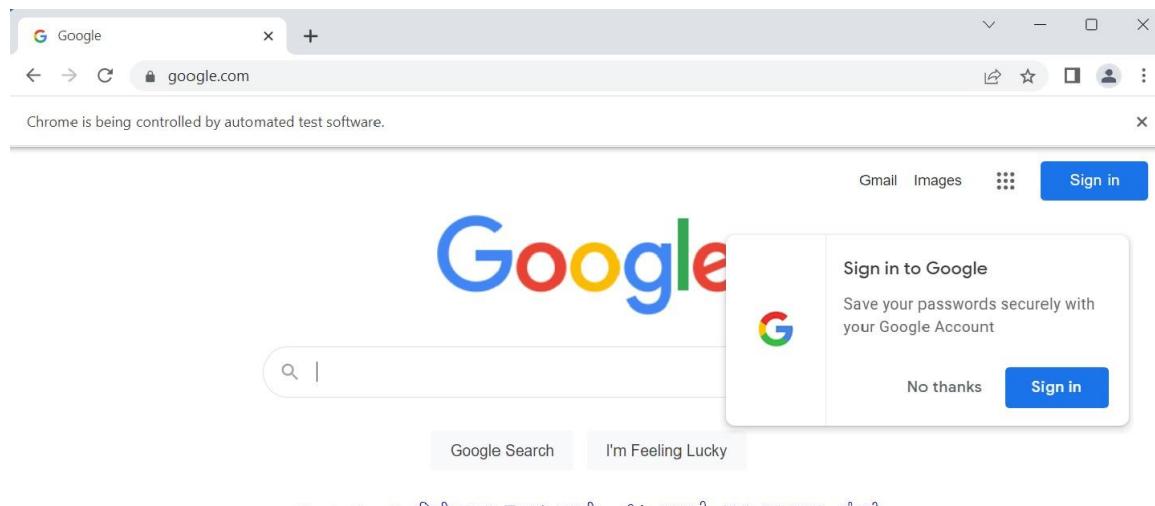
// # Check the validation of the Search box is Visible are not.

boolean status =
driver.findElement(By.xpath("/html/body/div[1]/div[3]/form/div[1]/div[1]/div[1]")).is
Displayed();

if(status){
System.out.println("Search box is visible");
}
```

```
} else {  
}  
}  
}  
}
```

Output:



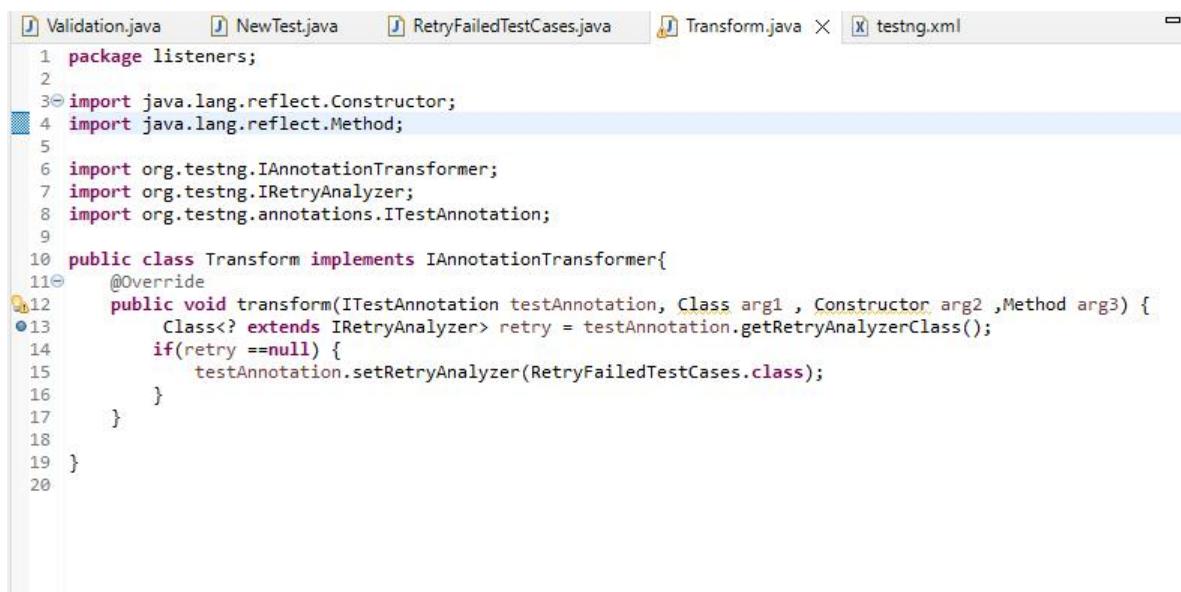
Perform regression testing

Retrying failed test cases using listeners in TestNG.

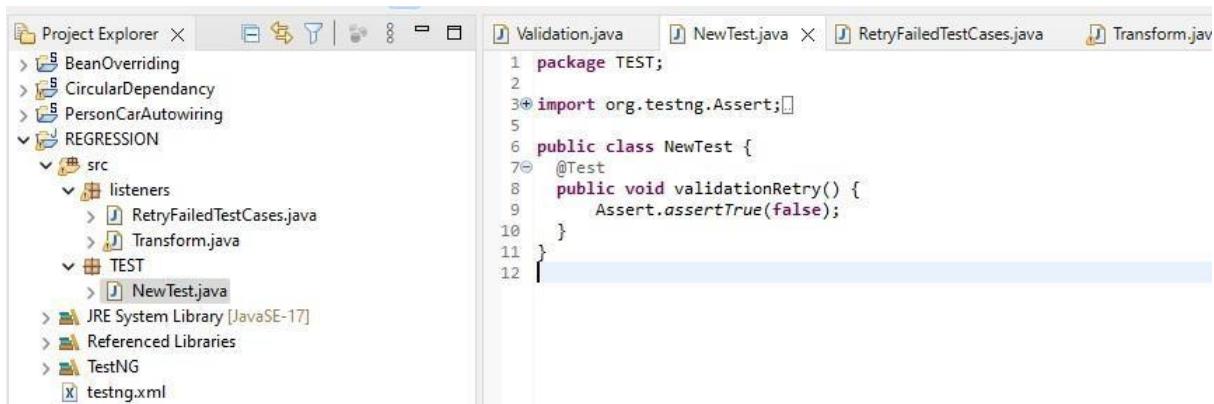
Code:



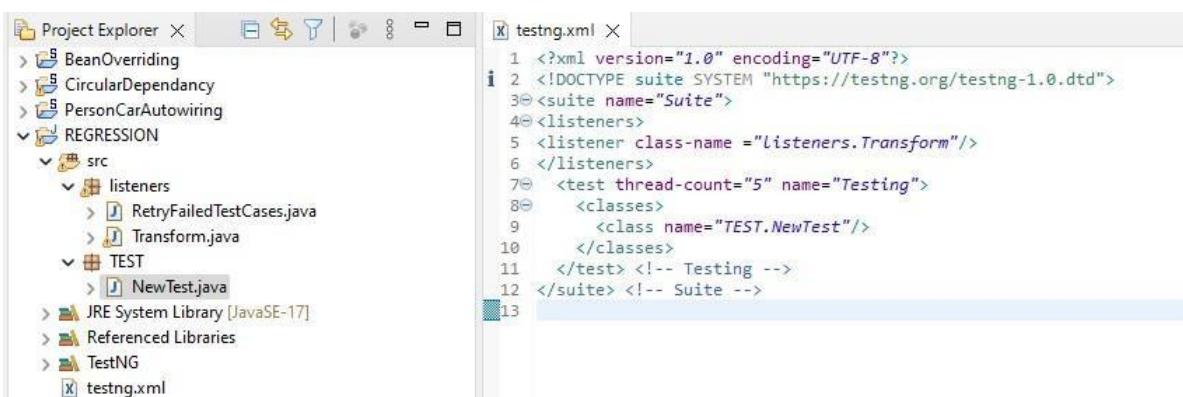
```
1 package listeners;
2
3+ import org.testng.IRetryAnalyzer;
4
5
6 public class RetryFailedTestCases implements IRetryAnalyzer {
7     int noOfRetries = 0;
8     int maximumRetries = 3;
9
10+    @Override
11    public boolean retry(ITestResult result) {
12
13        // TODO Auto-generated method stub
14        if(noOfRetries < maximumRetries) {
15            System.out.println(result.getName() + " no of retry is" + (noOfRetries+1));
16            noOfRetries++;
17            return true;
18        }
19        return false;
20    }
21
22 }
23
```



```
1 package listeners;
2
3+ import java.lang.reflect.Constructor;
4 import java.lang.reflect.Method;
5
6 import org.testng.IAnnotationTransformer;
7 import org.testng.IRetryAnalyzer;
8 import org.testng.annotations.ITestAnnotation;
9
10 public class Transform implements IAnnotationTransformer{
11+    @Override
12    public void transform(ITestAnnotation testAnnotation, Class arg1 , Constructor arg2 ,Method arg3) {
13        Class<? extends IRetryAnalyzer> retry = testAnnotation.getRetryAnalyzerClass();
14        if(retry ==null) {
15            testAnnotation.setRetryAnalyzer(RetryFailedTestCases.class);
16        }
17    }
18
19 }
```

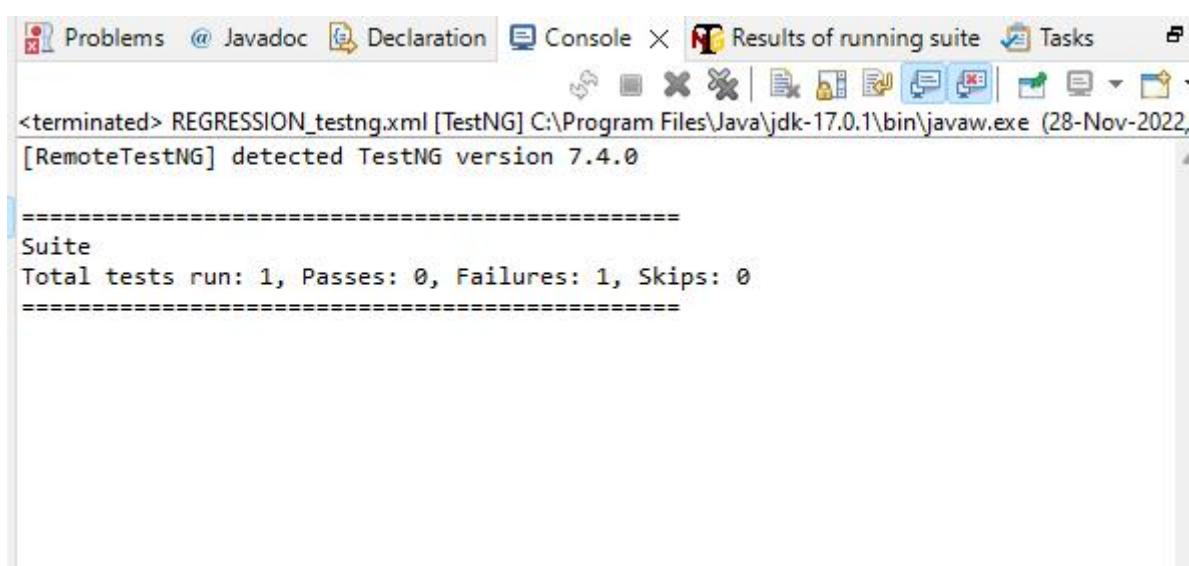


```
1 package TEST;
2
3 import org.testng.Assert;
4
5 public class NewTest {
6     @Test
7     public void validationRetry() {
8         Assert.assertTrue(false);
9     }
10 }
11
12
```



```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <!DOCTYPE suite SYSTEM "https://testng.org/testng-1.0.dtd">
3 <suite name="Suite">
4 <listeners>
5 <listener class-name="listeners.Transform"/>
6 </listeners>
7 <test thread-count="5" name="Testing">
8 <classes>
9 <class name="TEST.NewTest"/>
10 </classes>
11 </test> <!-- Suite -->
12 </suite> <!-- Suite -->
13
```

## Output:



```
<terminated> REGRESSION_testng.xml [TestNG] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (28-Nov-2022, [RemoteTestNG] detected TestNG version 7.4.0
=====
Suite
Total tests run: 1, Passes: 0, Failures: 1, Skips: 0
=====
```

The screenshot shows the Eclipse IDE interface with the TestNG results view open. The top bar includes tabs for Problems, Javadoc, Declaration, Console, Results of running suite, Tasks, and a search bar. The results view displays the following information:

- Search:** [empty]
- Status:** Passed: 0, Failed: 1, Skipped: 0, Tests: 1/1 Methods: 1 (202 ms)
- Test Suite Structure:**
  - Suite (0/1/0/0) (0.009 s)
    - Testing (0.009 s)
      - TEST.NewTest
        - validationRetry (0.009 s)

**Failure Exception:**

```
java.lang.AssertionError: expected [true] but found
at org.testng.Assert.fail(Assert.java:99)
at org.testng.Assert.failNotEquals(Assert.java:1037)
at org.testng.Assert.assertTrue(Assert.java:45)
at org.testng.Assert.assertTrue(Assert.java:55)
at TEST.NewTest.validationRetry(NewTest.java:9)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
at java.base/jdk.internal.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:62)
at java.base/java.util.ArrayList.forEach(ArrayList.java:151)
at org.testng.remote.AbstractRemoteTestNG.run(AbstractRemoteTestNG.java:131)
```