Software Testing and Quality Assurance

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2	Conduct a test suite for two different websites using Selenium IDE. Perform various actions like clicking links, filling forms, and verifying content.	
3	Install Selenium Server (Selenium RC) and demonstrate its usage by executing a script in Java to automate browser actions.	
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5	Write a program using Selenium WebDriver to update 10 student records in an Excel file. Perform data manipulation and verification.	
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7	Write a program using Selenium WebDriver to provide the total number of objects present or available on a web page. Perform object identification and counting.	
8	Write a program using Selenium WebDriver to get the number of items in a list or combo box on a web page. Perform element identification and counting	
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10	Perform load testing on a web application using JMeter. Generate and analyze load scenarios. Additionally, explore bug tracking using Bugzilla as a tool for logging and tracking software defects	

Partical 1

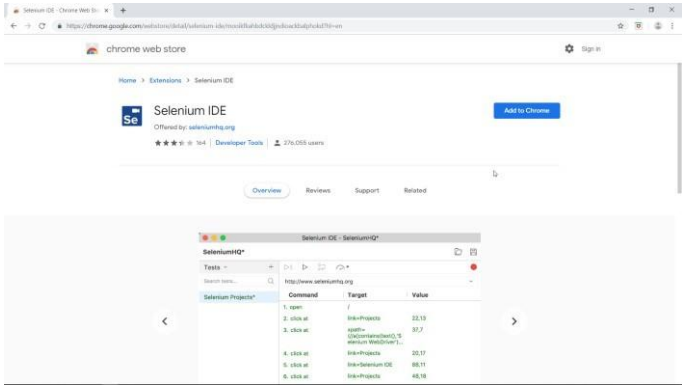
#AIM: Install Selenium IDE. Write a test suite containing minimum 4 test cases for different formats.

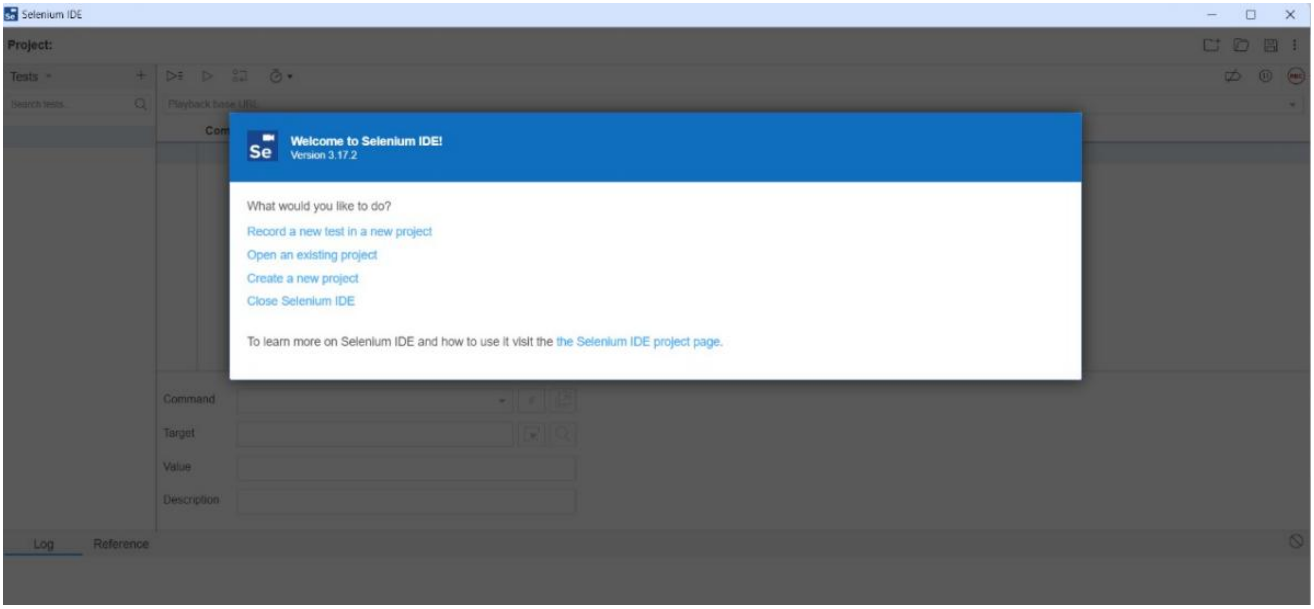
REQUIREMENTS:

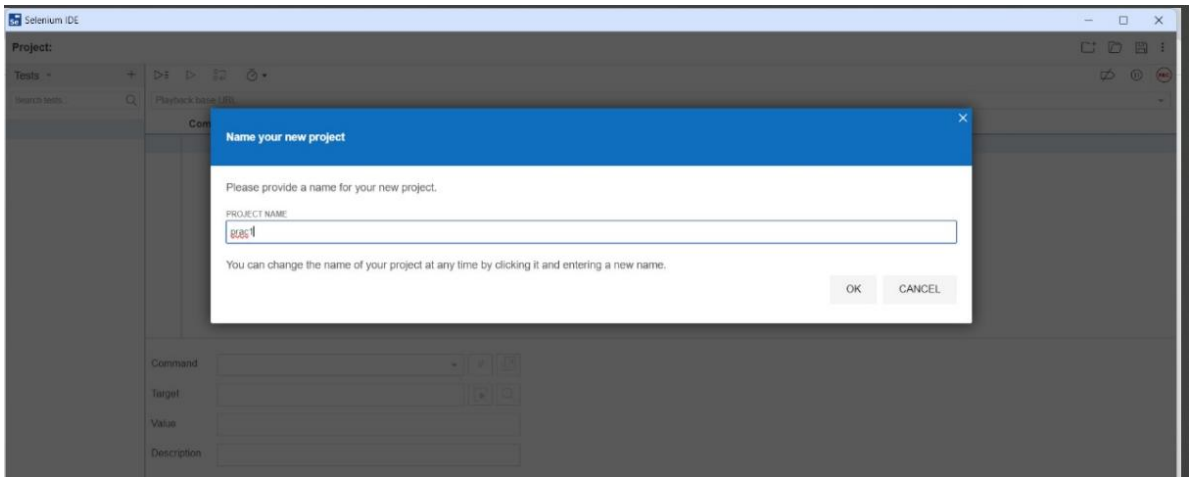
1) Selenium IDE extension on a browser.
2) NetBeans IDE for creating test case files.

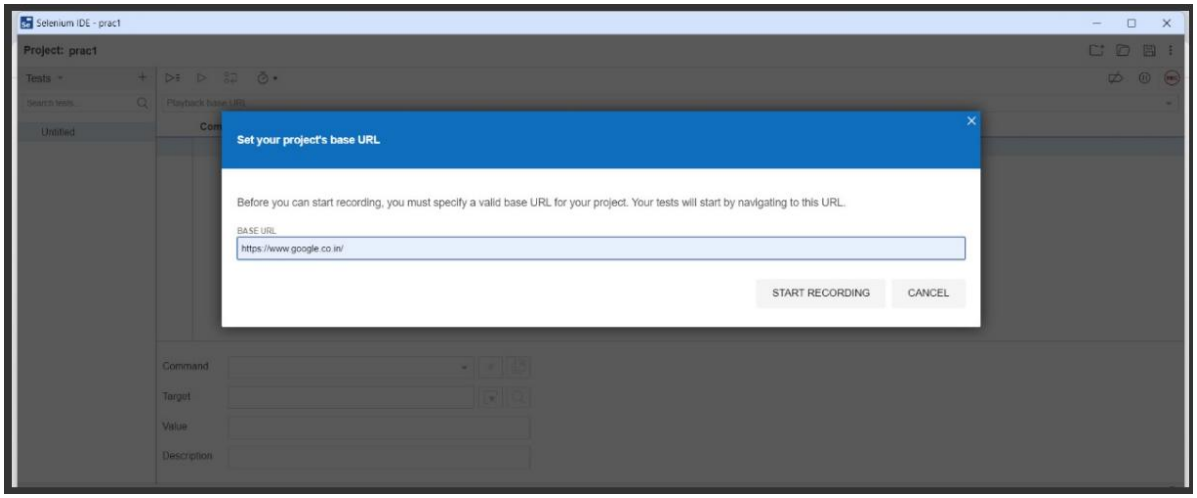
STEPS:

1) Just **google "Selenium IDE chrome"** and click on the first link. **Add** the **"Selenium IDE" extension** to your browser.






Selenium IDE
Project:
Tests
Playback base URL
Name your new project
Please provide a name for your new project.
PROJECT NAME
prac1
You can change the name of your project at any time by clicking it and entering a new name.
OK
CANCEL
Command
Target
Value
Description


Selenium IDE - prac1
Project: prac1
Tests
Playback base URL
Untitled
Set your project's base URL
Before you can start recording, you must specify a valid base URL for your project. Your tests will start by navigating to this URL.
BASE URL
https://www.google.co.in/
START RECORDING
CANCEL
Command
Target
Value
Description

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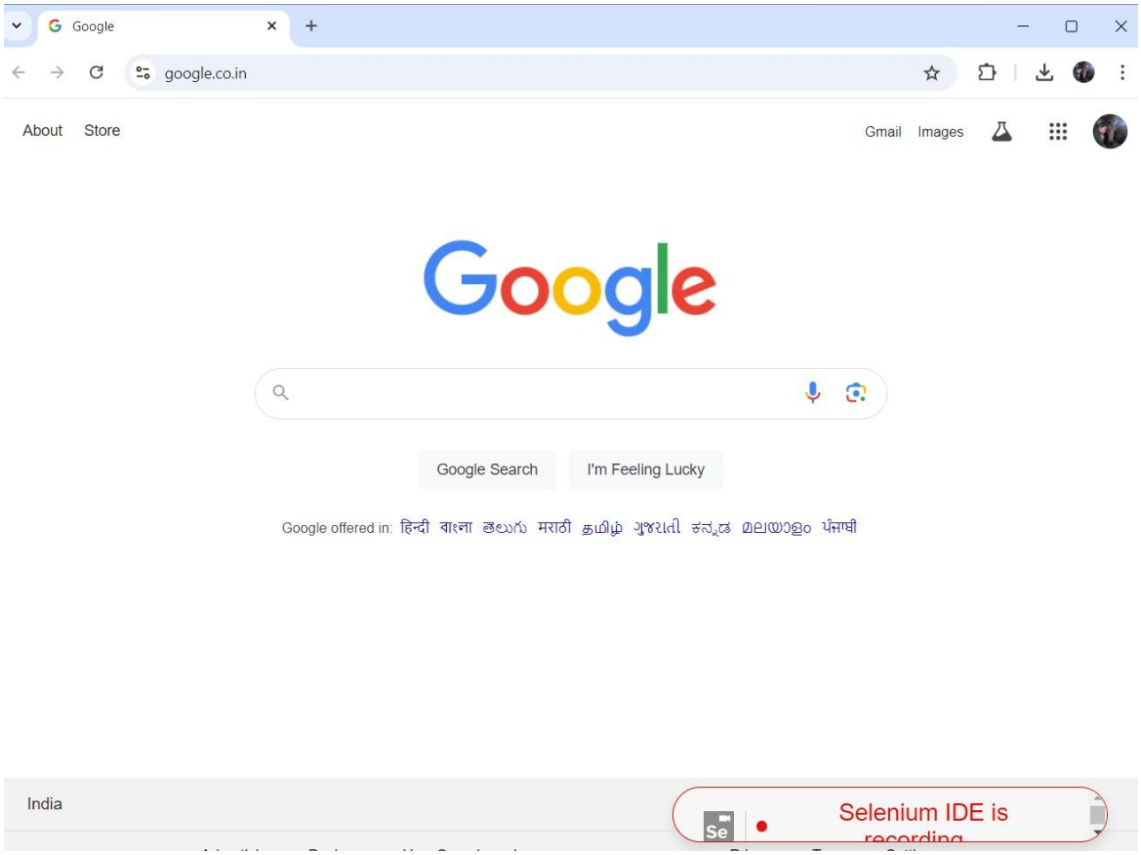
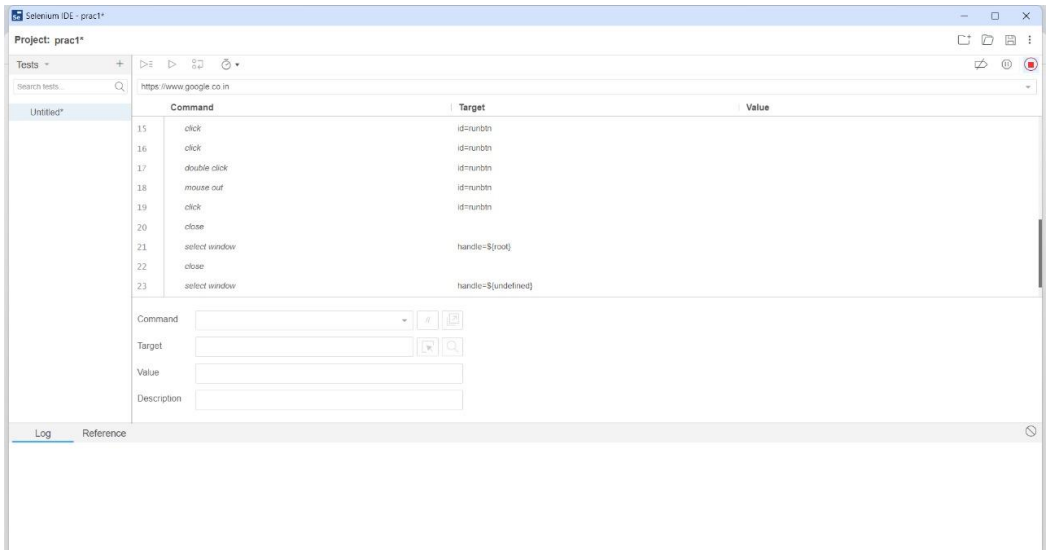

Google
google.co.in
About
Store
Gmail
Images
Google
Google Search
I'm Feeling Lucky
Google offered in: हिन्दी বাংলা తెలుగు मराठी தமிழ் ગુજરાતી ಕನ್ನಡ മലയാളം ਪੰਜਾਬੀ
India
Selenium IDE is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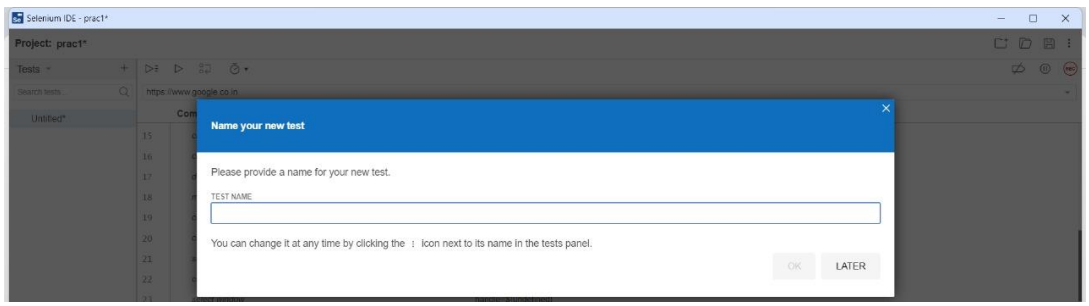
Project: prac1*
Tests
Untitled*
https://www.google.co.in
Command
Target
Value
Description
Log
Reference


Selenium IDE - prac1*
Project: prac1*
Name your new test
Please provide a name for your new test.
TEST NAME
You can change it at any time by clicking the ⋮ icon next to its name in the tests panel.
OK
LATER

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Partical 2

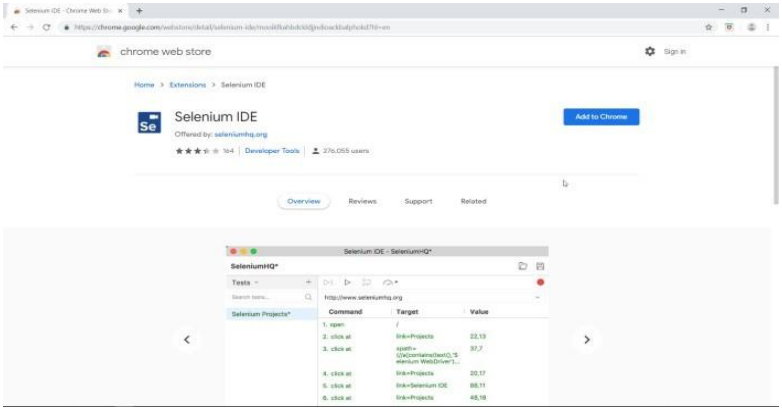
#AIM: Conduct a test case suite for any two websites.

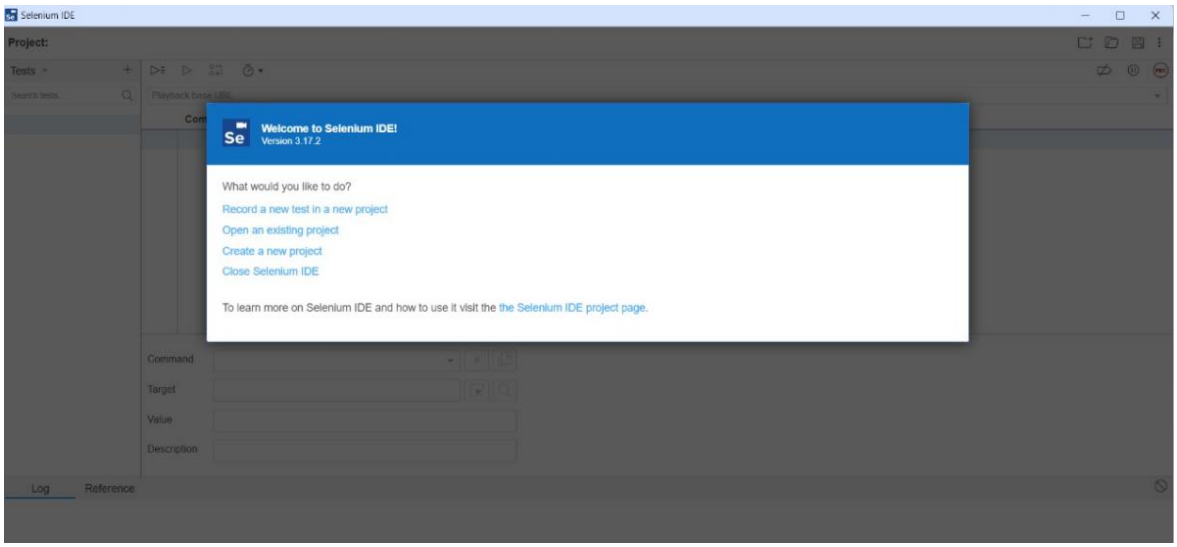
REQUIREMENTS:

1) Selenium IDE extension on a browser. **2)**
A stable Internet connection.

STEPS:

1) Just **google "Selenium IDE chrome"** and click on the first link. **Add** the **"Selenium IDE" extension** to your browser.





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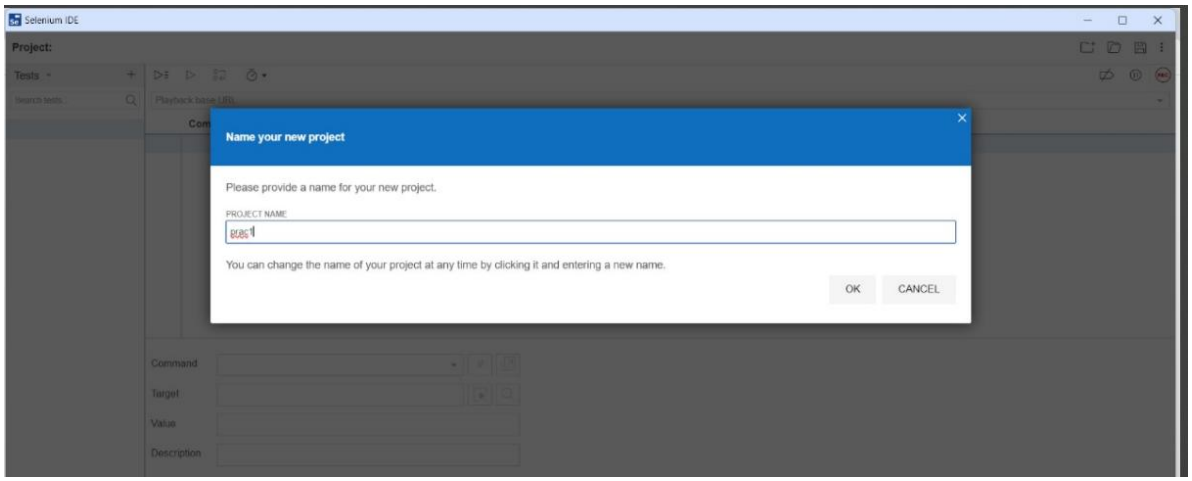
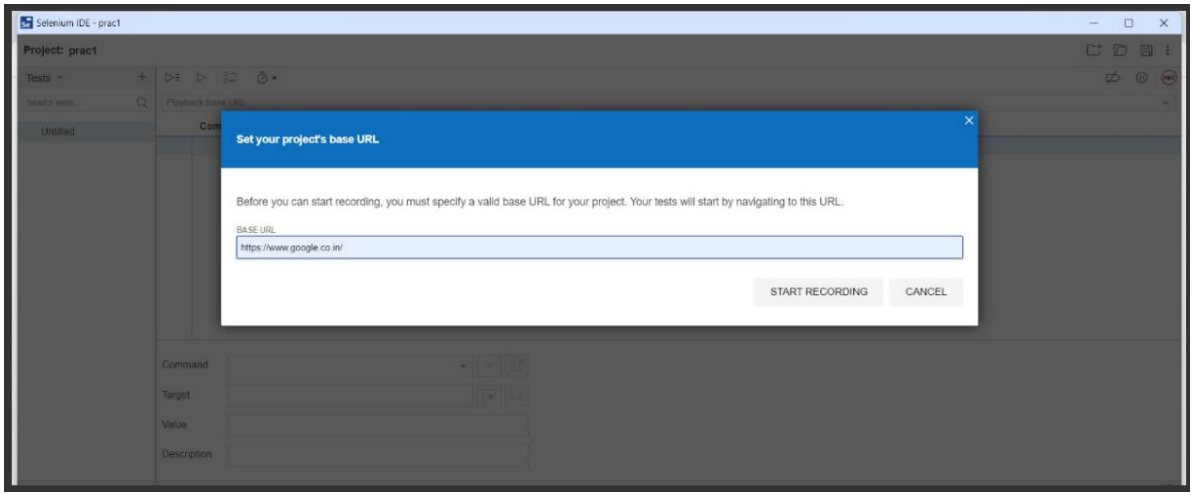
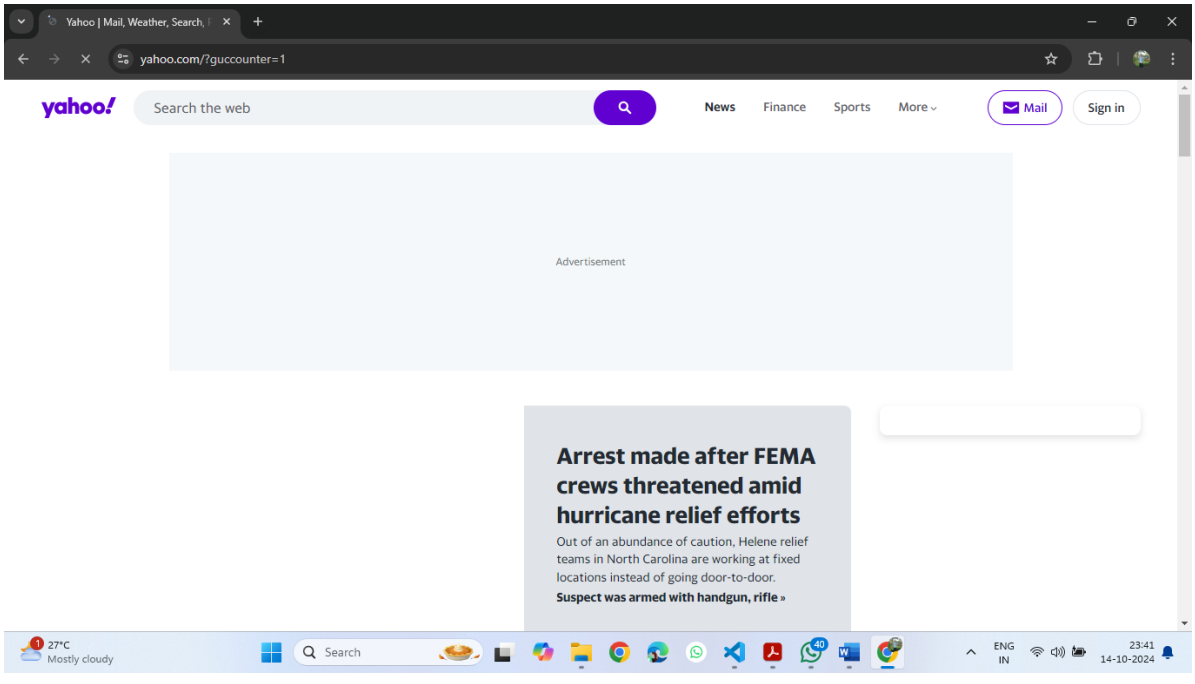

Selenium IDE
Project:
Name your new project
Please provide a name for your new project.
PROJECT NAME
prac1
You can change the name of your project at any time by clicking it and entering a new name.
OK
CANCEL
Command
Target
Value
Description


Selenium IDE - prac1
Project: prac1
Set your project's base URL
Before you can start recording, you must specify a valid base URL for your project. Your tests will start by navigating to this URL.
BASE URL
https://www.google.co.in/
START RECORDING
CANCEL
Command
Target
Value
Description


Yahoo | Mail, Weather, Search,
yahoo.com/?guccounter=1
yahoo!
Search the web
News
Finance
Sports
More
Mail
Sign in
Advertisement
Arrest made after FEMA crews threatened amid hurricane relief efforts
Out of an abundance of caution, Helene relief teams in North Carolina are working at fixed locations instead of going door-to-door.
Suspect was armed with handgun, rifle »
27°C
Mostly cloudy
Search
ENG
IN
23:41
14-10-2024

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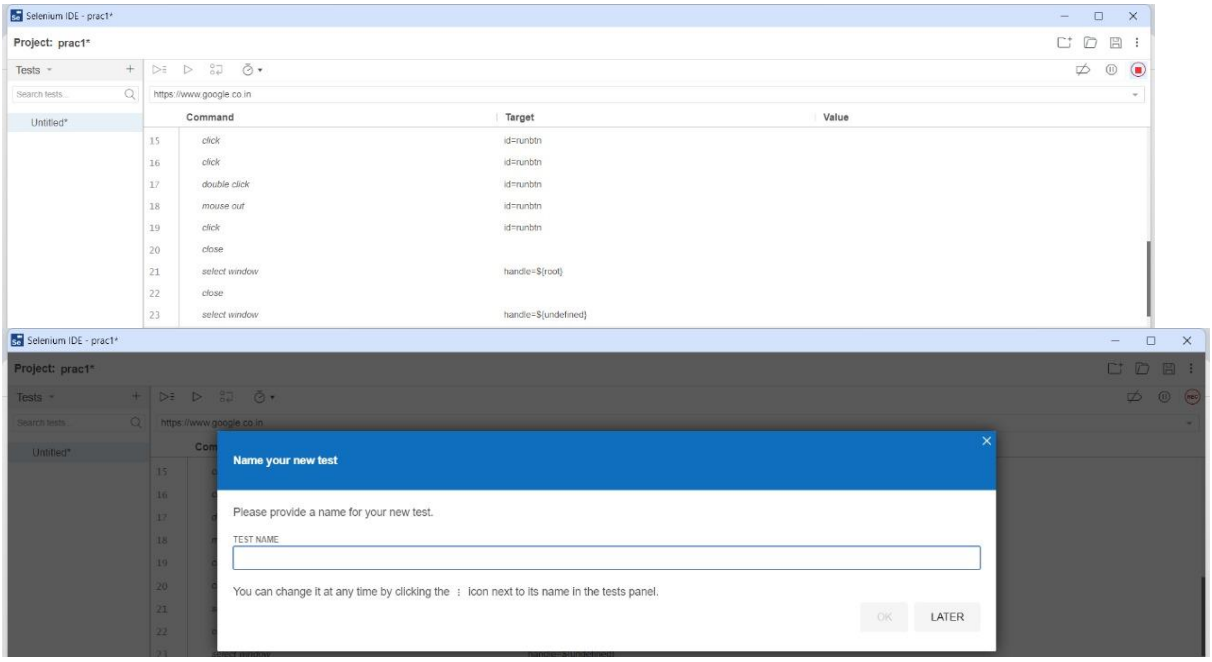

Selenium IDE - prac1*
Project: prac1*
Tests
Search tests...
Untitled*
https://www.google.co.in
Command
Target
Value
15 click id=runbtn
16 click id=runbtn
17 double click id=runbtn
18 mouse out id=runbtn
19 click id=runbtn
20 close
21 select window handle=${root}
22 close
23 select window handle=${undefined}

Selenium IDE - prac1*
Project: prac1*
Tests
Untitled*
Name your new test
Please provide a name for your new test.
TEST NAME
You can change it at any time by clicking the ⋮ icon next to its name in the tests panel.
OK
LATER

Partical 3

#AIM: Install Selenium Server(Selenium RC) and demonstrate it using a script in Java.

PRE-REQUISITES(*here are w.r.t. Windows 10(64 bit), so choose accordingly w.r.t. your specs)**:**

1) To Download "**JDK**":

- **Visit** https://www.oracle.com/technetwork/java/javase/downloads/jdk12downloads-5295953.html
- **Download** this file "jdk-12.0.2_windows-x64_bin.exe" and **install it**. **2)** To Download "**Eclipse IDE**":
- **Visit** https://www.eclipse.org/downloads/download.php?file=/oomph/epp/201906/R/eclipse-inst-win64.exe
- Click "**Download**".
- Installation:
  - **Open application**.(click OK if errors occur like "could not find java.dll" & "could not find Java Runtime Environment SE")
  - Select "**Eclipse IDE for Java Developers**".
  - It will automatically locate the JDK. Choose path, and click "**Install**".
- After installation, click "**Launch**" or open Eclipse from START menu in Windows.

3) To Download "**Selenium *Server Driver* and *Client Driver*(JAR files)**":

a) For "Selenium *Server Driver*":

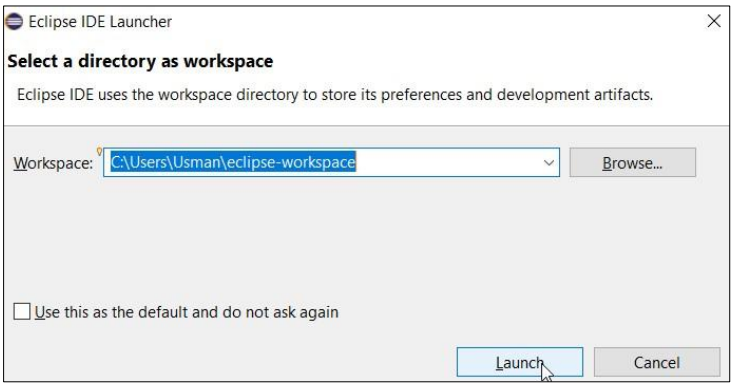
- **Visit** https://www.seleniumhq.org/download/
- Under section "**Selenium Standalone Server**", click download version "**3.141.59**"
- You'll get the executable jar file(selenium-server-standalone-3.141.59)

b) For "Selenium *Client Driver*":

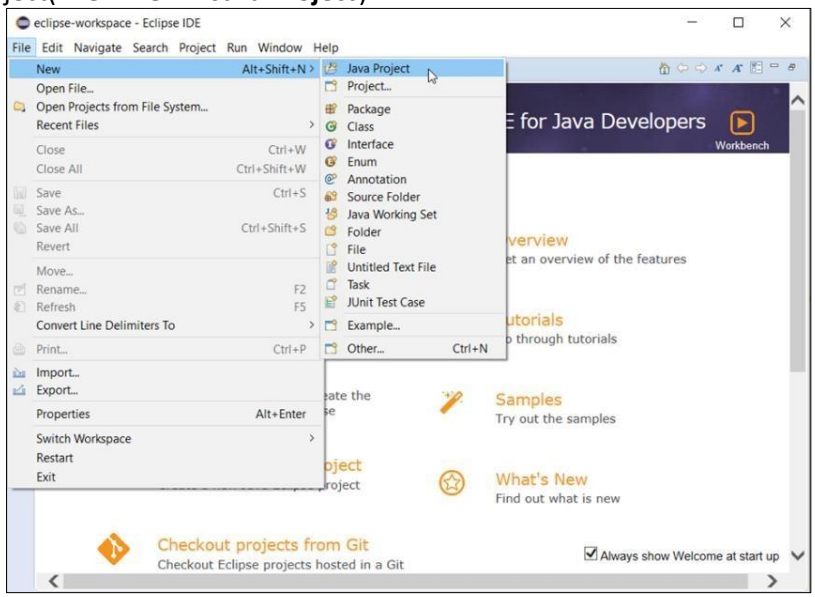
- **Visit** https://www.seleniumhq.org/download/
- Under section "**Selenium Client & WebDriver Language Bindings**", download the "**3.141.59**" version of Java.
- Extract the file and you'll see two jar files. From them, we'll be using this executable jar file(client-combined-3.141.59) **4)** To Download "**Gecko Driver**":
- **Visit** https://github.com/mozilla/geckodriver/releases
- Under section "**Assets**", download "geckodriver-v0.24.0-win64.zip" file.
- You'll get the application file "geckodriver".

STEPS:

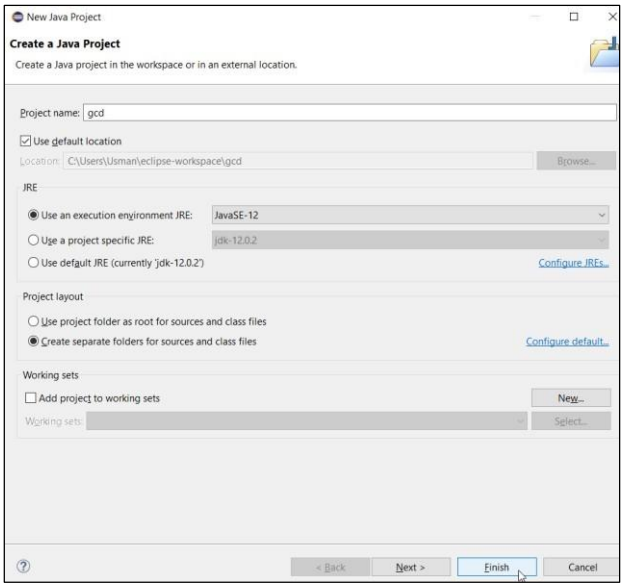
1) **Open Eclipse**. Select your workspace directory. Click **Launch:**

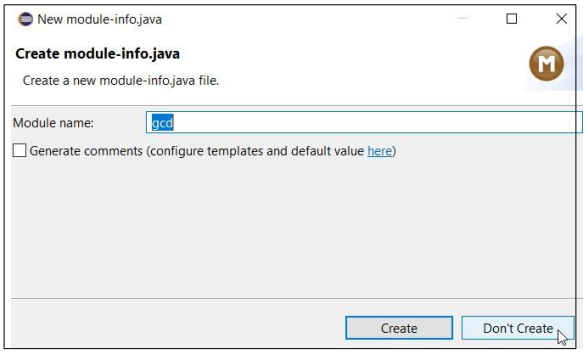


2) **Create** a Project(**File > New > Java Project**):



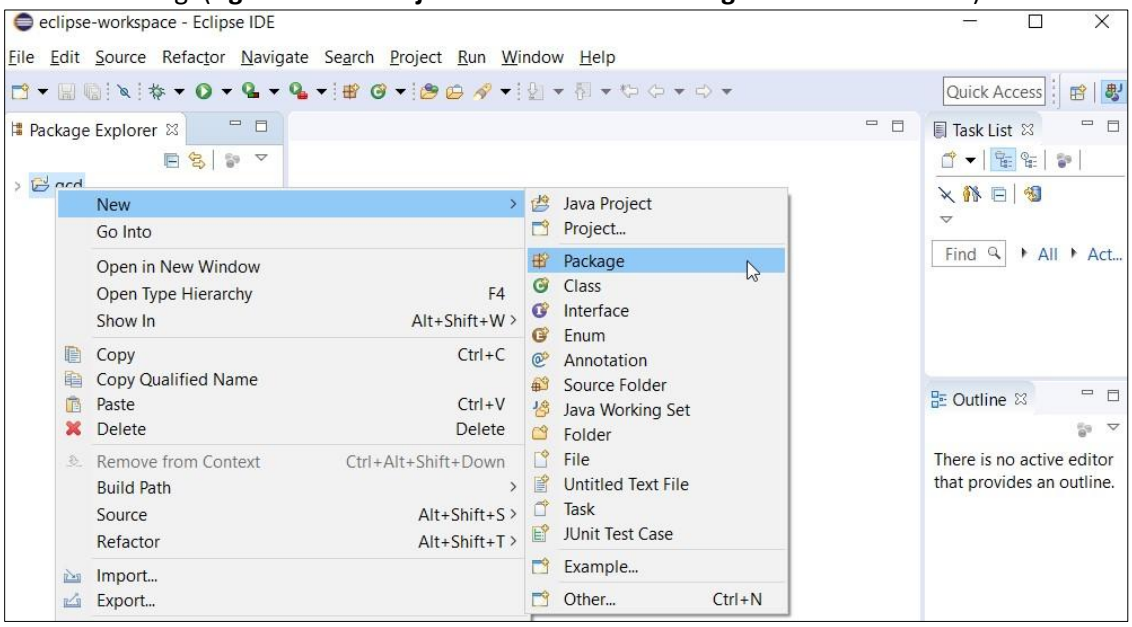
3) **Name the project** as "gcd" **>** click **Finish >** click **Don't Create** module:

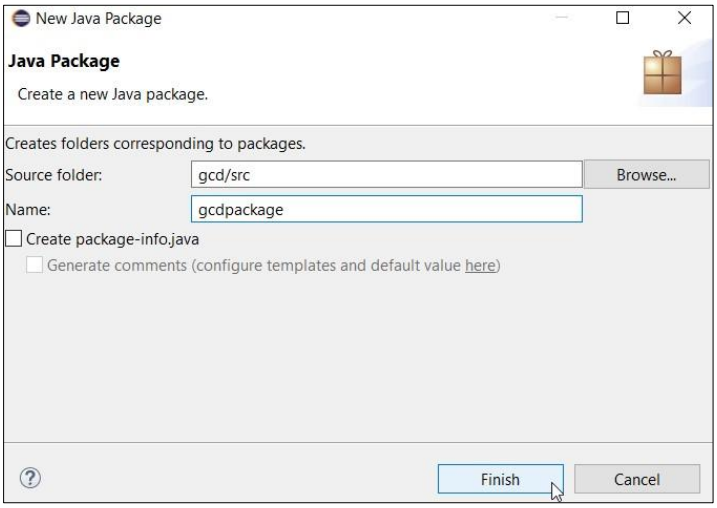




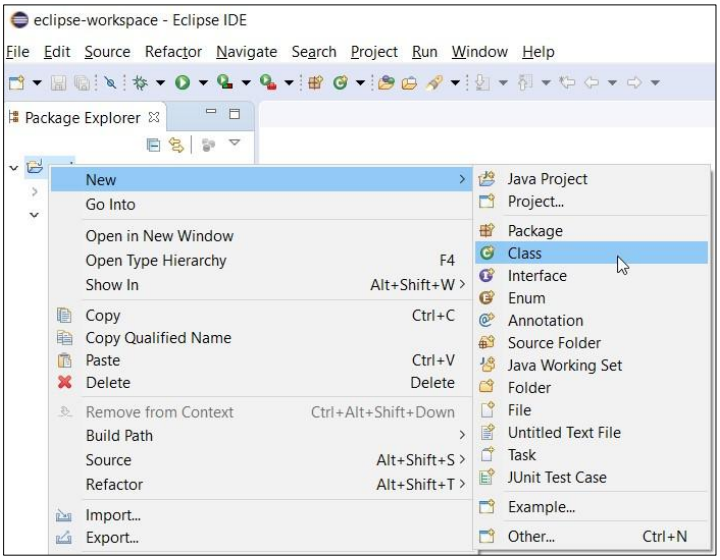
4) **Close the "Welcome" tab**.

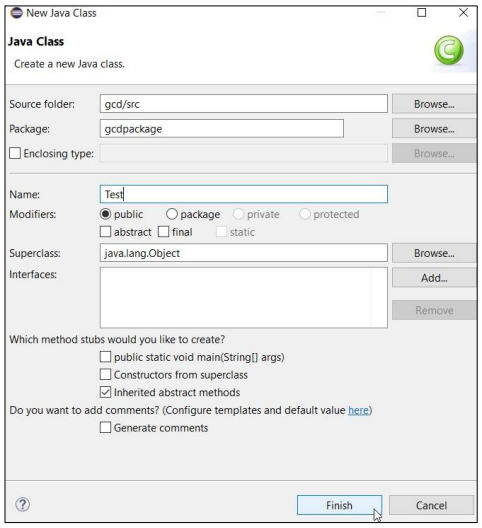
5) **Create** a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):



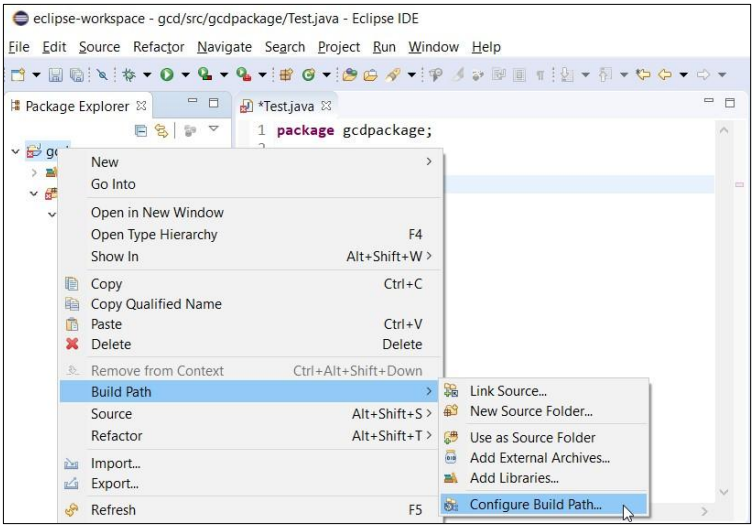


6) **Create** a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):

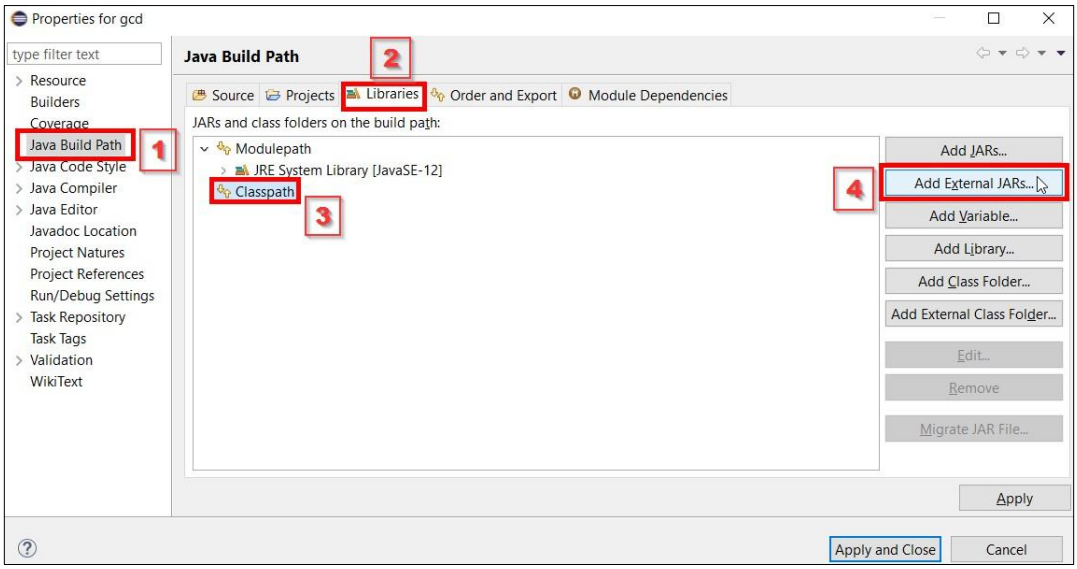




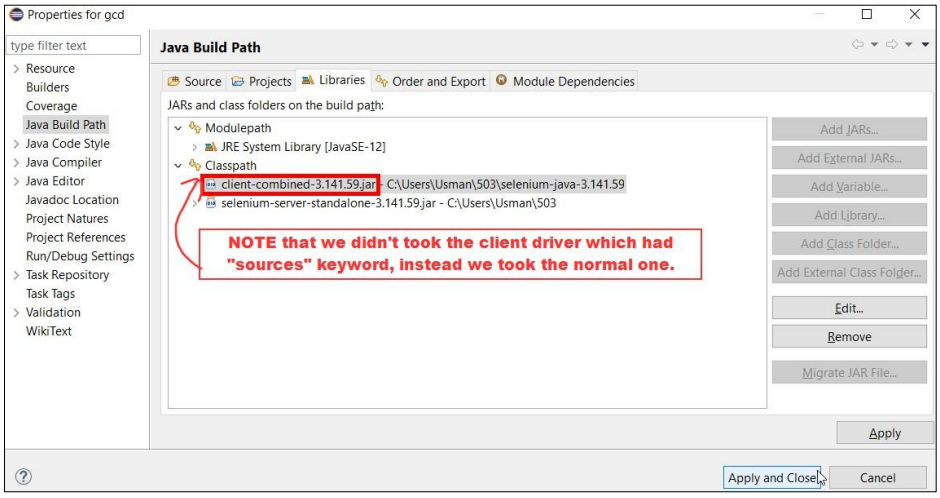
7) Adding "**Selenium *Server Driver* and *Client Driver*(JAR files)"** in Eclipse IDE: • **right-click on Project Name > Build Path > Configure Build Path…**



- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



- Browse and **add JAR files >** click **Apply and Close :**



8) Creating a link for HTML file(wherein calculation part is present):

(NOTE that this file will be run by the '***script*** *in JAVA'(which we'll create later)*) •

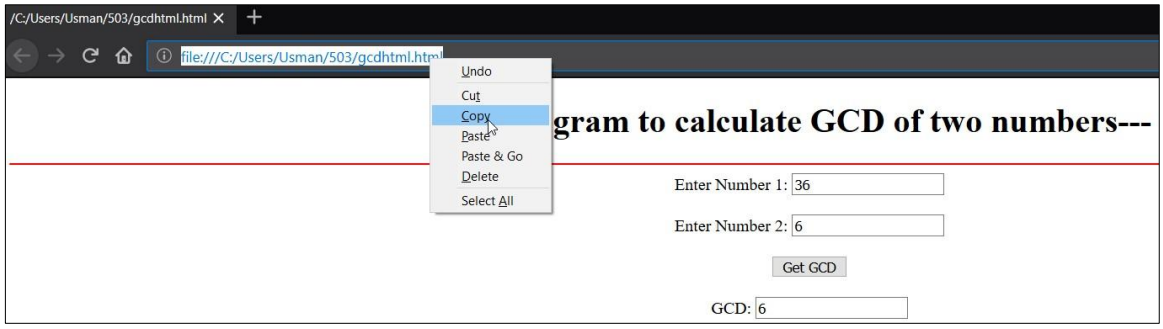
Create a Notepad file with the following code and save it as "*gcdhtml.html*":

---(gcdhtml.html)---

```
<html>
<head>

<script type="text/javascript"> function
gcd()
        {
                var x,y;
                x=parseInt(document.myform.n1.value);
y=parseInt(document.myform.n2.value);
                while(x!=y)
                {
                        if(x>y){x=x-y;}
        else{y=y-x;}
                }
                document.myform.result.value=x;
        }
</script>
</head>

<body>
<center>
        <h1>---Program to calculate GCD of two numbers---</h1>
        <hr color="red">
```

```
        <form name="myform">
                Enter Number 1: <input type="text" name="n1" value=""> <br> <br>
                Enter Number 2: <input type="text" name="n2" value=""> <br> <br>
                <input type="button" name="btn" value="Get GCD" onClick="gcd()"><br><br>
                GCD: <input type="text"  name="result" value="">
        </form>
</center>
</body>


</html>
```

- **Close the file**. Then **right-click > Open with > Firefox Browser**
- **Copy URL** from the webpage:



9) Creating the ***script*** *in JAVA* :
(NOTE that this **script** will be run by Eclipse IDE)
(In simple words, it's like we are
-ordering Eclipse to run a script or to do a job
-of opening the HTML file
-and putting the values in the textboxes with the help of Selenium Drivers -
and to show the result.
-Hence automating the work in browser)

- Now we'll put the path of "geckodriver" in a String ***driverPath***
- And we'll **paste the copied URL in the *.get()* method** of the WebDriver class

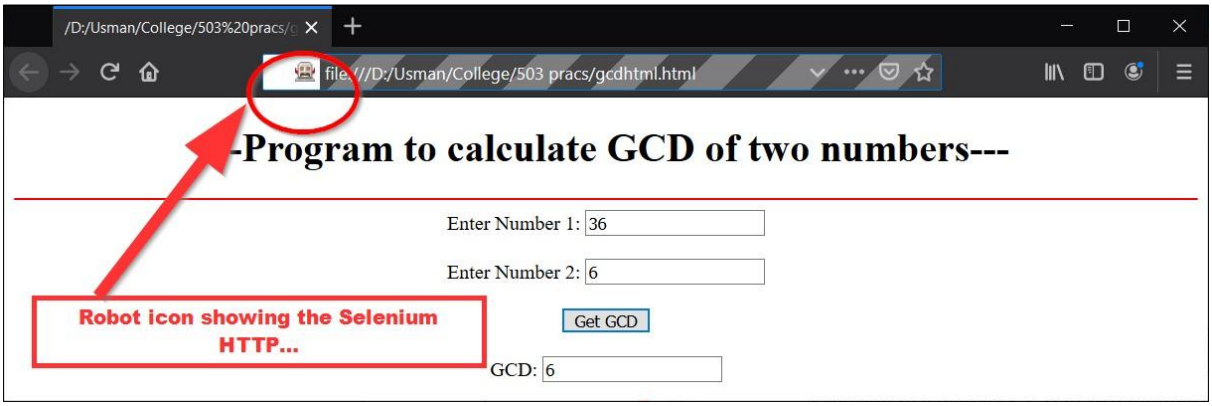
---(Test.java)---

```
package gcdpackage;
 import org.openqa.selenium.By; import
org.openqa.selenium.WebDriver; import
org.openqa.selenium.firefox.FirefoxDriver; import
org.openqa.selenium.firefox.FirefoxOptions; import
org.openqa.selenium.firefox.FirefoxProfile;

public class Test {
        static String driverPath = "C:\\Users\\Usman\\503\\geckodriver.exe";
public static void main(String[] args) {
                System.setProperty("webdriver.gecko.driver",driverPath);
                //DesiredCapabilities capabilities = DesiredCapabilities.firefox();
```

```
            //capabilities.setCapability("marionette",true);
            //ProfilesIni allProfiles = new ProfilesIni();
FirefoxProfile fp = new FirefoxProfile();
            fp.setPreference(FirefoxProfile.PORT_PREFERENCE,"7055");
FirefoxOptions options = new FirefoxOptions();
            options.setProfile(fp);
            WebDriver driver=new FirefoxDriver(options);//(capabilities);
            //WebDriver driver=new ChromeDriver();
driver.get("file:///D:/Usman/College/503%20pracs/gcdhtml.html");
            driver.manage().window().maximize();
driver.findElement(By.name("n1")).sendKeys("36");
driver.findElement(By.name("n2")).sendKeys("6");
driver.findElement(By.name("btn")).click();
            String
result=driver.findElement(By.name("result")).getAttribute("name=result");
            System.out.println("GCD="+result);
      }
}
```

10) Run the file from Eclipse IDE:

- **OUTPUT:**



11) Finish!

What is Gecko Driver:

-a WebBrowser engine inbuilt within Mozilla Firefox browser.

-acts as a proxy between Web Driver enabled clients(Eclipse, NetBeans, etc.) and Mozilla Firefox browser *or simply* acts as a link between Selenium Web Driver tests and Mozilla Firefox browser.

What is Selenium Remote Control (RC):

-a test tool that allows you to write automated web application UI tests in any programming language against any HTTP website using any mainstream JavaScript-enabled browser.

-Selenium RC comes in two parts.

1) A server which automatically launches and kills browsers, and acts as a HTTP proxy for web requests from them.
2) Client libraries for your favourite computer language.

Partical 4

#AIM: Load Testing using JMeter.

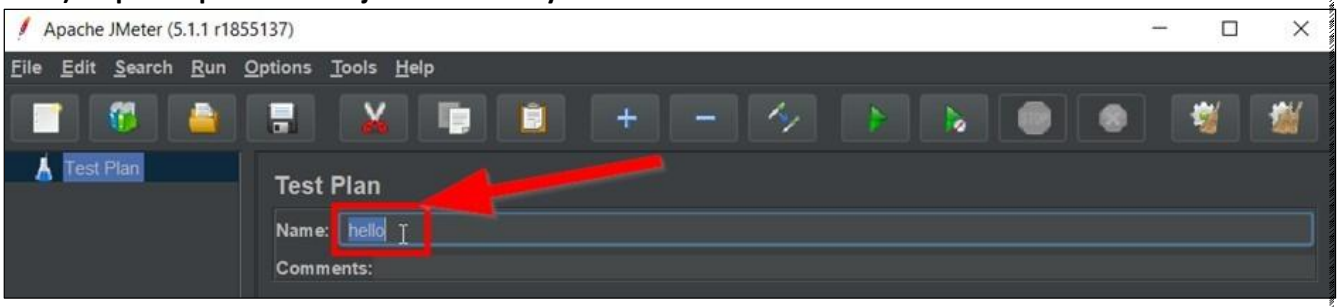
PRE-REQUISITES:

1) To Download **"JDK":**

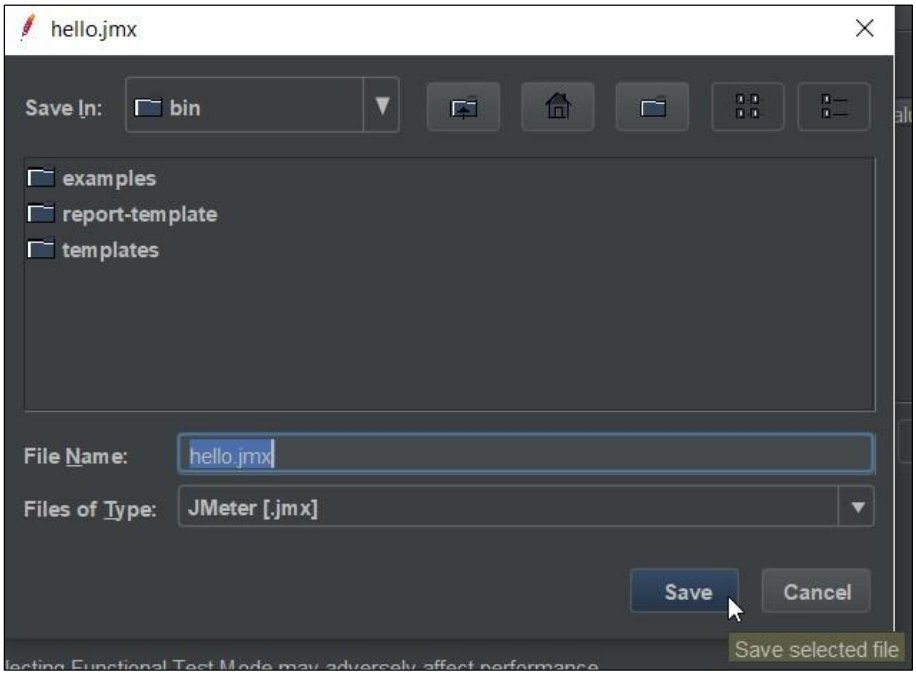
- **Visit** https://www.oracle.com/technetwork/java/javase/downloads/jdk12downloads-5295953.html
- **Download** this file "jdk-12.0.2_windows-x64_bin.exe" and **install it. 2)** To Download **"Apache JMeter":**
- Visit https://jmeter.apache.org/download_jmeter.cgi
- Under section "**Apache JMeter 5.1.1 (Requires Java 8+)**"
- Under sub-section "**Binaries**", download "apache-jmeter-5.1.1.zip" file.
- Installation:
  - Extract the "apache-jmeter-5.1.1.zip" file.
  - Navigate to: ***apache-jmeter-5.1.1 > bin >*** the "***ApacheJMeter.jar"*** *file* is your working space.

STEPS:

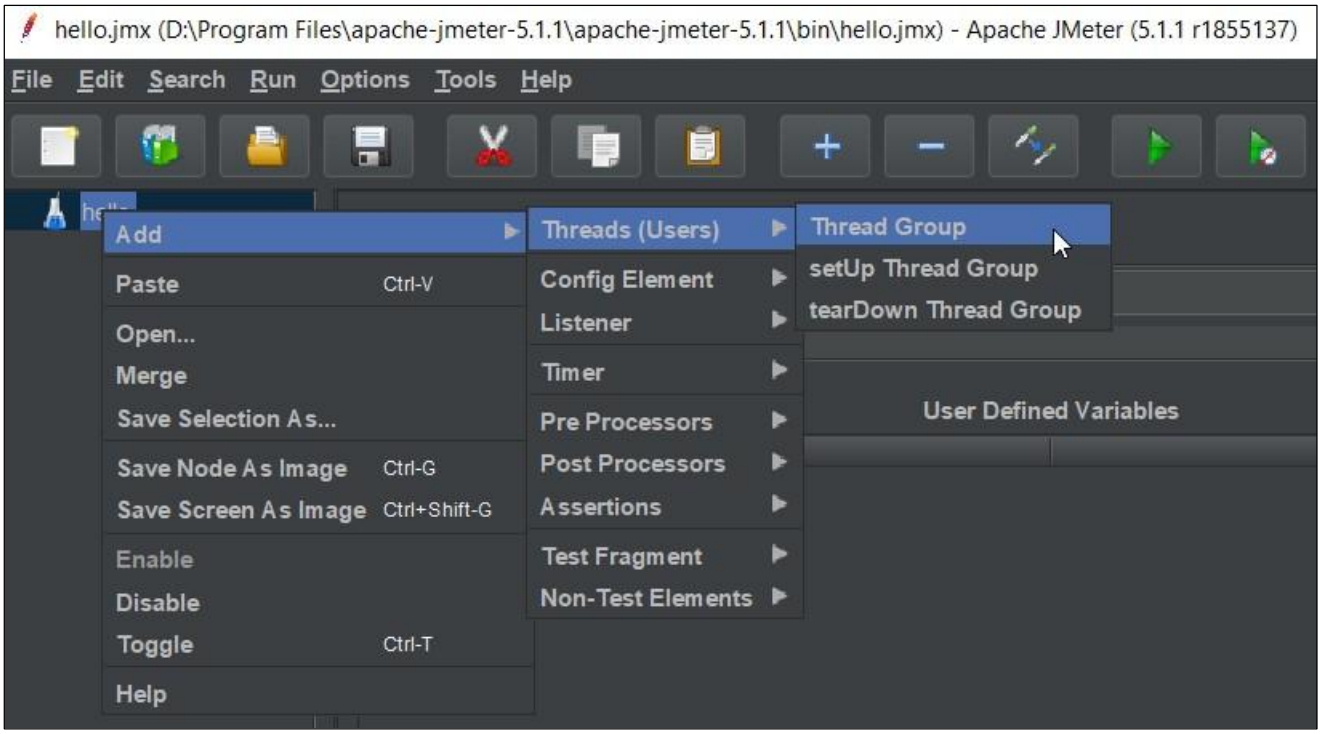
1) Open "ApacheJMeter.jar" file**. Name your *Test Plan*** as ***"hello"*****:**



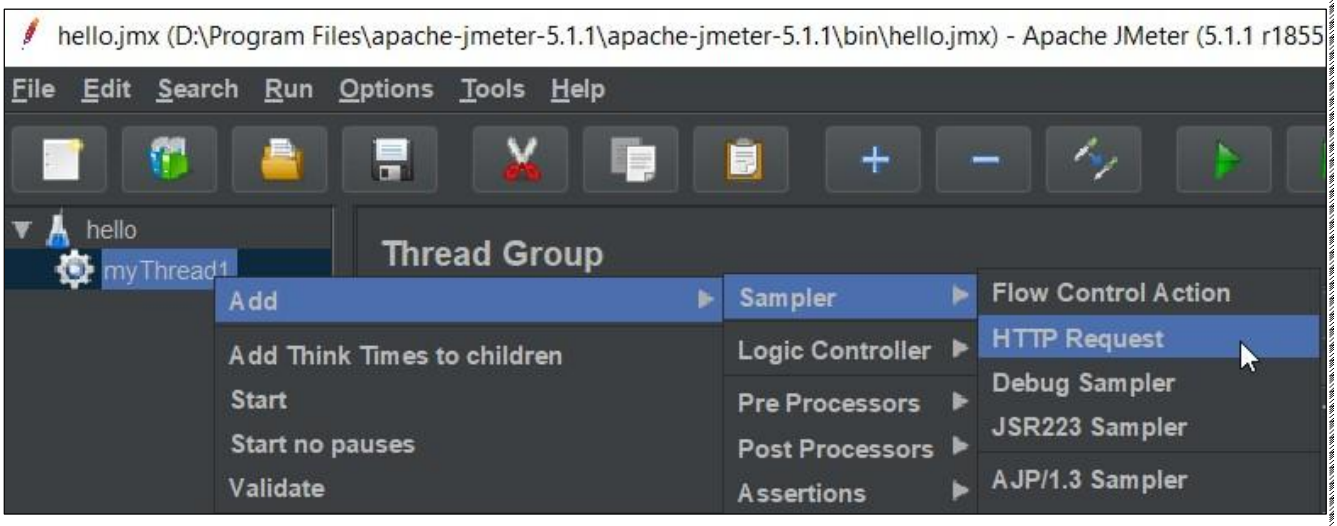
2) Save(CTRL+S) your Test Plan. It will be saved as ".jmx"(i.e. Java Management Extensions)**:**



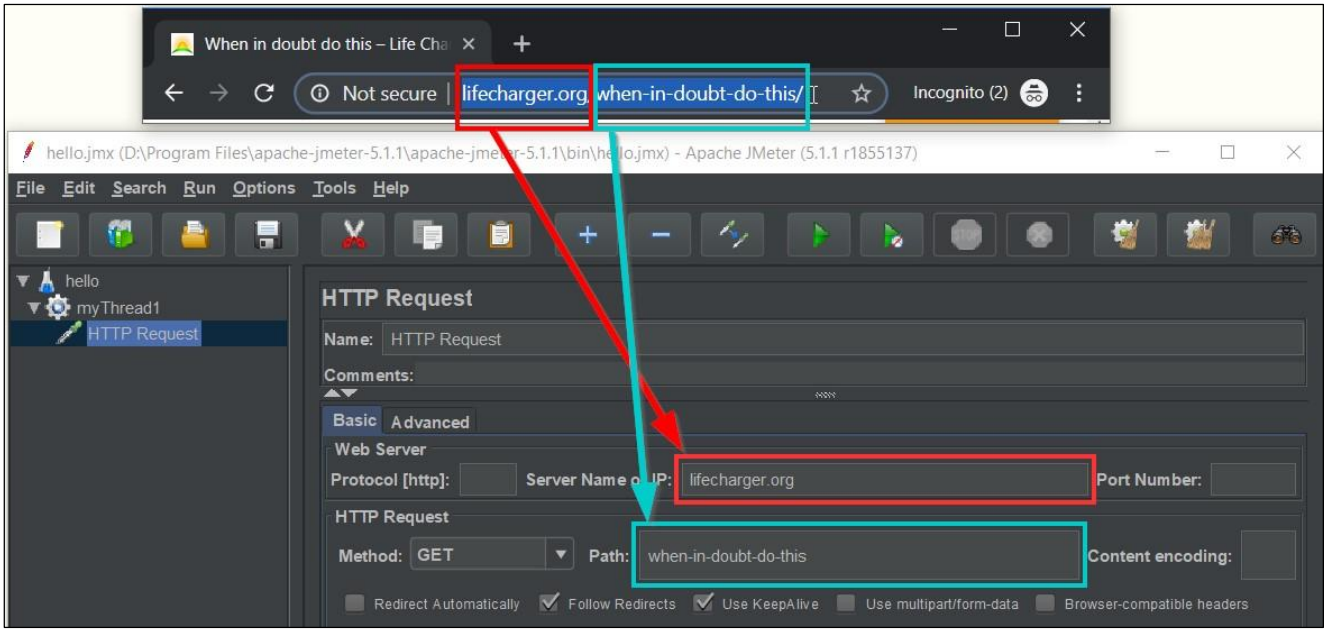
3) Create a ***Thread Group***
(right-click over "hello(*Test Plan*)**" > Add > Thread(Users) > Thread Group > Name your *Thread Group*** as ***"myThread1"*** **> Save(CTRL+S)):**



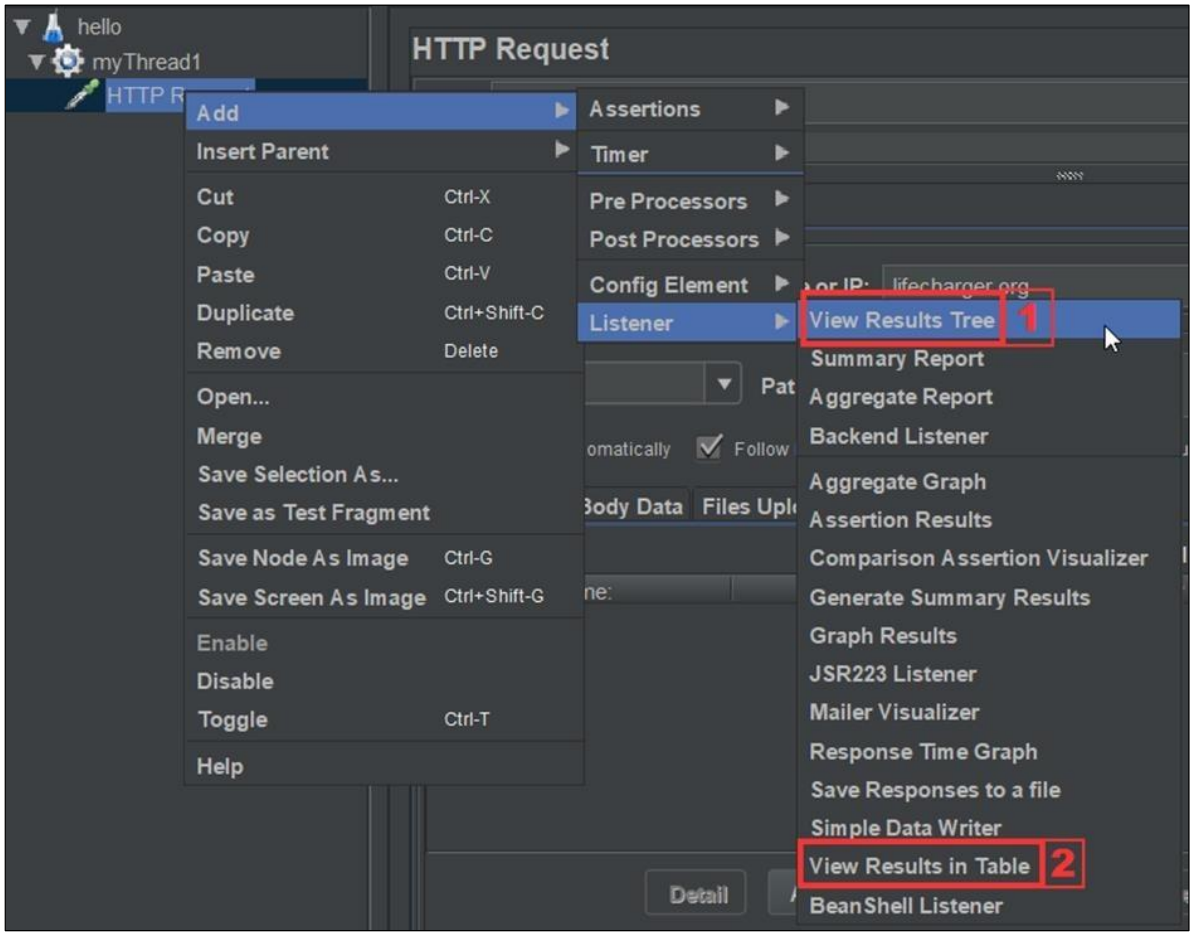
4) Under Thread Group(myThread1), add a "Sampler", namely ***HTTP Request***:
(right-click over "myThread1(*Thread Group*)**" > Add > Sampler > HTTP Request):**



5) Now visit any website page with a next path. Then **set** *website name* as "**Server Name or IP"** & *next path* as "**Path"** in the Basic panel:

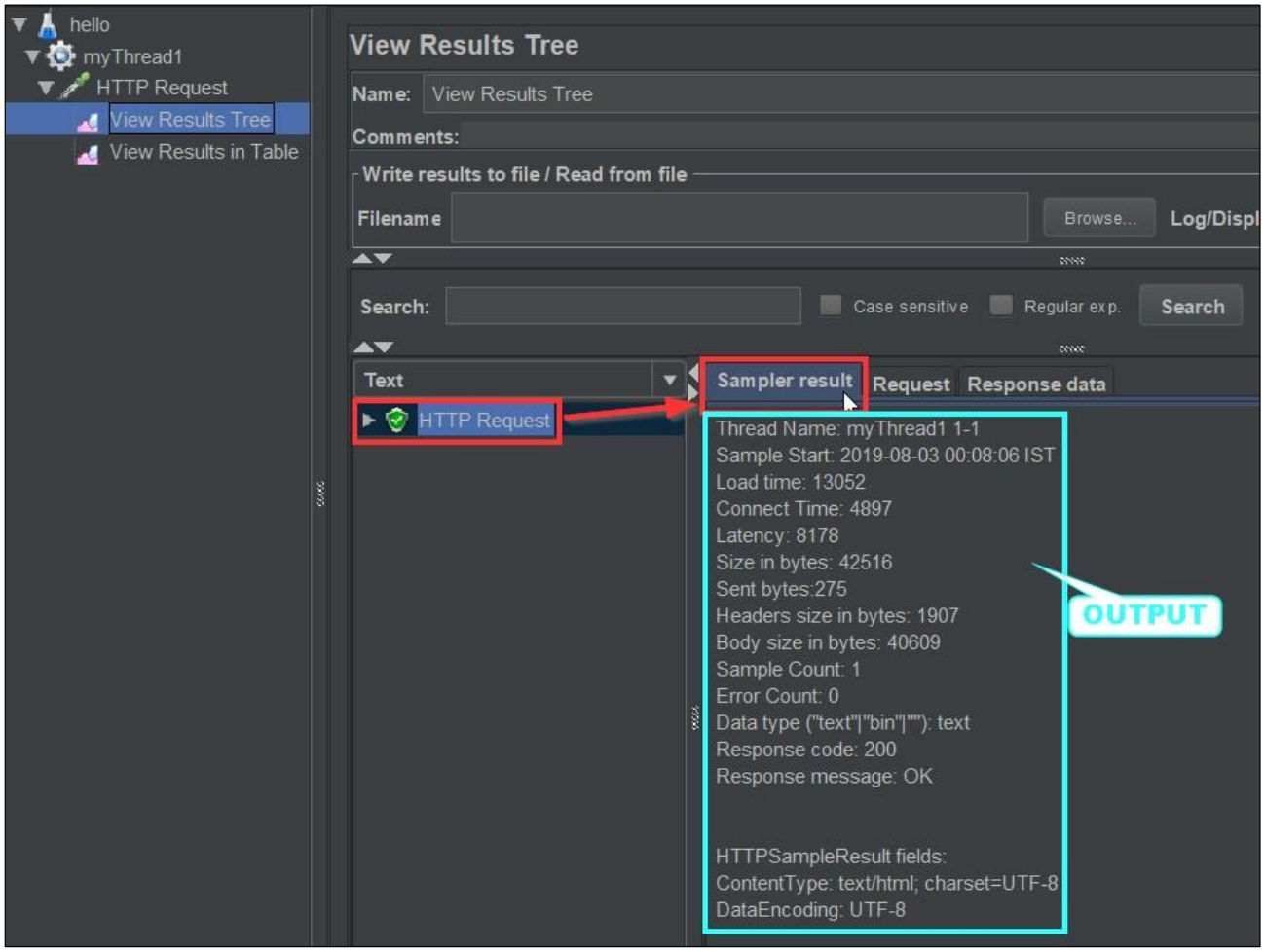


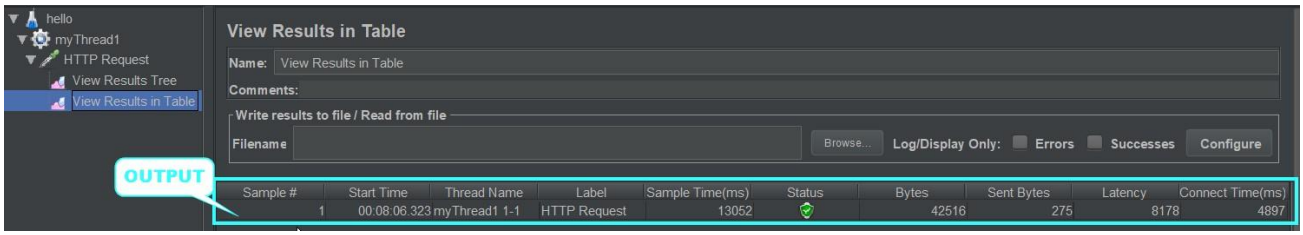
6) Under HTTP Request Sampler, add 2 "Listeners", namely ***View Results Tree*** & ***View Results in Table:***
(right-click over HTTP Request(*Sampler*) **> Add > Listener > View Results Tree) &**
(right-click over HTTP Request(*Sampler*) **> Add > Listener > View Results in Table):**



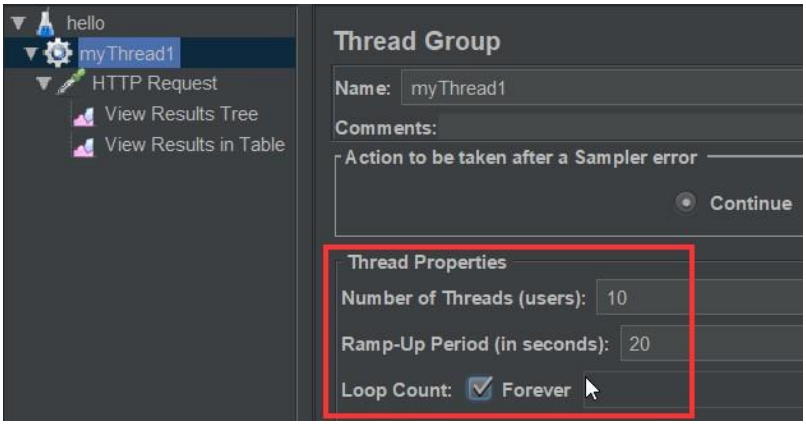
7) **Save(CTRL+S) & Run(CTRL+R)** the file and wait for a while. You'll see some:

- **OUTPUTS:**



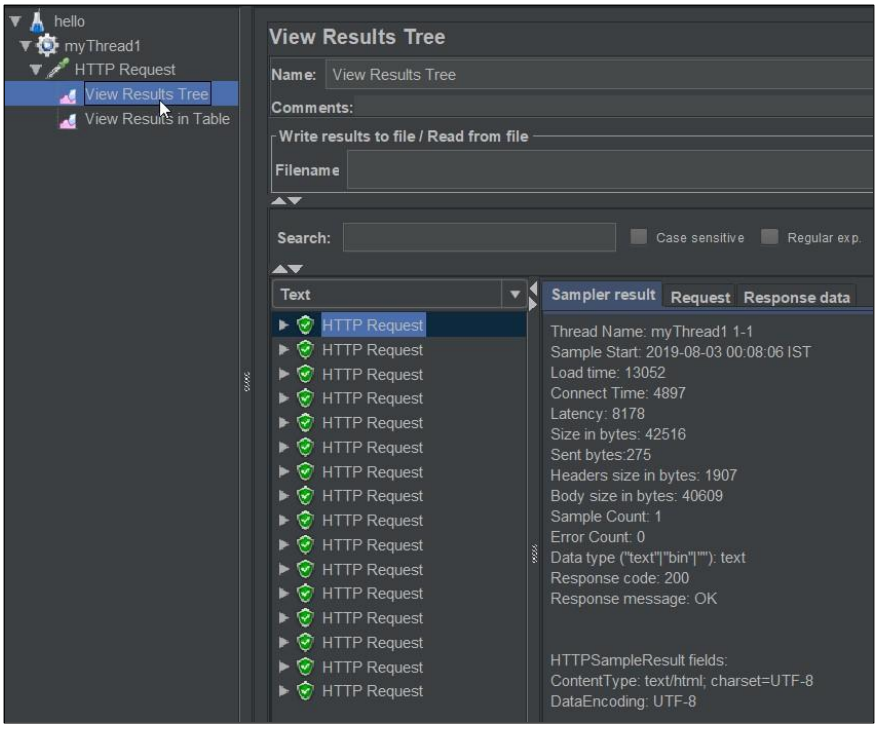


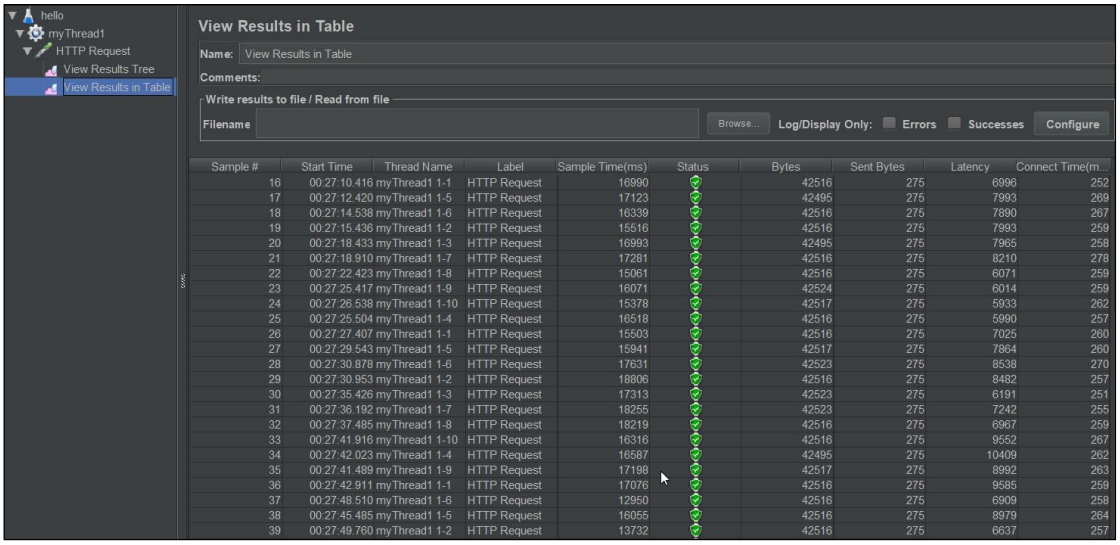
8) Now change some Thread Properties**(users=10; ramp-up period=20; loop count=Forever):**



9) **Save(CTRL+S) & Run(CTRL+R)** the file and wait for a while. You'll see some infinite:

- **OUTPUTS:**





10) Finish!

Apache JMeter is:

-designed to load test functional behavior and measure performance.

-used to test performance both on static and dynamic resources, web dynamic applications.

Some features include: ability to test many apps/server/protocol types; Test Plan recording, building, debugging; complete report; portable; pure java; multi-threading; offline analysis of results; highly extensible core.

Partical 4b

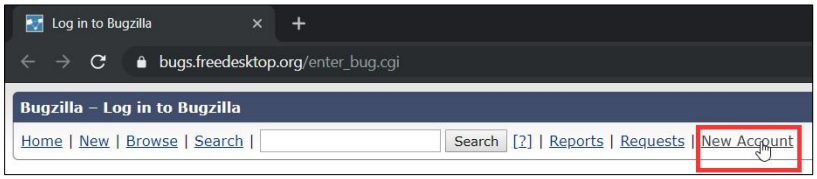
#AIM: To study Bugzilla(demo site).

REQUIREMENTS:

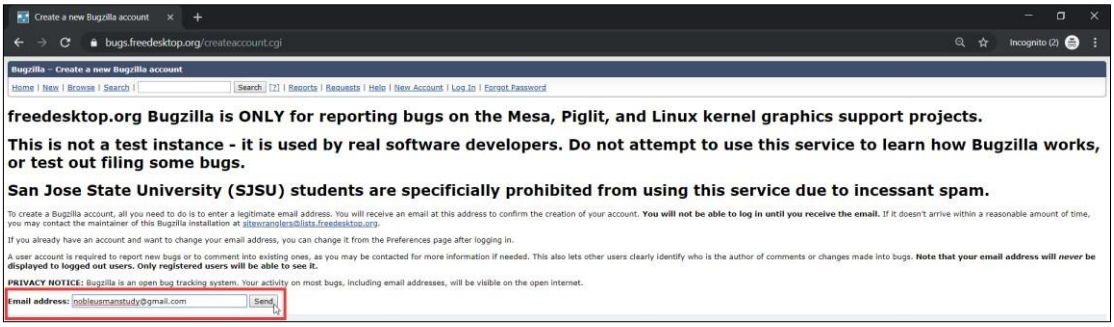
1) A stable internet connection.

STEPS:

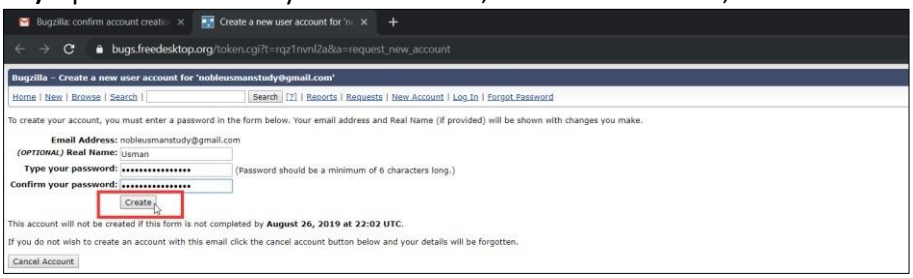
1) **Create account and Login:**
   a) **Visit** this demo site: https://bugs.freedesktop.org/enter_bug.cgi
   b) Click on "**New Account"** in the main menu:



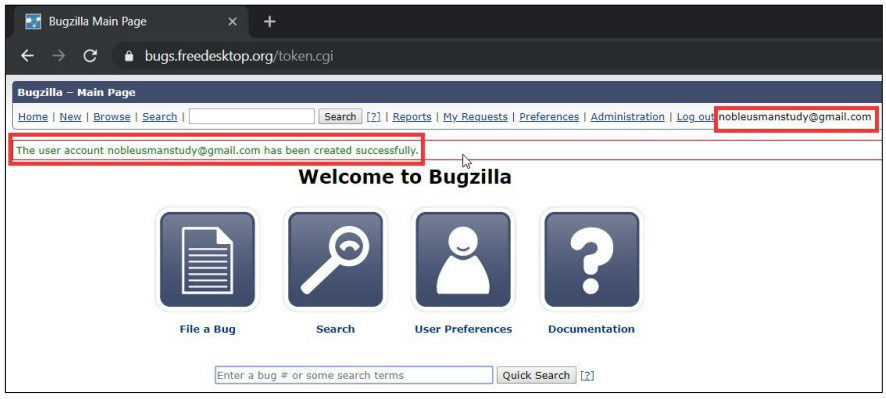
   c) **Enter email-id**:



   d) Open the link from your email inbox, and then fill details, then click "**Create"**:



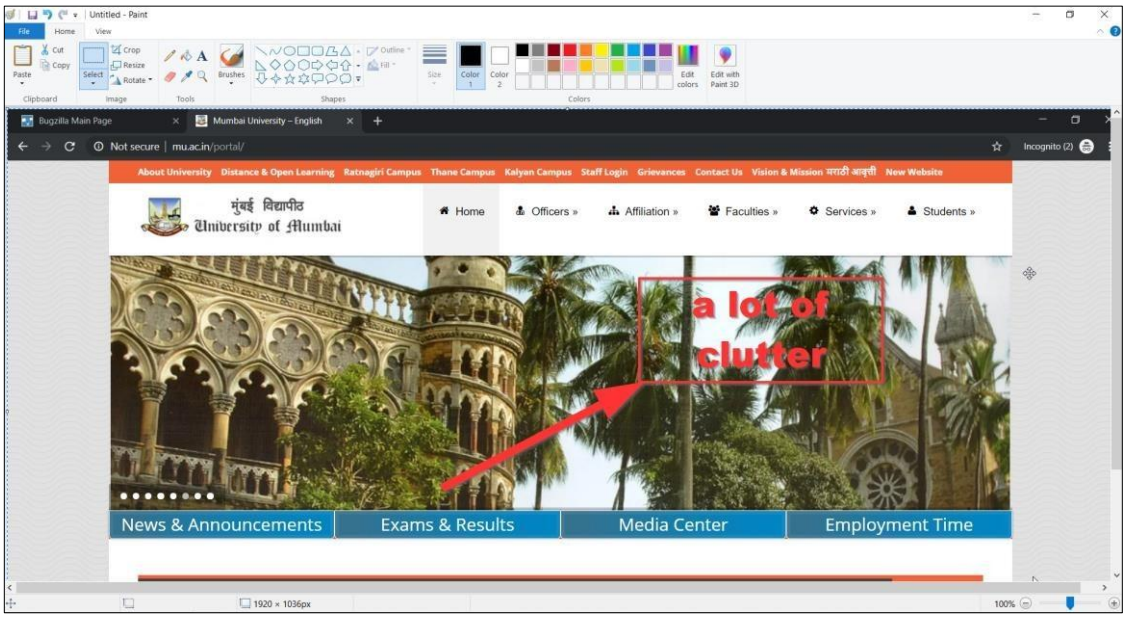
   e) You'll see that **you're logged-in**:



2) Creating and submitting a Bug-report:

a) Detect bug > take its snapshot > save it:

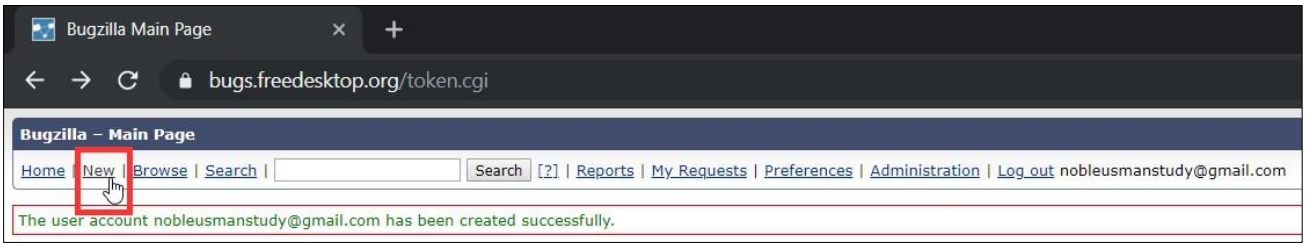
• **Visit** http://mu.ac.in/portal/ (or any website you wish to) •
Take a snapshot stating the bug:



• **Save** that snapshot.

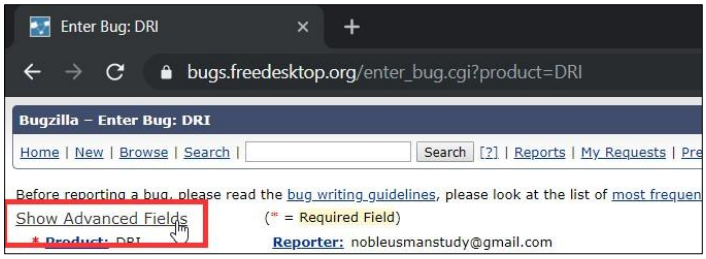
b) Enter a new bug-report:

• **Visit** the demo site and click on "**New**" in the main menu:

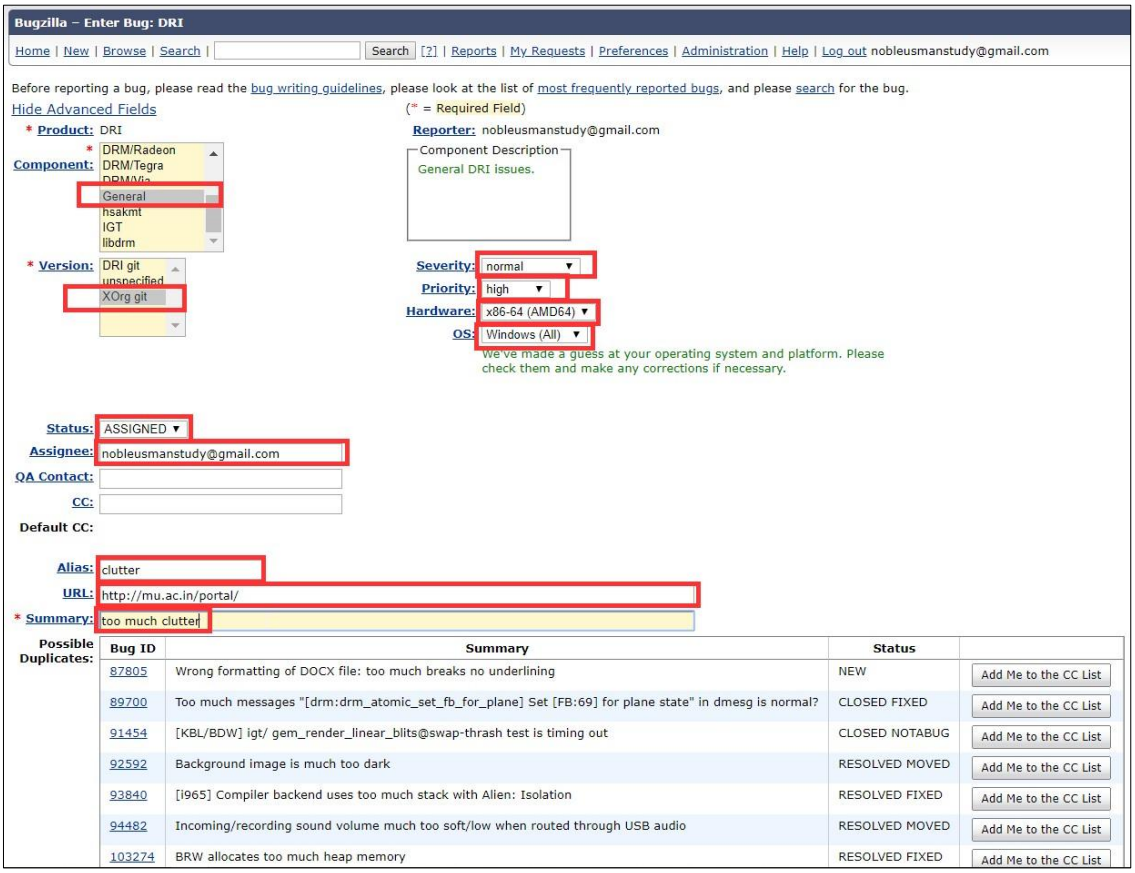


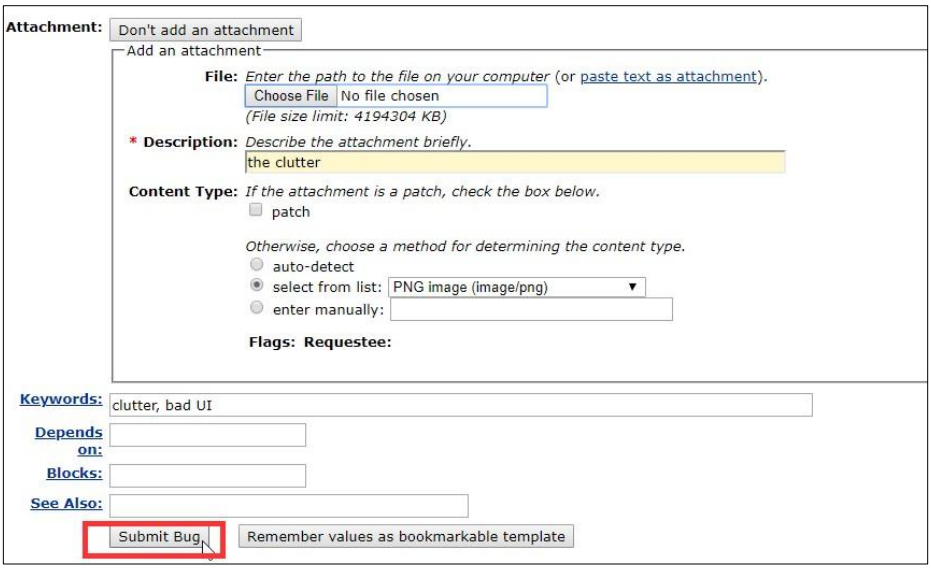
• **Select "DRI(Direct Rendering Infrastructure)"** as your product:

- Click on **"Show Advanced Fields"**:

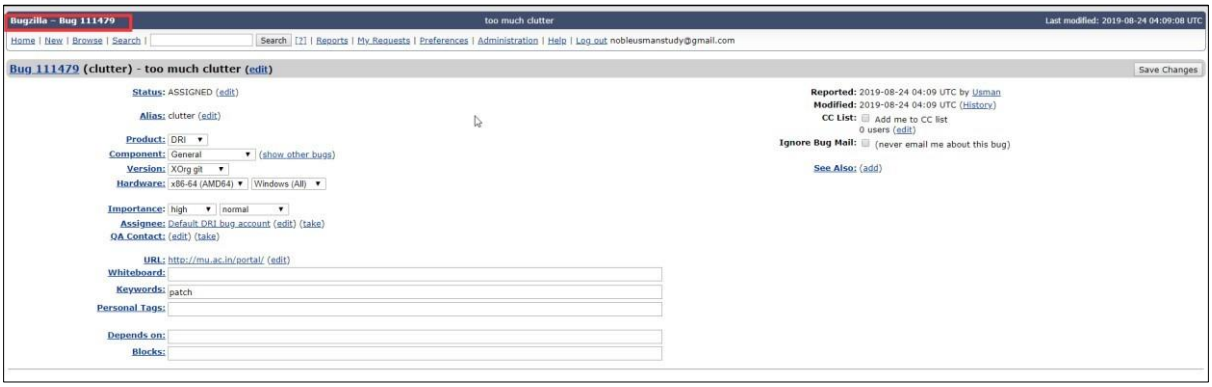


- Fill the details, add an attachment, click **"Submit Bug"**:





- Your bug-report has been created with an ID:



3) Check status of your bug-report:

- Search for your bug-id in the main menu search-bar:

4) Finish!

What is Bugzilla?

Bugzilla is an open-source issue/bug tracking system that allows developers to keep track of outstanding problems with their product.

Alias: A short, unique name assigned to a bug in order to assist with looking it up and referring to it in other places in Bugzilla.

Assignee: The person in charge of resolving the bug.

Blocks: This bug must be resolved before the bugs listed in this field can be resolved.

Bug ID: The numeric id of a bug, unique within this entire installation of Bugzilla.

CC: Users who may not have a direct role to play on this bug, but who are interested in its progress.

Depends on: The bugs listed here must be resolved before this bug can be resolved.

Importance: The importance of a bug is described as the combination of its Priority and Severity.

Keywords: You can add keywords from a defined list to bugs, in order to easily identify and group them.

Product: Bugs are categorised into Products and Components.

QA Contact: The person responsible for confirming this bug if it is unconfirmed, and for verifying the fix once the bug has been resolved.

Reporter: The person who filed this bug.

Summary: The bug summary is a short sentence which succinctly describes what the bug is about.

URL: Bugs can have URL associated with them–for e.g.,a pointer to a web site where the problem is seen.

Version: The version field defines the version of the software the bug was found in. **#503(prac5)---03/08/19---**

Partical 5

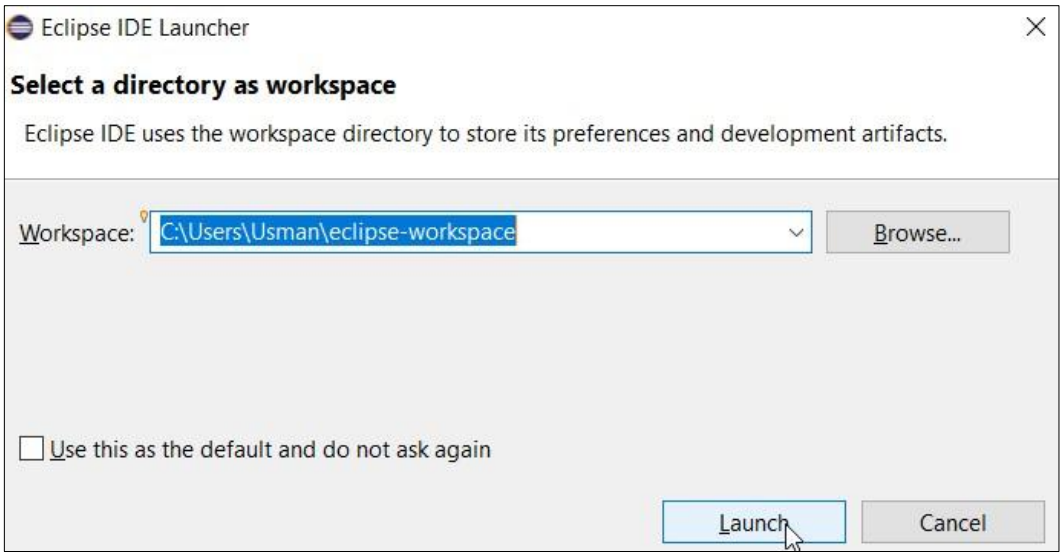
#AIM: Write and test a program to update 10 student records into Excel file(table).

PRE-REQUISITES:

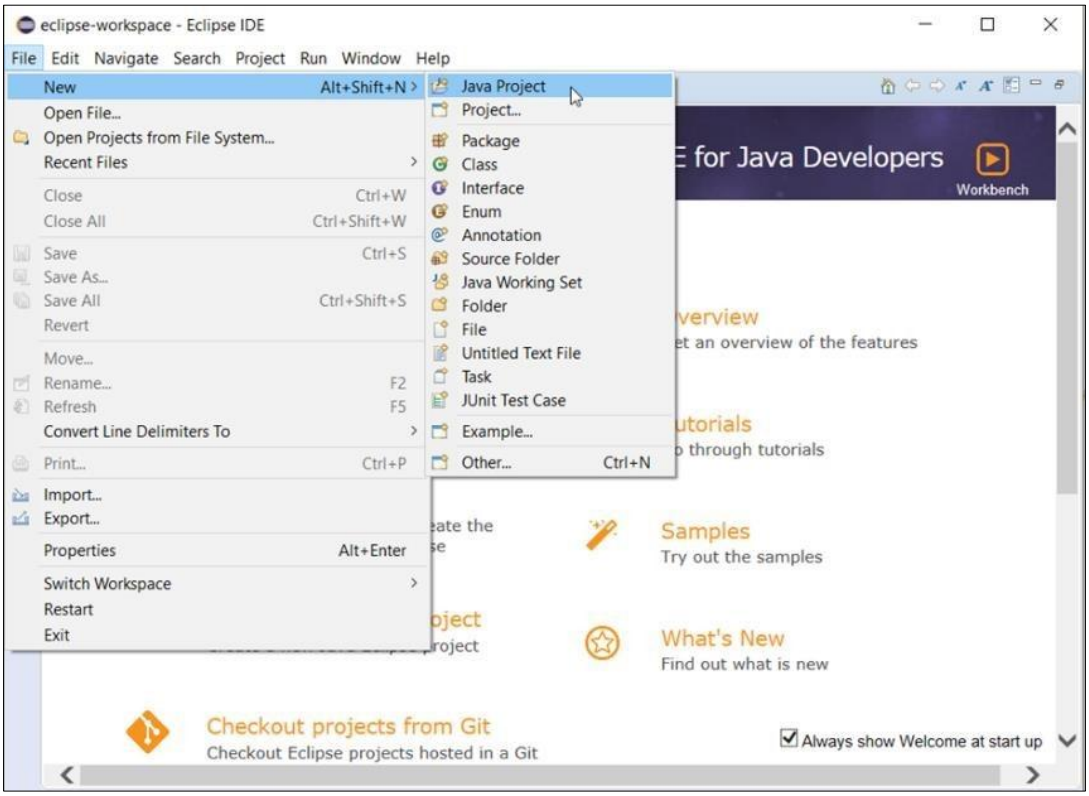
1) Check that you have **Eclipse IDE**.
2) To Download "**JXL.JAR**":
   - **Visit** http://www.java2s.com/Code/Jar/j/Downloadjxl26jar.htm
   - **Download** this file: "jxl/jxl-2.6.jar.zip(603 k)" and **extract it**.(you'll get the .jar file)

STEPS:

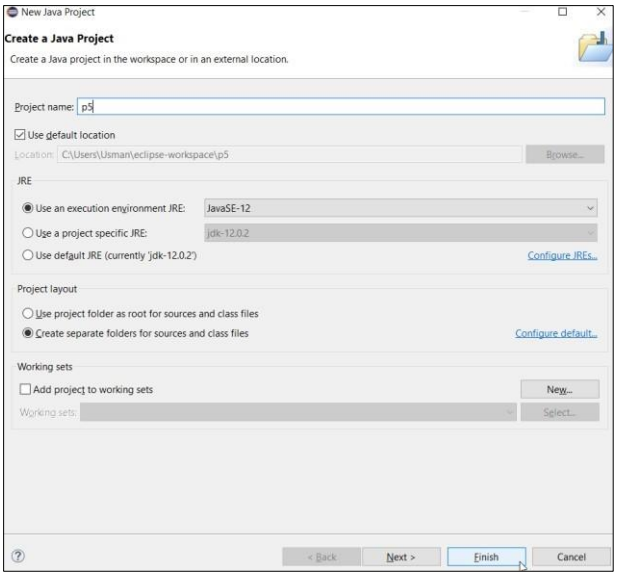
1) **Open Eclipse**. Select your workspace directory. Click **Launch:**

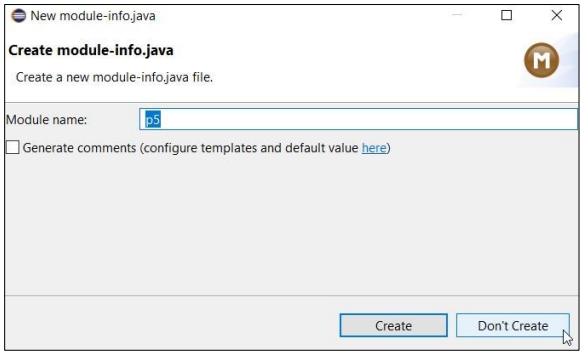


2) **Create** a Project(**File > New > Java Project**):



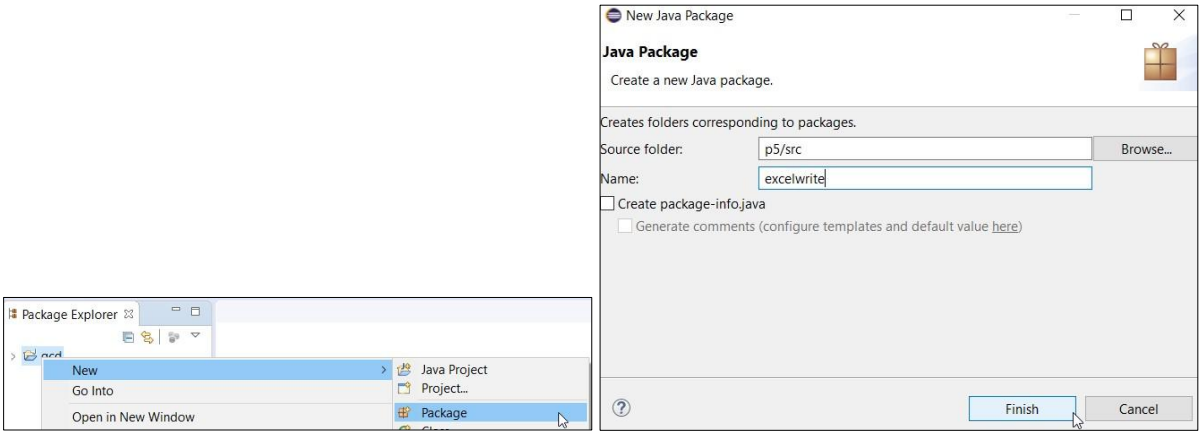
3) Name the project as "p5" **>** click **Finish >** click **Don't Create** module:



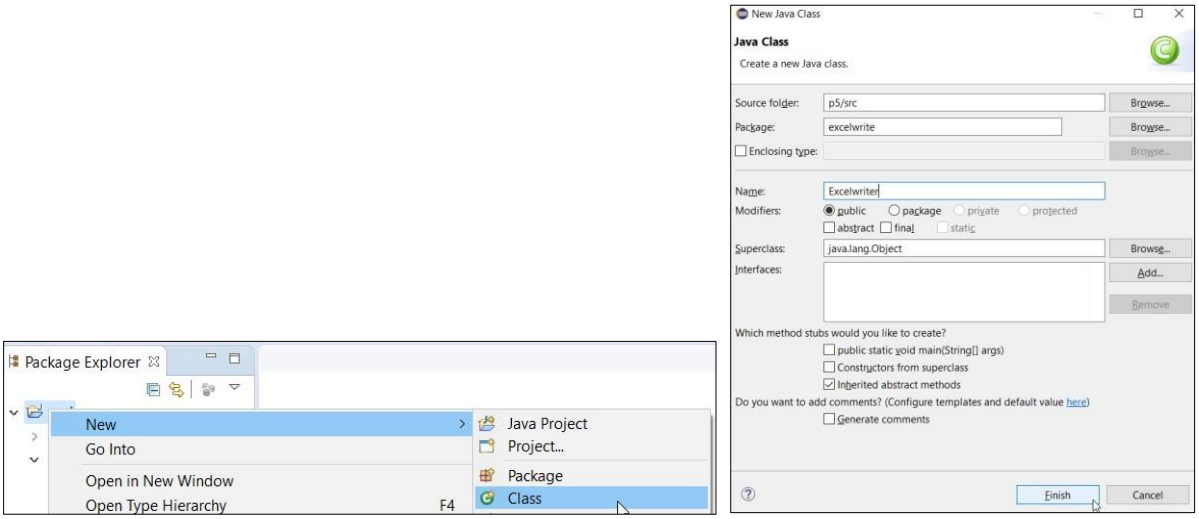


4) Close the "Welcome" tab.

5) Create a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):

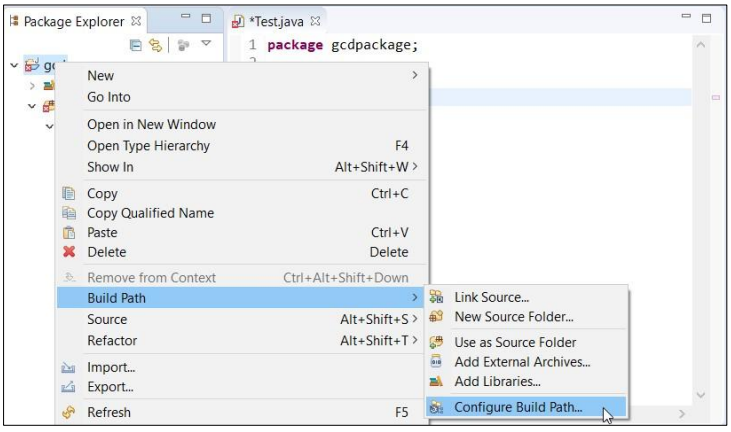


6) Create a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):

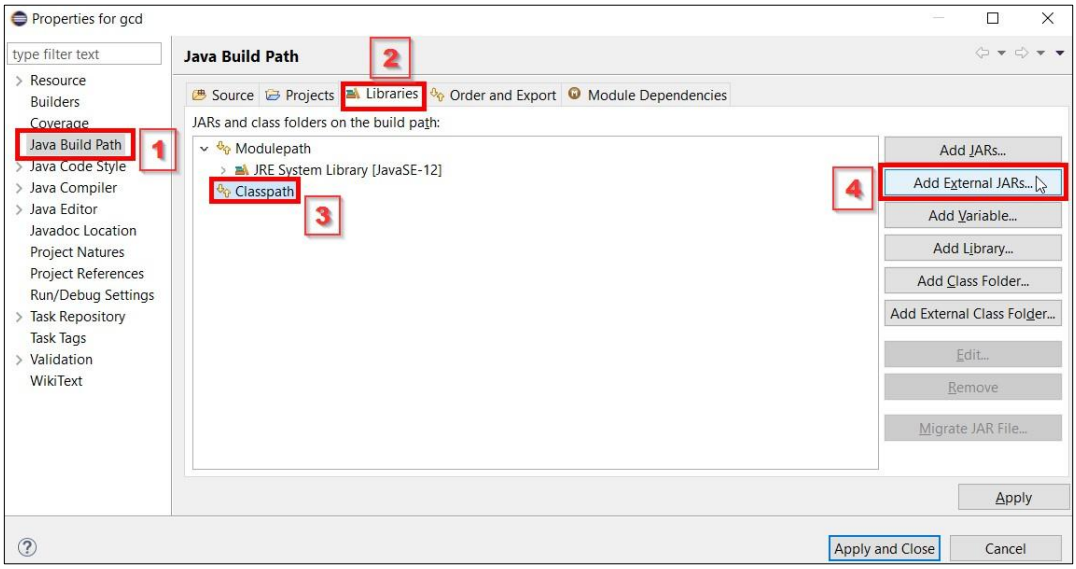


7) Adding "**JXL(JAR file)"** in Eclipse IDE:

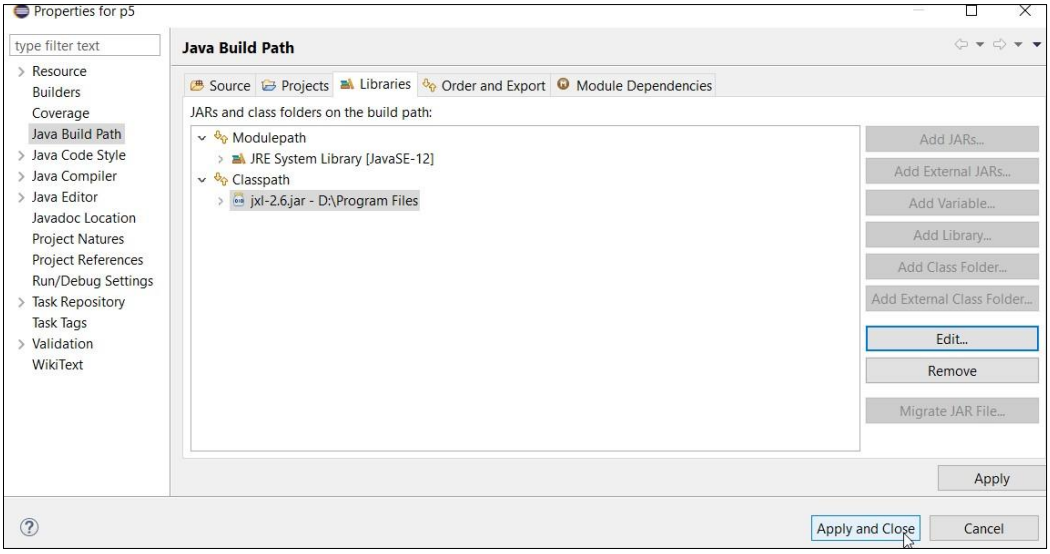
- **right-click on Project Name > Build Path > Configure Build Path…**



- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



- Browse and **add JAR file >** click **Apply and Close :**



8) Creating the ***script*** *in JAVA*:

(NOTE that this **script** will be run by Eclipse IDE)

(In simple words, it's like we are

-ordering Eclipse to run a script or to do a job

-of creating and opening .xls file

-and putting the values in the cells with the help of jxl.jar -and

to show the result.

-Hence automating the work in a local system(PC)).

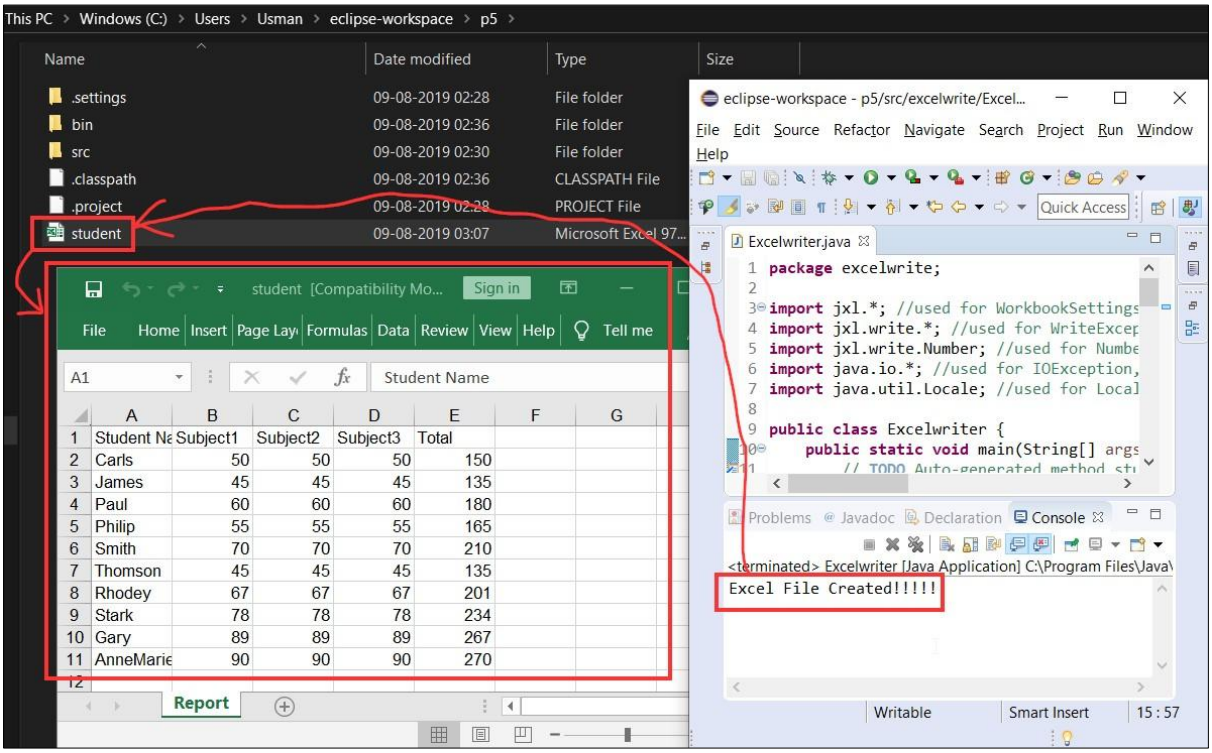
---(Excelwriter.java)---

```
package excelwrite;

import jxl.*; //used for WorkbookSettings,Workbook
import jxl.write.*; //used for WriteException,WritableWorkbook,WritableSheet,Label
import jxl.write.Number; //used for Number import java.io.*; //used for
IOException,File import java.util.Locale; //used for Locale

public class Excelwriter {
```

```
        public static void main(String[] args) throws IOException,WriteException {
            // TODO Auto-generated method stub
      int r=0,c=0;
            String header[]={"Student
Name","Subject1","Subject2","Subject3","Total"};
            String
sname[]={"Carls","James","Paul","Philip","Smith","Thomson","Rhodey","Stark","Gary
"
,"AnneMarie"};
            int marks[]={50,45,60,55,70,45,67,78,89,90,30};

            File file = new File("student.xls");
            WorkbookSettings wbSettings = new WorkbookSettings();
wbSettings.setLocale(new Locale("en", "EN"));
  WritableWorkbook workbook = Workbook.createWorkbook(file, wbSettings);
            workbook.createSheet("Report", 0);
            WritableSheet excelSheet = workbook.getSheet(0);
            //creating header row
for(r=0;r<1;r++) {
                  for(c=0;c<header.length;c++) {
      Label l=new Label(c,r,header[c]);
                        excelSheet.addCell(l);
                  }
            }
            //filling name in column1
for(r=1;r<=sname.length;r++) {
for(c=0;c<1;c++) {
                        Label l=new Label(c,r,sname[r-1]);
                        excelSheet.addCell(l);
                  }
            }
            //filling name in column2,3,4
for(r=1;r<=sname.length;r++) {
for(c=1;c<4;c++) {
                        Number num = new Number(c, r, marks[r-1]);
                        excelSheet.addCell(num);
                  }
            }
            //filling name in total
for(r=1;r<=sname.length;r++) {
for(c=4;c<5;c++) {
                        int total=marks[r-1]+marks[r-1]+marks[r-1];
            Number num = new Number(c, r, total);
excelSheet.addCell(num);
                  }
            }
            workbook.write();
workbook.close();
            System.out.println("Excel File Created!!!!!");
      }
}
```

9) Run the file from Eclipse IDE:

- **OUTPUT:**



10) Finish!

What is JXL.JAR:

-Java libraries are distributed as a ".jar" file

-jxl.jar is the library of JExcelApi , which is open source java API to read, write, and modify Excel spreadsheets dynamically. It contains all the compiled *.class files, associated metadata and resources that are used by the Java Excel API internally .

Partical 6

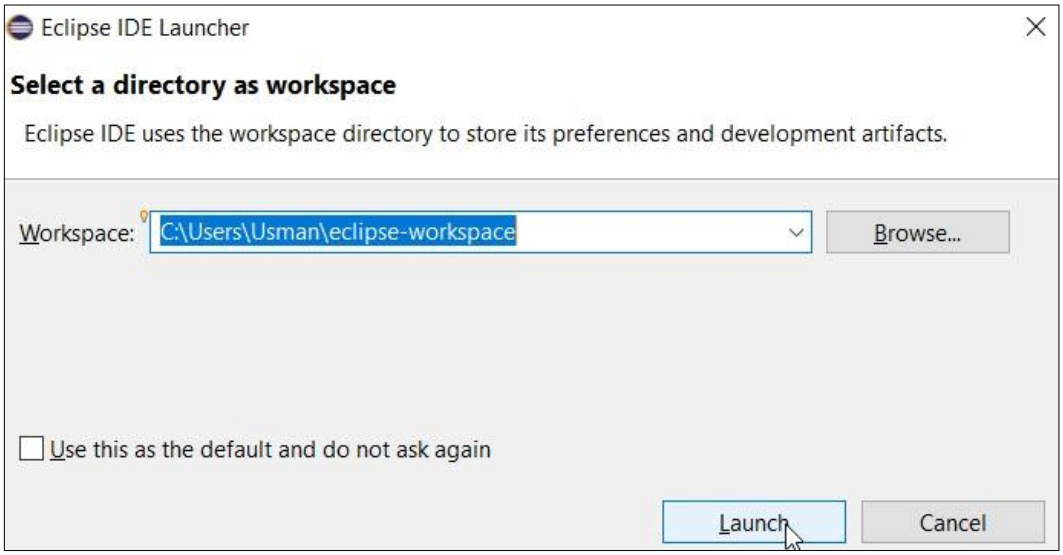
#AIM: Write and test a program to select the number of students from Excel file(table) who have scored 60 or more in any one subject(or all subjects).

PRE-REQUISITES:

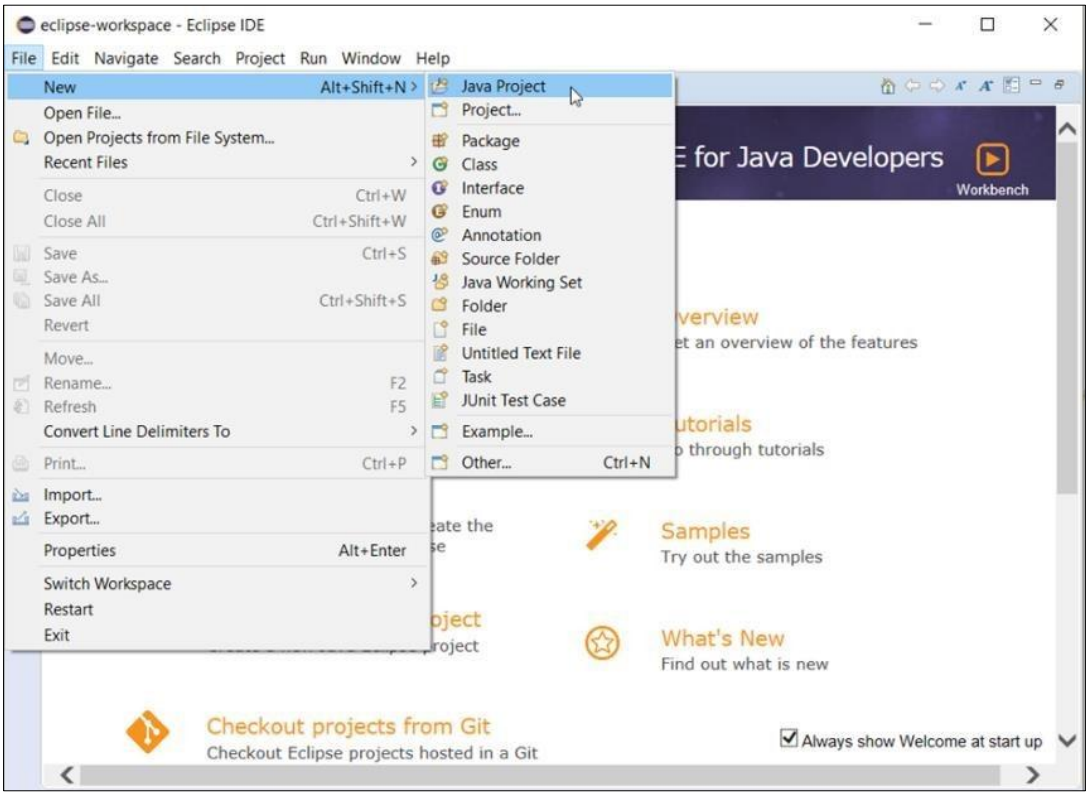
1) Check that you have **Eclipse IDE**.
2) Check that you have **JXL.JAR**.
3) Check that you've the ***Excel file****("student.xls")* that we'll be working on for reading data.

STEPS:

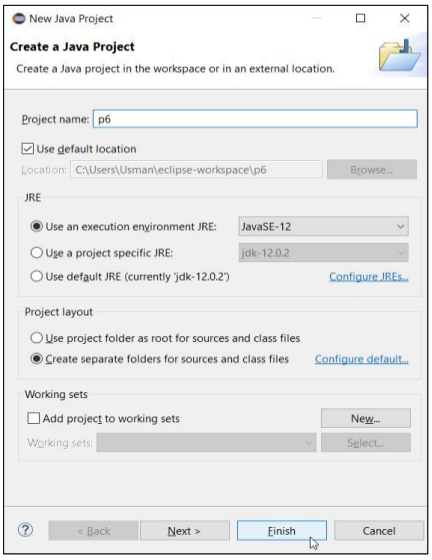
1) **Open Eclipse**. Select your workspace directory. Click **Launch:**

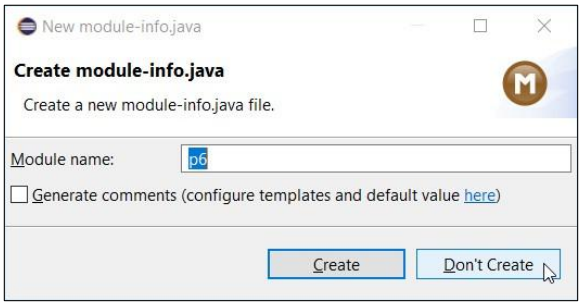


2) **Create** a Project(**File > New > Java Project**):



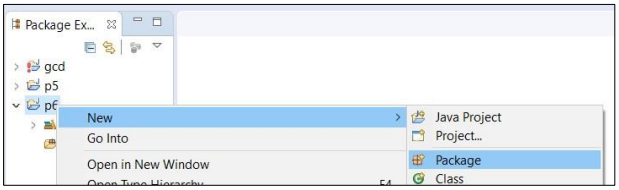
3) Name the project as "p6" **>** click **Finish >** click **Don't Create** module:

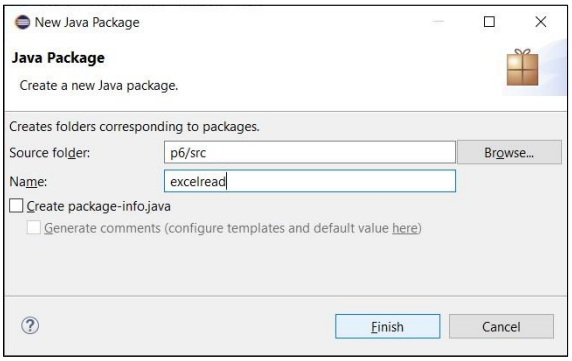




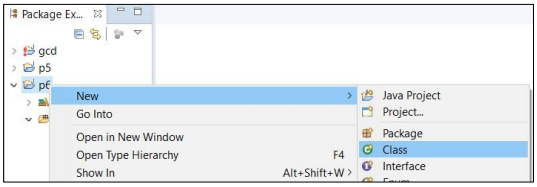
4) Close the "Welcome" tab.

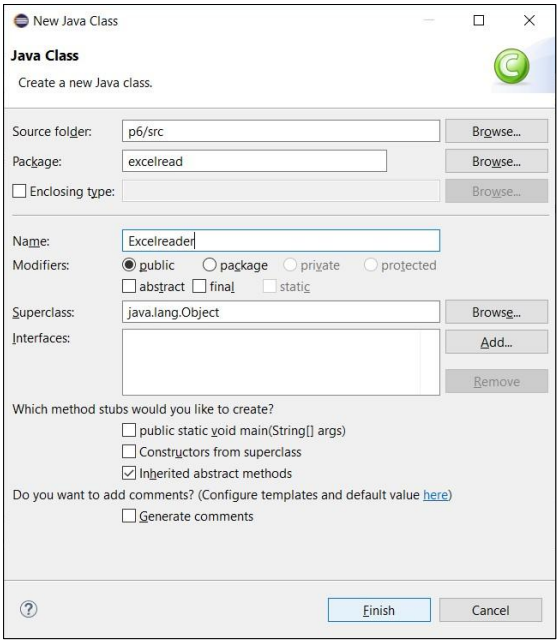
5) Create a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):





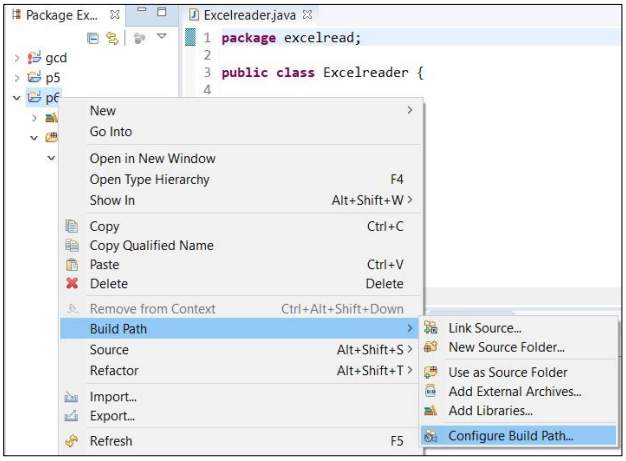
6) Create a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):



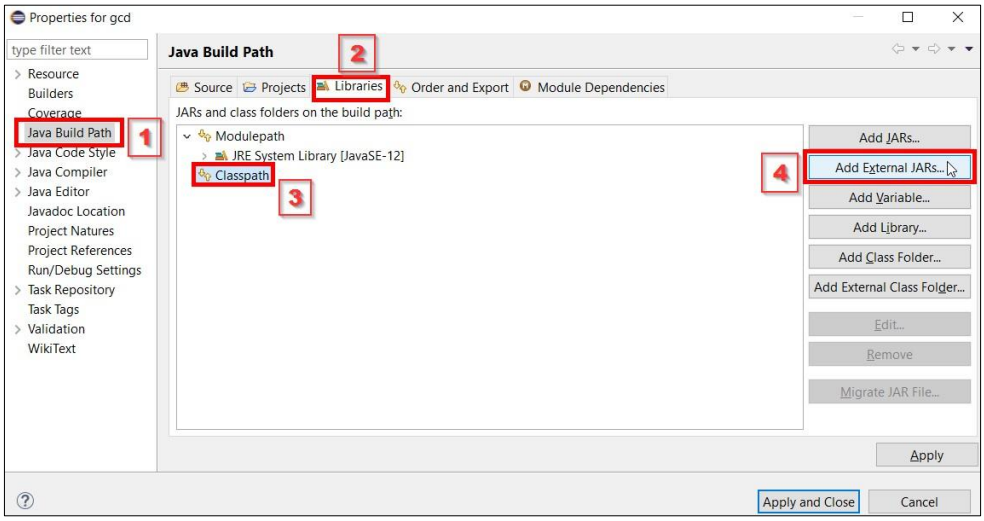


7) Adding "**JXL(JAR file)"** in Eclipse IDE:

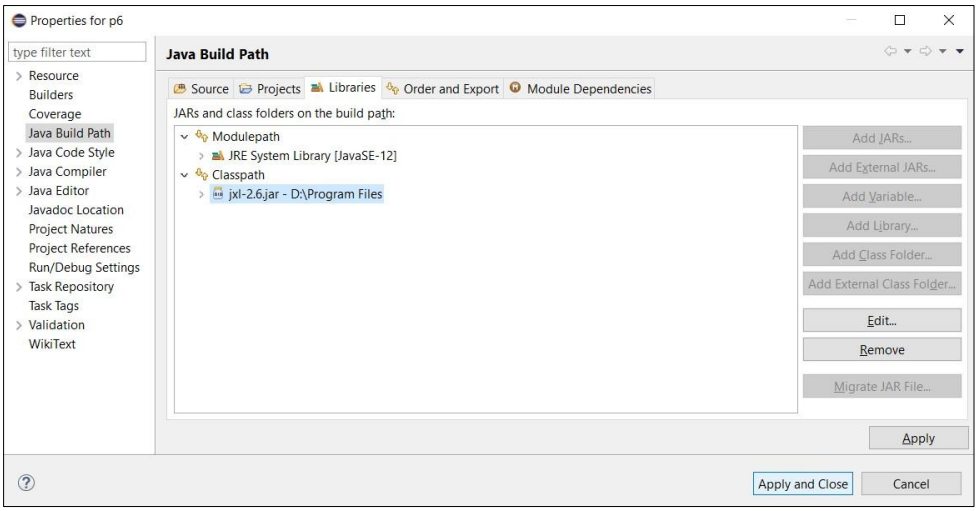
- **right-click on Project Name > Build Path > Configure Build Path…**



- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



- Browse and **add JAR file >** click **Apply and Close :**



8) Creating the ***script*** *in JAVA*:

(NOTE that this **script** will be run by Eclipse IDE)

(In simple words, it's like we are

-ordering Eclipse to run a script or to do a job

-of opening .xls file

-and fetching the marks count>=60 from the cells with the help of jxl.jar -and to show the result.

-Hence automating the work in a local system(PC)).

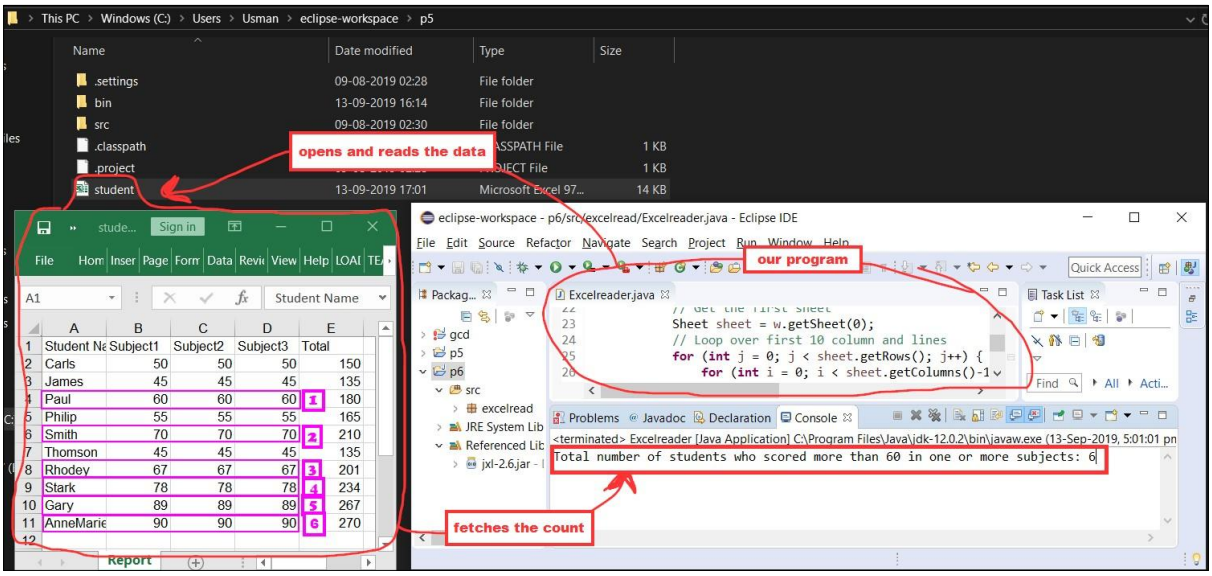
---(Excelreader.java)---

```
package excelread;
 import java.io.File;
import java.io.IOException;
import jxl.Cell; import
jxl.CellType; import
jxl.Sheet; import
jxl.Workbook;
import jxl.read.biff.BiffException;
 public class Excelreader {
private String inputFile;
       public void setInputFile(String inputFile) {this.inputFile = inputFile;}
```

```
	public void read() throws IOException {
File inputWorkbook = new File(inputFile);
		Workbook w;
boolean flag=false;
		int count=0;
		try {
			w = Workbook.getWorkbook(inputWorkbook);
			// Get the first sheet
			Sheet sheet = w.getSheet(0);
// Loop over first 10 column and lines                    for
(int j = 0; j < sheet.getRows(); j++) {
                        for (int i = 0; i < sheet.getColumns()-1; i++) {
                        Cell cell = sheet.getCell(i, j);
		if (cell.getType() == CellType.NUMBER) {

	if(Integer.parseInt(cell.getContents())>=60){
                                                flag = true;
                                                if(flag == true){
                                        count++;
                                                        flag=false;
                                                }
                                                break;
                                        }
                                }
                        }
                        }
                        System.out.println("Total number of students who scored more
than 60 in one or more subjects: " +count);
		}
		catch (BiffException e) {e.printStackTrace();}
	}


	public static void main(String[] args) throws IOException {
Excelreader test = new Excelreader();

test.setInputFile("C:\\Users\\Usman\\eclipseworkspace\\p5\\student.xls");
		test.read();
	}
}
```

9) Run the file from Eclipse IDE:

- **OUTPUT:**



10) Finish!

Partical 7

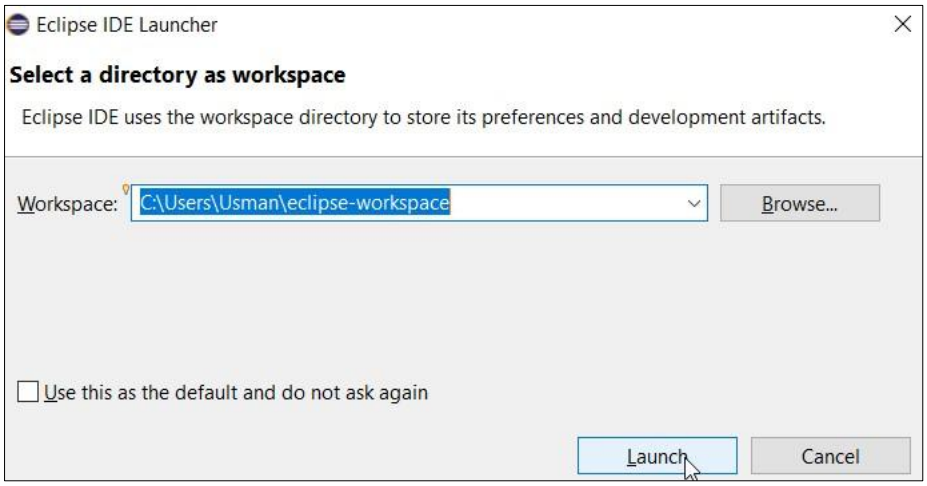
#AIM: Write and test a program for logging in facebook webpage.

PRE-REQUISITES:

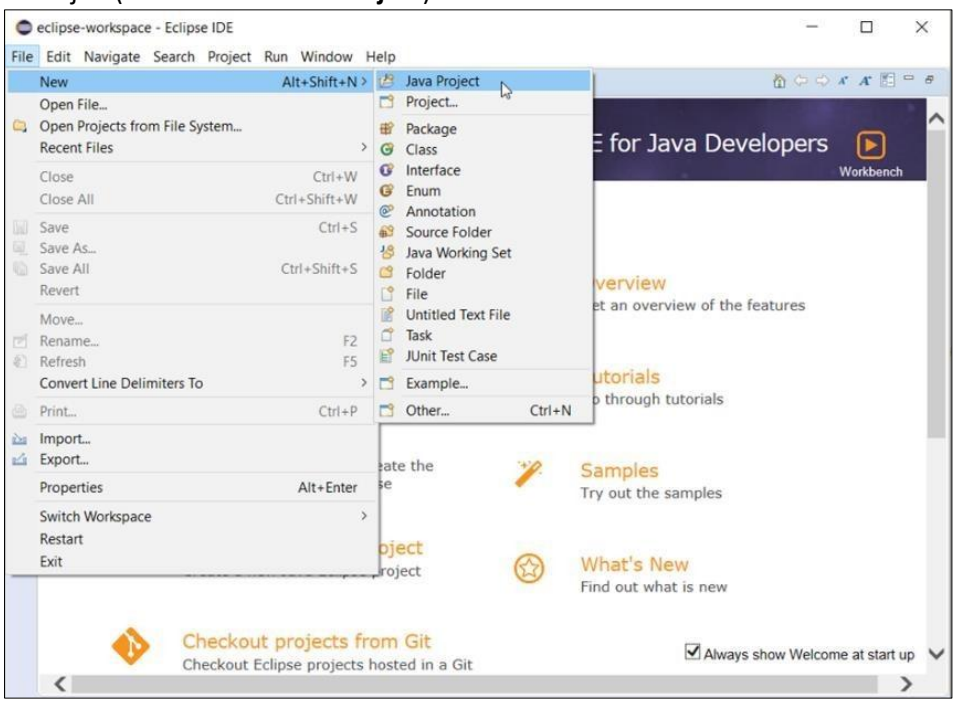
1) Check that you have **JDK**.
2) Check that you have **Eclipse IDE**.
3) Check that you have **Selenium *Server Driver* and *Client Driver*(JAR files)**.
4) Check that you have **Gecko Driver**.
5) Check that you have a stable Internet connection.

STEPS:

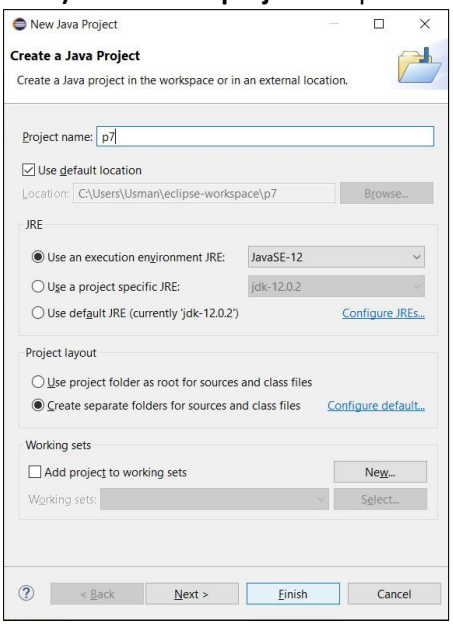
1) **Open Eclipse**. Select your workspace directory. Click **Launch:**

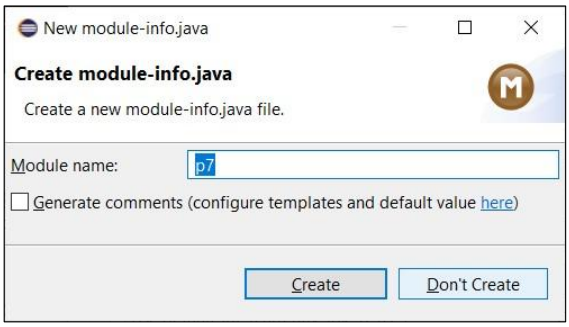


2) **Create** a Project(**File > New > Java Project**):



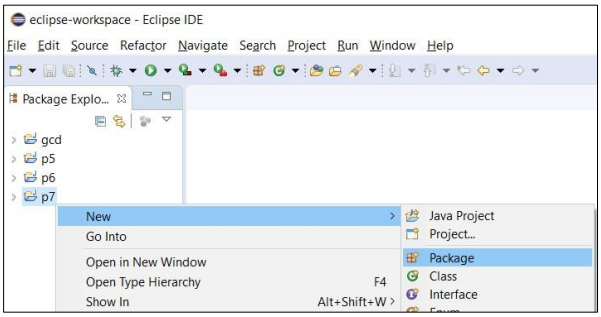
3) **Name the project** as “p7” **>** click **Finish >** click **Don’t Create** module:

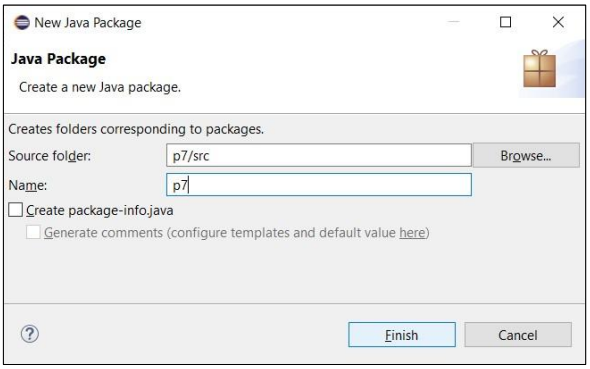




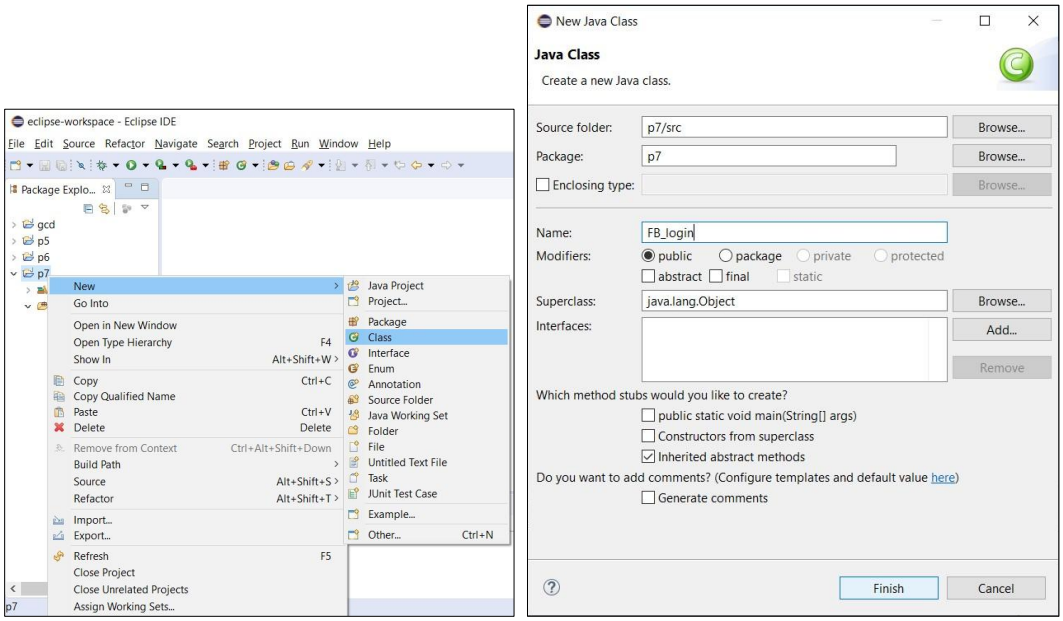
4) **Close the “Welcome” tab**.

5) **Create** a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):

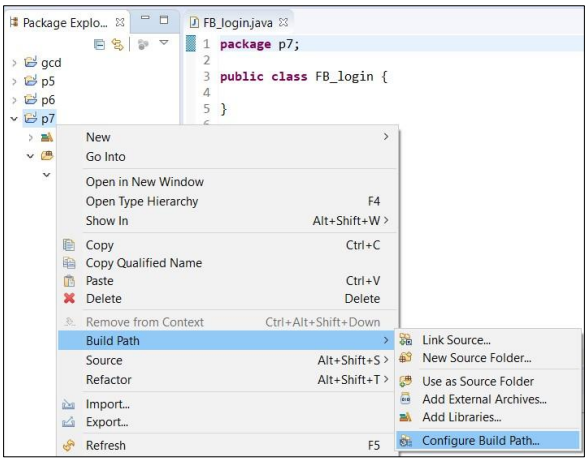




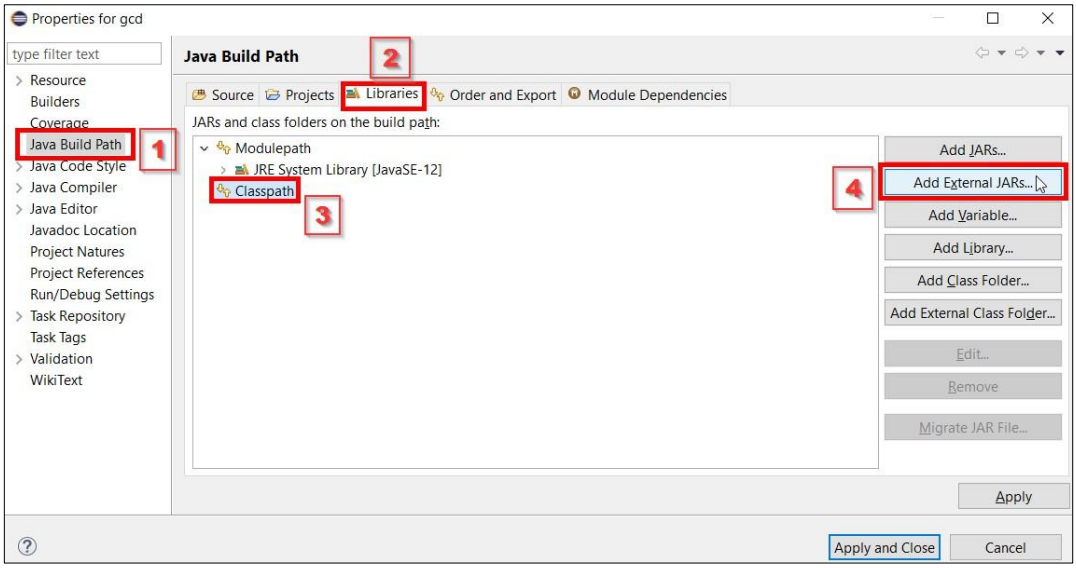
6) **Create** a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):



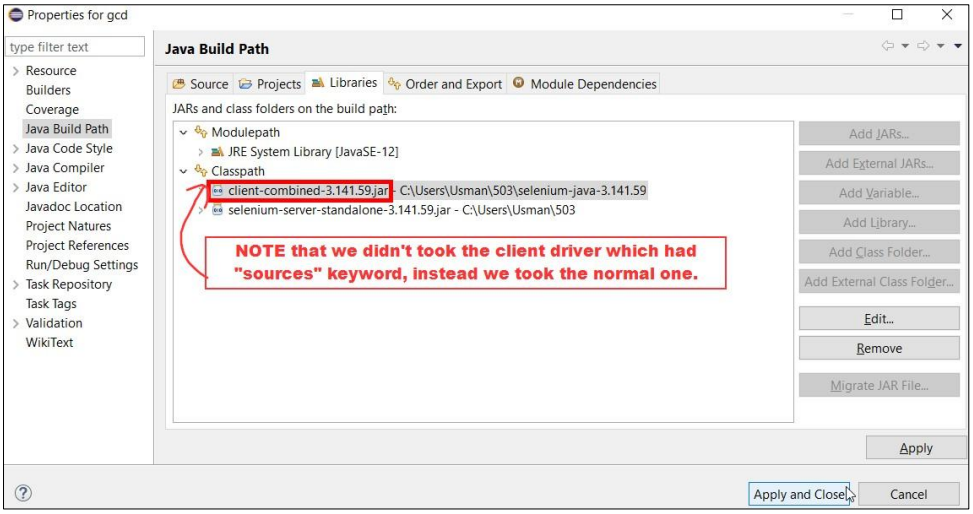
7) Adding **"Selenium *Server Driver* and *Client Driver*(JAR files)"** in Eclipse IDE: • **right-click on Project Name > Build Path > Configure Build Path…**



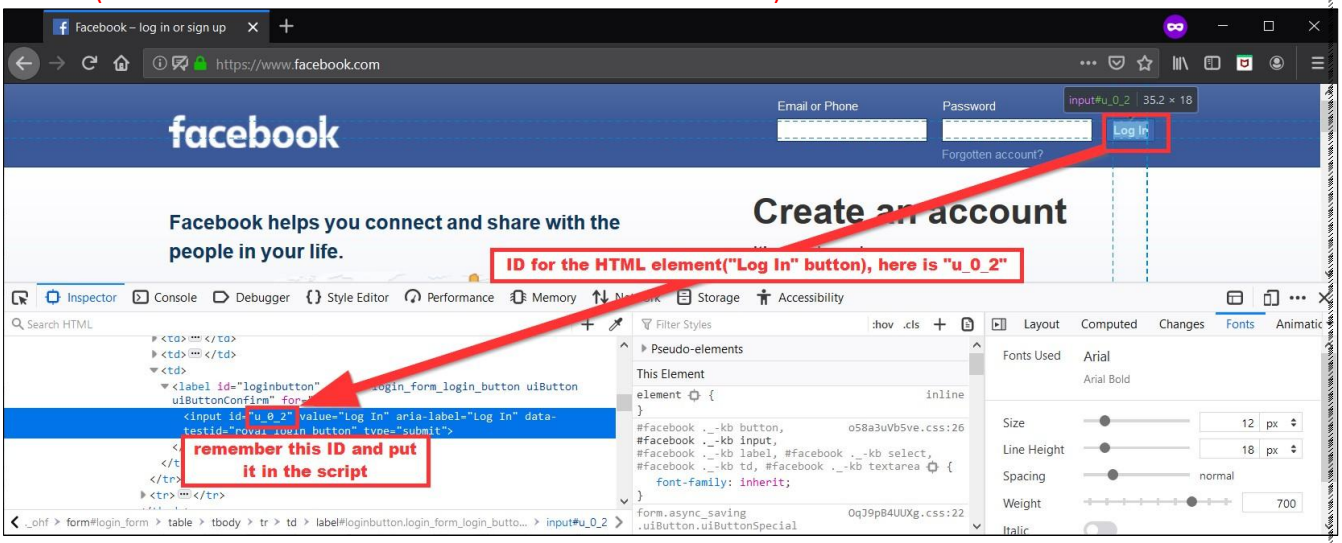
- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



- Browse and **add JAR files >** click **Apply and Close :**



8) Fetching ID's of the HTML attributes of the elements from the facebook webpage. For instance we looking for the ID behind "Log In" button HTML element **(right-click over element**(button/textbox) **>** click **Inspect Element):**
(do the same for EMAIL TEXTBOX & PASSWORD TEXTBOX)



9) Creating the ***script*** *in JAVA* :
(NOTE that this **script** will be run by Eclipse IDE)
(In simple words, it's like we are
-ordering Eclipse to run a script or to do a job
-of opening the browser, visiting the URL
-and putting credentials in textboxes and clicking button with the help of Selenium Drivers - and to show the result.
-Hence automating the work in browser for logging in)

- Now we'll put the path of "geckodriver" in a String ***driverPath***
- And in here, we'll **put the ID's in the *.id()* method respectively**.

---(FB_login.java)---

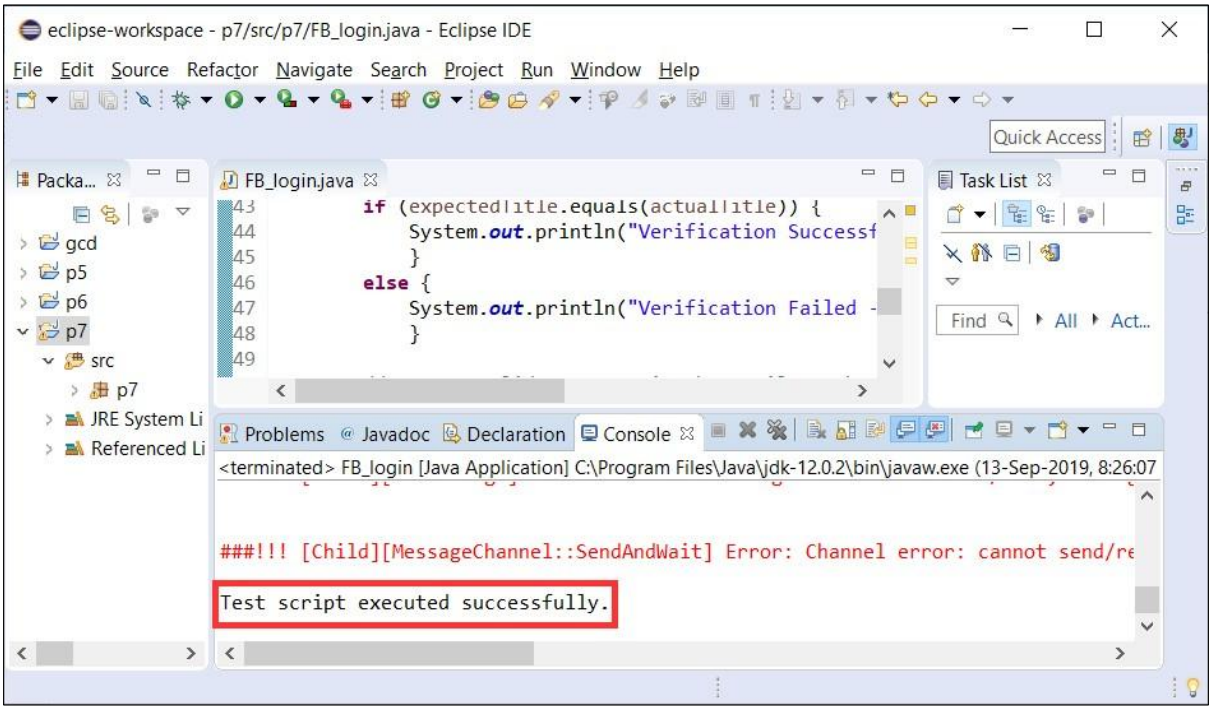
```
package p7;
```

```
import org.openqa.selenium.By; import
org.openqa.selenium.Keys; import
org.openqa.selenium.WebDriver; import
org.openqa.selenium.WebElement; import
org.openqa.selenium.firefox.FirefoxDriver; import
org.openqa.selenium.firefox.*; import
org.openqa.selenium.firefox.FirefoxOptions; import
org.openqa.selenium.firefox.FirefoxProfile; import
org.openqa.selenium.firefox.internal.ProfilesIni;

public class FB_login {
       static String driverPath = "C:\\Users\\Usman\\503\\geckodriver.exe";

    public static void main(String[] args) {
     System.setProperty("webdriver.gecko.driver", driverPath);
              //DesiredCapabilities capabilities = DesiredCapabilities.firefox();
              //capabilities.setCapability("marionette",true);
              ProfilesIni allProfiles = new ProfilesIni();
              FirefoxProfile fp = new FirefoxProfile();
fp.setPreference(FirefoxProfile.PORT_PREFERENCE,"7055");
FirefoxOptions options = new FirefoxOptions();
              options.setProfile(fp);

              //objects and variables instantiation
        WebDriver driver = new FirefoxDriver(options);
        String appUrl = "https://www.facebook.com/";

        //launch the firefox browser and open the application url
driver.get(appUrl);

        //maximize the browser window
driver.manage().window().maximize();

        //declare and initialize the variable to store the expected title of the
webpage.
        String expectedTitle = "Facebook – log in or sign up";

        //fetch the title of the web page and save it into a string variable
        String actualTitle = driver.getTitle();

        //compare the expected title of the page with the actual title of the page
and print the result
        if (expectedTitle.equals(actualTitle)) {
              System.out.println("Verification Successful - The correct title is
displayed on the web page.");
              }
else {
              System.out.println("Verification Failed - An incorrect title is
displayed on the web page.");
              }

        //enter a valid username in the email textbox
        WebElement username = driver.findElement(By.id("email"));
username.clear();
        username.sendKeys("your email id");
```

```
        //enter a valid password in the password textbox
WebElement password = driver.findElement(By.id("pass"));
password.clear();
        password.sendKeys("your password");

password.sendKeys(Keys.ENTER);

        //click on the Sign in button
        WebElement LogInButton = driver.findElement(By.id("u_0_2"));
        LogInButton.click();

        //close the web browser
driver.close();
        System.out.println("Test script executed successfully.");

        //terminate the program
        System.exit(0);
    }
}
```

10) Run the file from Eclipse IDE:

- **OUTPUT:**



11) Finish!

Partical 8

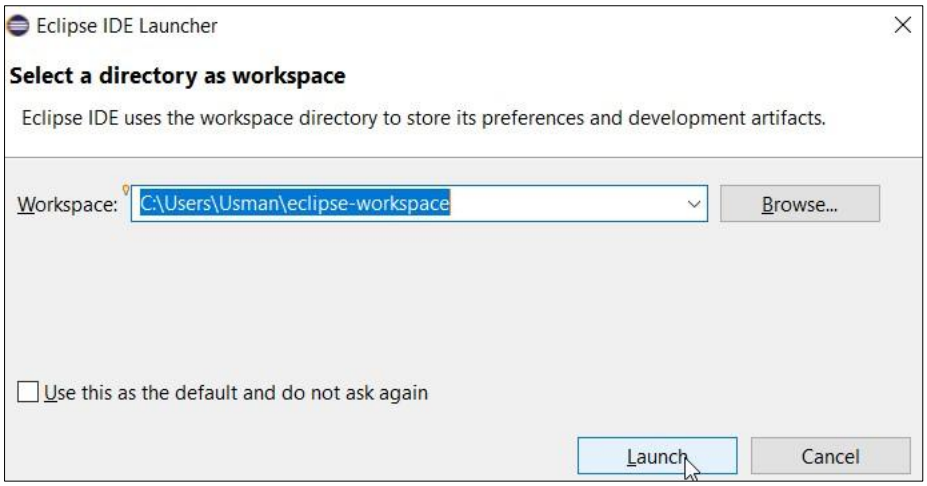
#AIM: Write and test a program to provide total number of objects present/available on webpage.

PRE-REQUISITES:

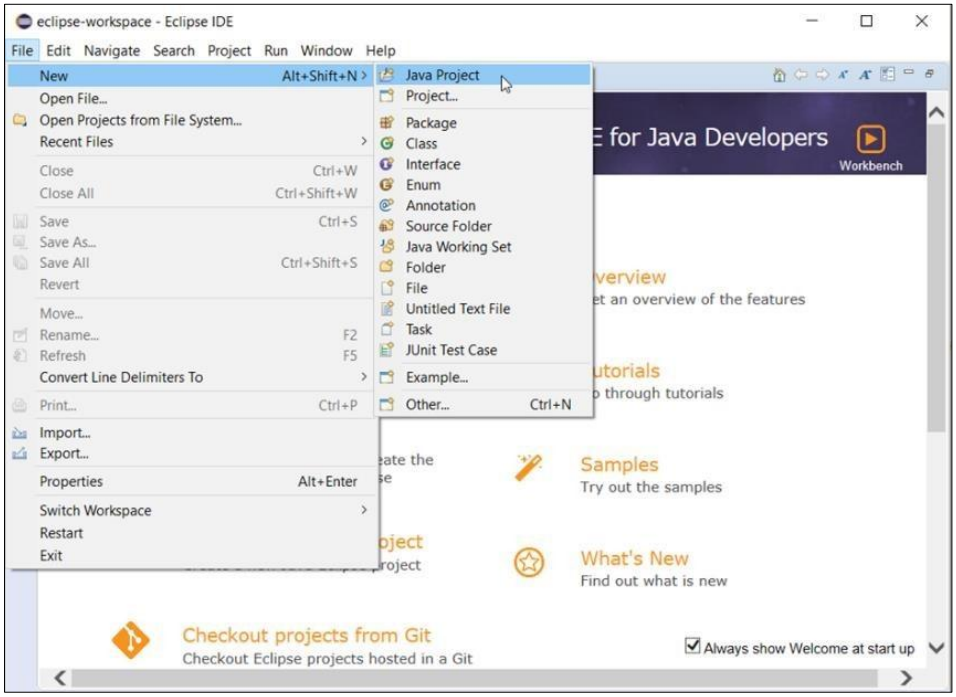
1) Check that you have **JDK**.
2) Check that you have **Eclipse IDE**.
3) Check that you have **Selenium *Server Driver* and *Client Driver*(JAR files)**.
4) Check that you have **Gecko Driver**.
5) Check that you have a stable Internet connection.

STEPS:

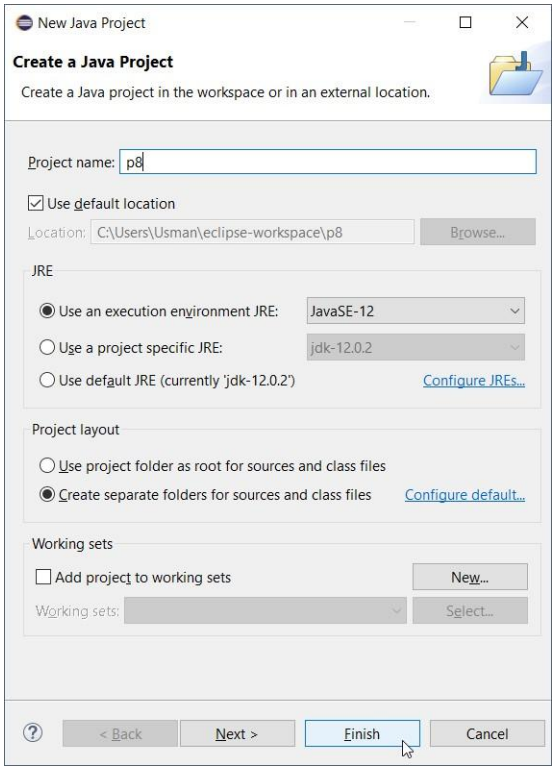
1) Open Eclipse. Select your workspace directory. Click **Launch:**

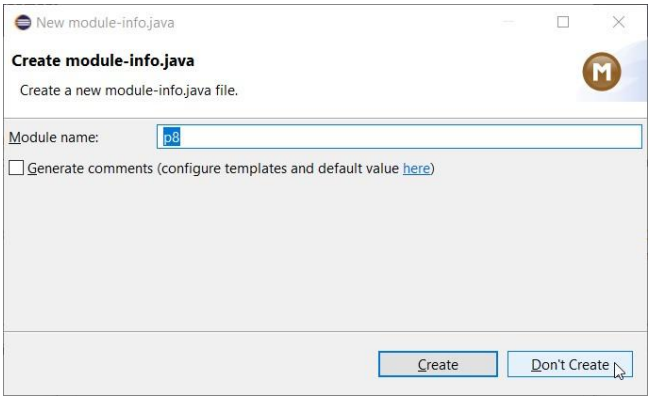


2) Create a Project(**File > New > Java Project**):



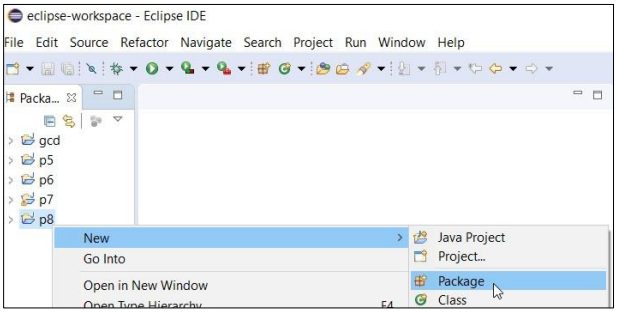
3) **Name the project** as “p8” **>** click **Finish >** click **Don’t Create** module:

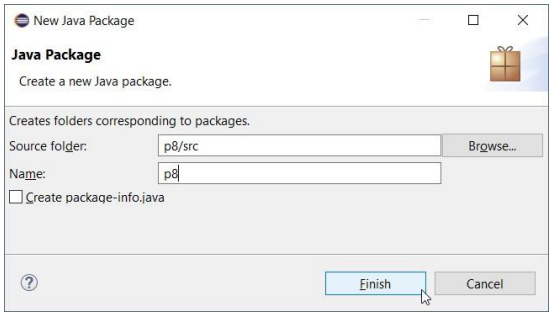




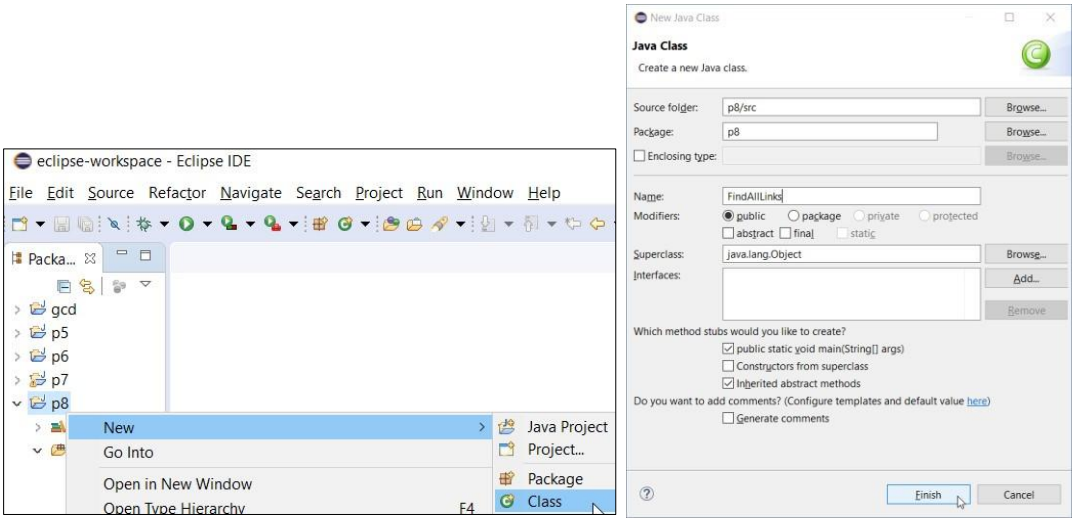
4) **Close the “Welcome” tab**.

5) **Create** a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):

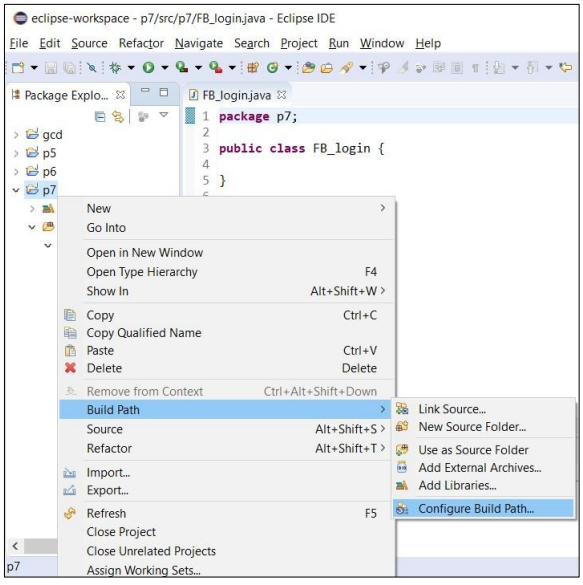




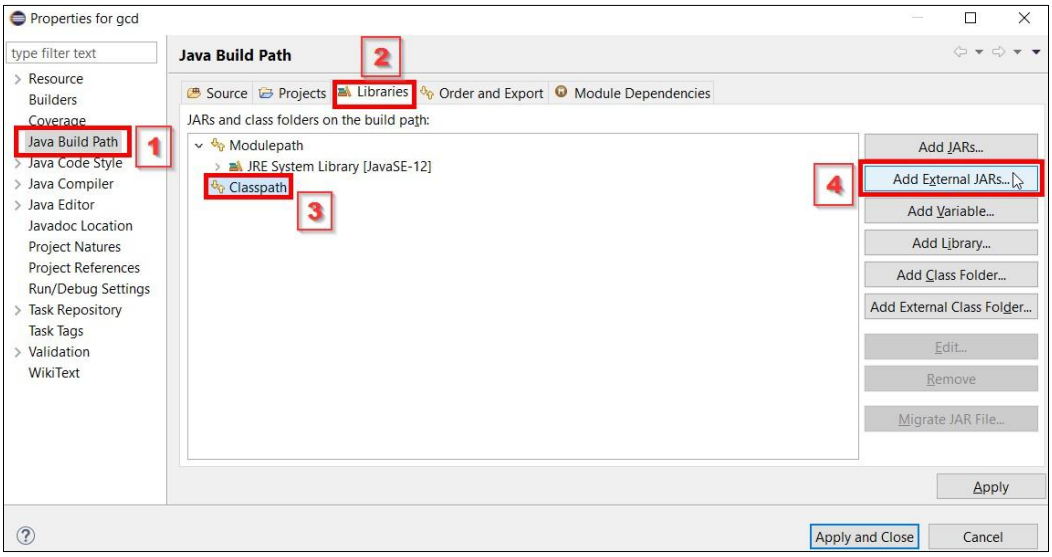
6) **Create** a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):



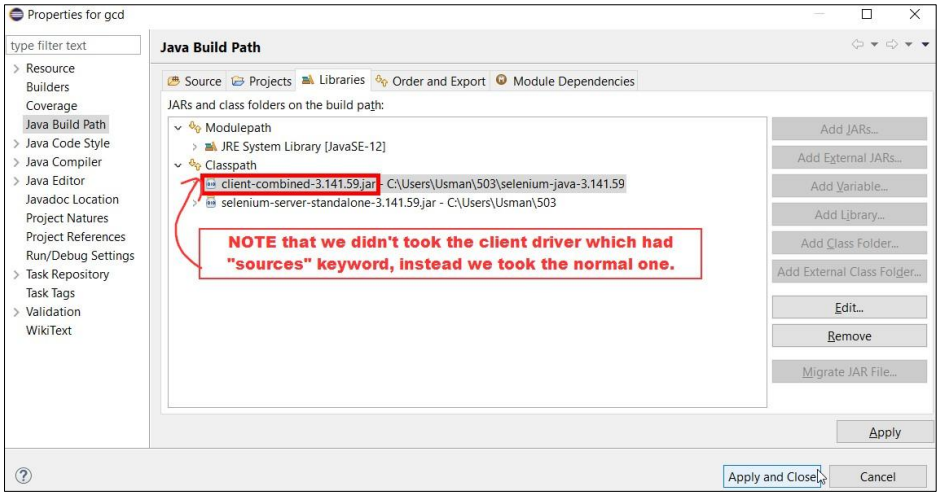
7) Adding **"Selenium *Server Driver* and *Client Driver*(JAR files)"** in Eclipse IDE**: • right-click on Project Name > Build Path > Configure Build Path…**



- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



- Browse and **add JAR files >** click **Apply and Close :**



8) Creating the ***script*** *in JAVA*:
(NOTE that this **script** will be run by Eclipse IDE)
(In simple words, it's like we are
-ordering Eclipse to run a script or to do a job
-of opening the browser, visiting the URL
-and finding the <a> tag WebElements with the help of Selenium Drivers -and to show the result.
-Hence automating the work in browser)

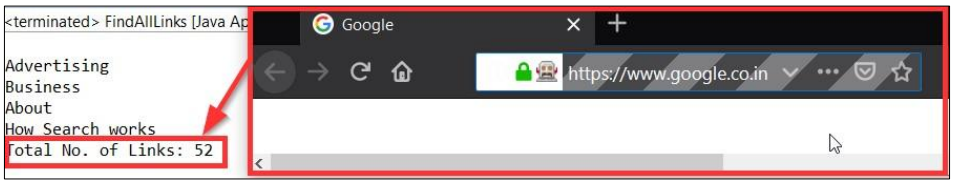
- Now we'll put the path of "geckodriver" in a String ***driverPath***

---(FindAllLinks.java)---

```
package p8;
 import org.openqa.selenium.By; import
org.openqa.selenium.WebDriver; import
org.openqa.selenium.WebElement; import
org.openqa.selenium.firefox.FirefoxDriver; import
org.openqa.selenium.firefox.*; import
org.openqa.selenium.firefox.FirefoxOptions; import
org.openqa.selenium.firefox.FirefoxProfile; import
org.openqa.selenium.firefox.internal.ProfilesIni;

public class FindAllLinks {
	static String driverPath = "C:\\Users\\Usman\\503\\geckodriver.exe";
public static void main(String[] args) {
		System.setProperty("webdriver.gecko.driver",driverPath);
		 //NOTE THAT: following commented lines are required for old machines
		//DesiredCapabilities capabilities = DesiredCapabilities.firefox();
		//capabilities.setCapability("marionette",true);
		//ProfilesIni allProfiles = new ProfilesIni();
		//FirefoxProfile fp = new FirefoxProfile();
		//fp.setPreference(FirefoxProfile.PORT_PREFERENCE,"7055");
		//FirefoxOptions options = new FirefoxOptions();
		//options.setProfile(fp);
		WebDriver driver = new FirefoxDriver();
String appUrl ="https://www.google.co.in/";
		driver.get(appUrl);
```

```
            java.util.List<WebElement> links =
driver.findElements(By.tagName("a"));

            for (int i = 1; i<links.size(); i=i+1)
            {
                  System.out.println(links.get(i).getText());
            }
            System.out.println("Total No. of Links: "+links.size());
            //driver.quit();
      }
}
```

9) Run the file from Eclipse IDE: OUTPUT:



Partical 9

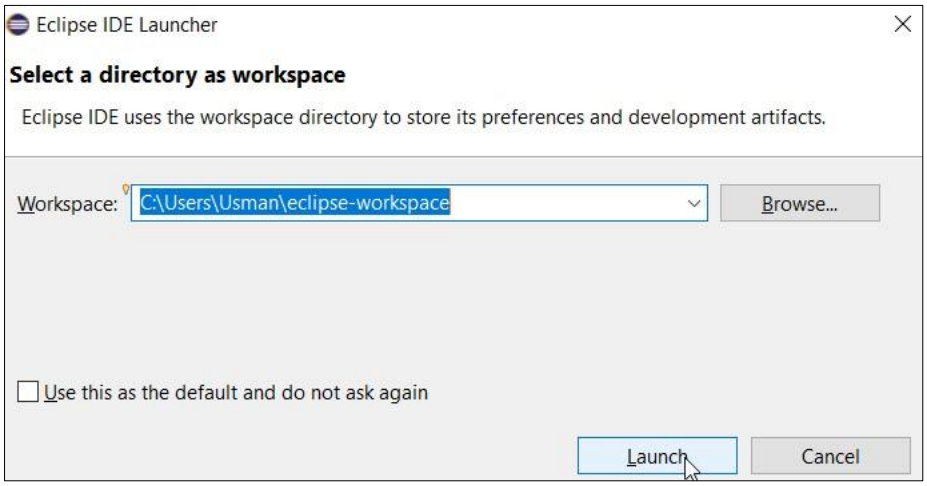
#AIM: Write and test a program to get the number of items in a list/combo box.

PRE-REQUISITES:

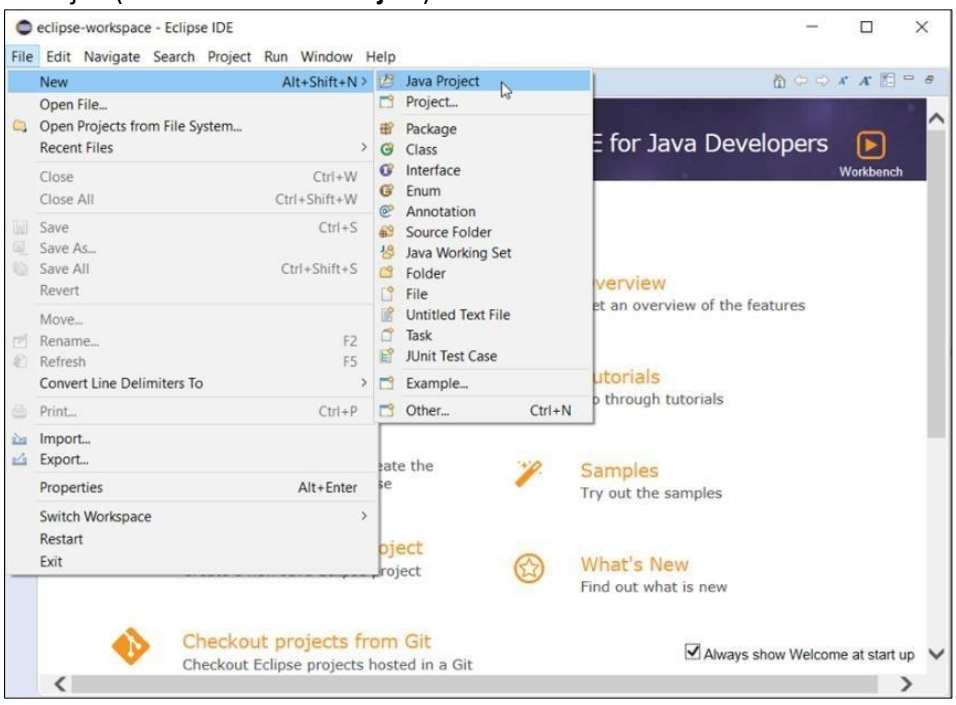
1) Check that you have **JDK**.
2) Check that you have **Eclipse IDE**.
3) Check that you have **Selenium *Server Driver* and *Client Driver*(JAR files)**.
4) Check that you have **Gecko Driver**.
5) Check that you have a stable Internet connection.

STEPS:

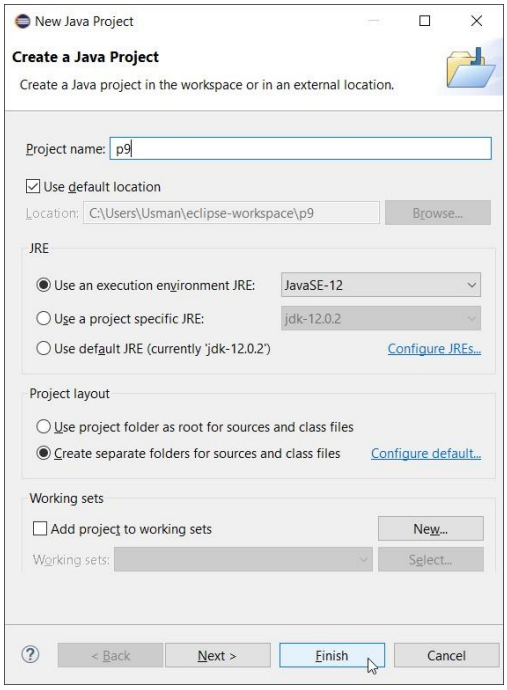
1) **Open Eclipse**. Select your workspace directory. Click **Launch:**

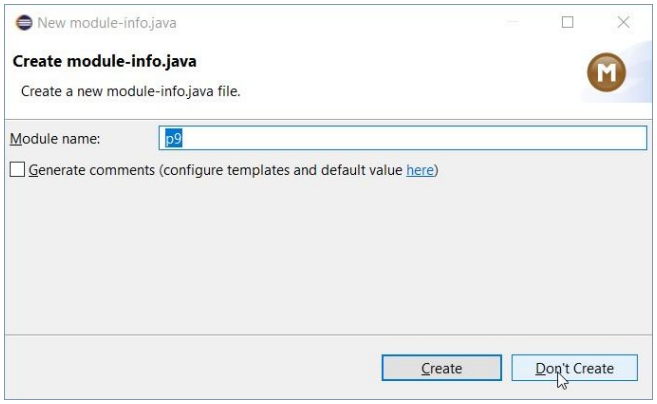


2) **Create** a Project(**File > New > Java Project**):



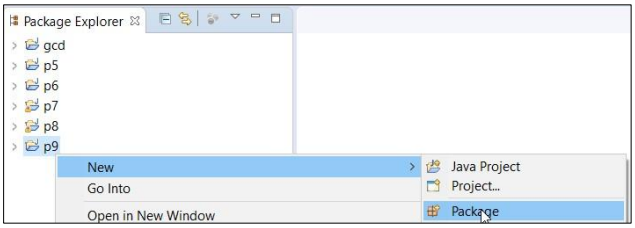
3) **Name the project** as “p9” **>** click **Finish >** click **Don’t Create** module:

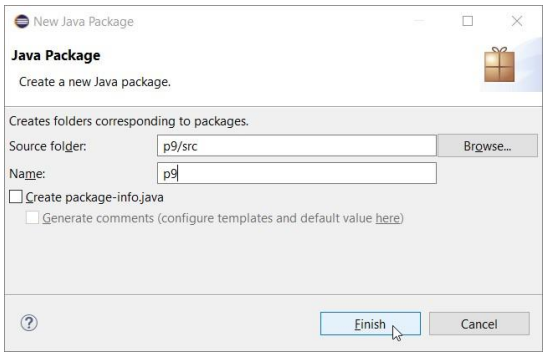




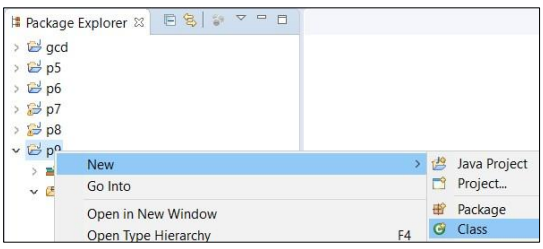
4) **Close the “Welcome” tab**.

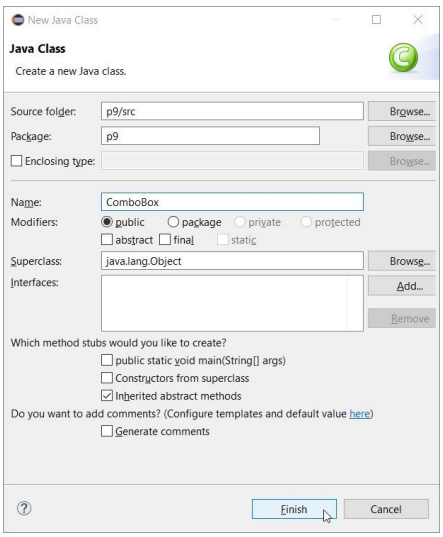
5) **Create** a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):



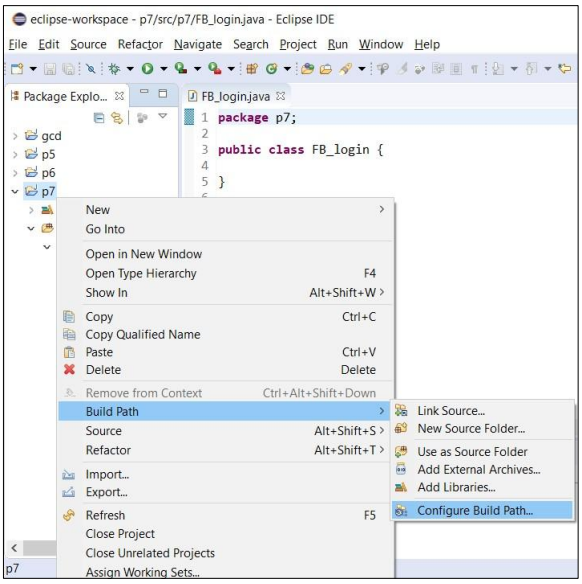


6) **Create** a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):

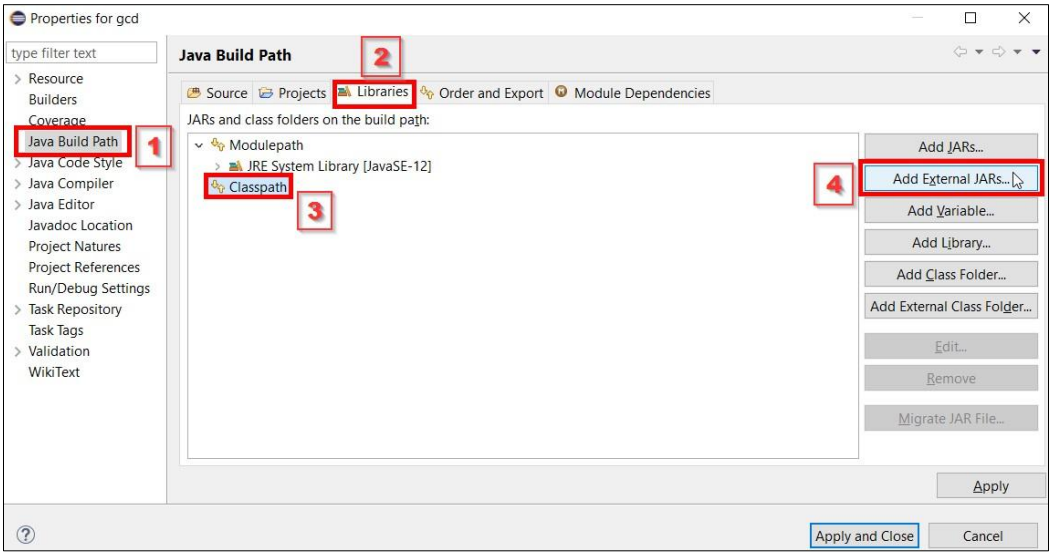




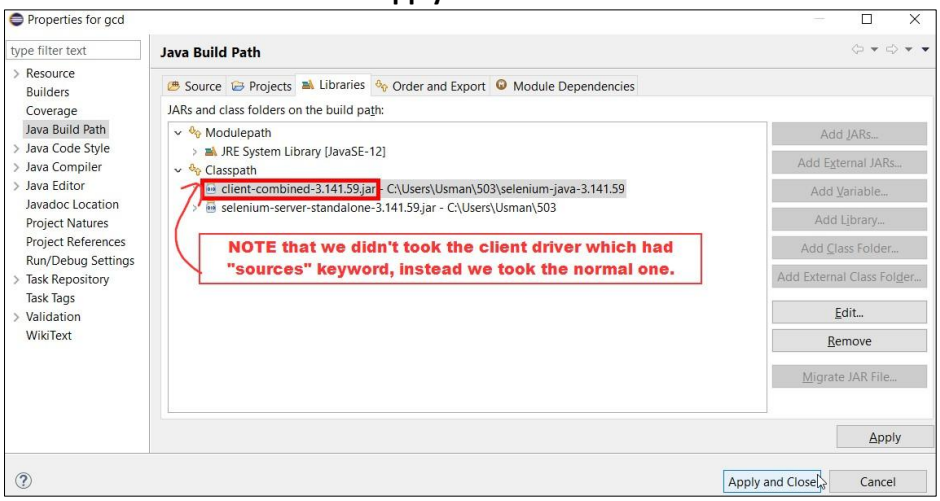
7) Adding **"Selenium *Server Driver* and *Client Driver*(JAR files)"** in Eclipse IDE**: •** **right-click on Project Name > Build Path > Configure Build Path…**



- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



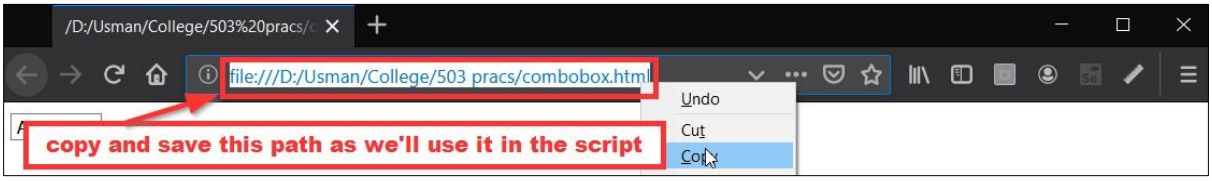
- Browse and **add JAR files >** click **Apply and Close :**



8) **Create** HTML file in a notepad **> Save it > Open it in browser > Copy the URL:**
(NOTE THAT: as this is our LOCAL FILE, this file will be opened thru STATIC URL in script)

---(combobox.html)---

```
<select id="continents">
        <option value="Asia">Asia</option>
        <option value="Europe">Europe</option>
        <option value="Africa">Africa</option>
</select>
```



9) Creating the ***script*** *in JAVA*:
(NOTE that this **script** will be run by Eclipse IDE)
(In simple words, it's like we are
-ordering Eclipse to run a script or to do a job
-of opening the browser, visiting the URL
-and finding the WebElement By "ID" with the help of "Select" class and Selenium Drivers - and to show the result.
-Hence automating the work in browser)

- Now we'll put the path of our LOCAL FILE(combobox.html) in a string
- Also put the path of "geckodriver" in a String ***driverPath***

---(ComboBox.java)---

```
package p9;
 import java.util.List; import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver; import
org.openqa.selenium.WebElement; import
org.openqa.selenium.firefox.FirefoxDriver; import
org.openqa.selenium.firefox.*; import
org.openqa.selenium.firefox.FirefoxOptions; import
org.openqa.selenium.firefox.FirefoxProfile; import
org.openqa.selenium.firefox.internal.ProfilesIni; import
org.openqa.selenium.support.ui.Select;

public class ComboBox {    static String driverPath =
"C:\\Users\\Usman\\503\\geckodriver.exe";
        public static void main(String[] args) {
            System.setProperty("webdriver.gecko.driver",driverPath);
            //NOTE THAT: following commented lines are required for old machines
            //DesiredCapabilities capabilities = DesiredCapabilities.firefox();
              //capabilities.setCapability("marionette",true);
              //ProfilesIni allProfiles = new ProfilesIni();
              //FirefoxProfile fp = new FirefoxProfile();
              //fp.setPreference(FirefoxProfile.PORT_PREFERENCE,"7055");
        //FirefoxOptions options = new FirefoxOptions();
//options.setProfile(fp);
```

```
		WebDriver driver = new FirefoxDriver();
		String appUrl ="https://www.toolsqa.com/automation-practice-form/";
//DYNAMIC URL(WEBSITE)
		//String appUrl = "
file:///D:/Usman/College/503%20pracs/combobox.html"; //STATIC URL(LOCAL FILE)
		driver.get(appUrl);

		Select oSelect = new
Select(driver.findElement(By.id("continents")));
		//Select oSelect = new
Select(driver.findElement(By.tagName("select"))); //this works too

		List<WebElement> oSize = oSelect.getOptions();
		int iListSize = oSize.size();

		for(int i =0; i < iListSize ; i++)
		{
			// Storing the value of the option
			String sValue = oSelect.getOptions().get(i).getText();
			// Printing the stored value
			System.out.println(sValue);
		}
		System.out.println("Total No. Items in Dropdown: "+iListSize);
		//driver.quit();
	}
}
```

10) Run the file from Eclipse IDE:

- **OUTPUT:**

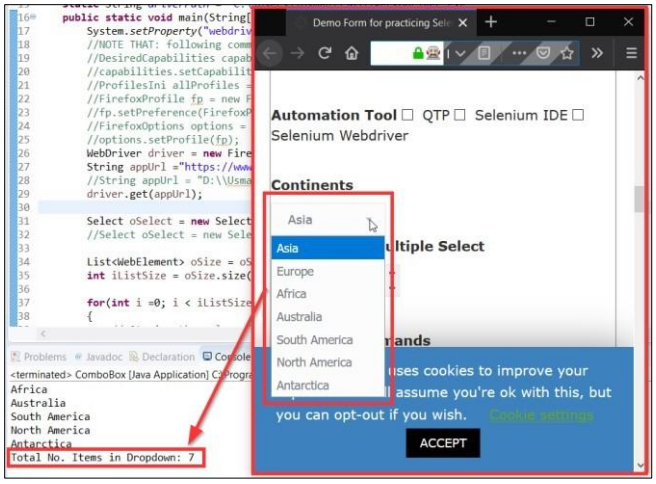
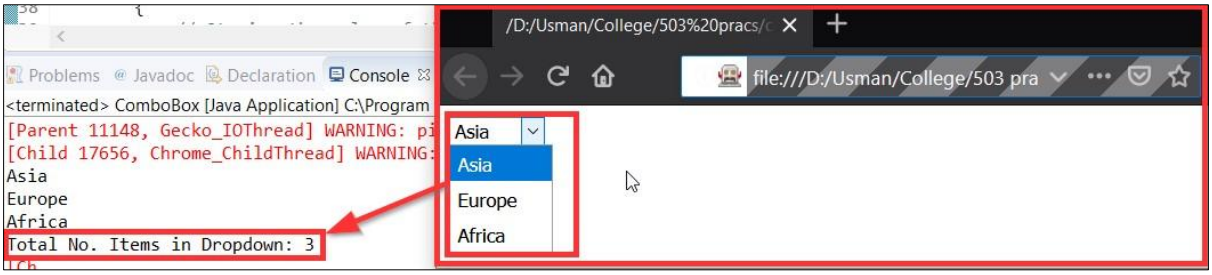


Figure 1: by using the DYNAMIC URL(website)



Partical 10

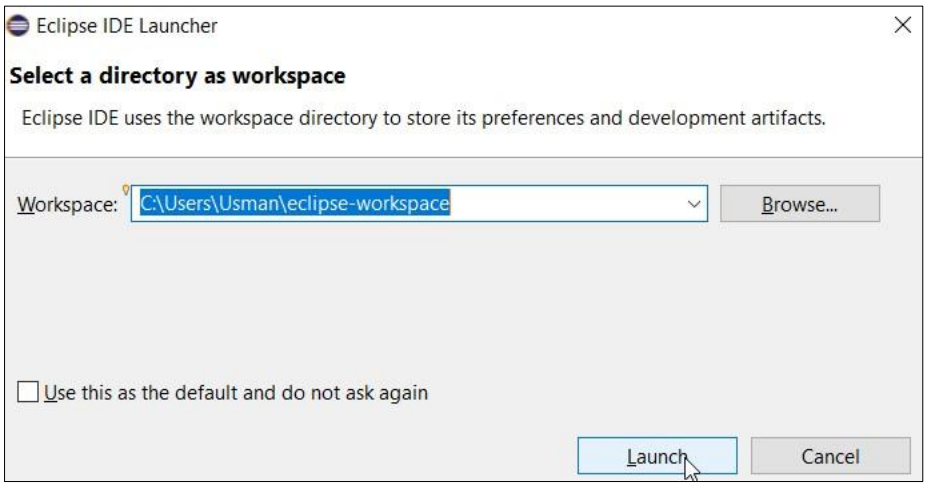
#AIM: Write and test a program to count the number of check boxes on the page checked and unchecked count.

PRE-REQUISITES:

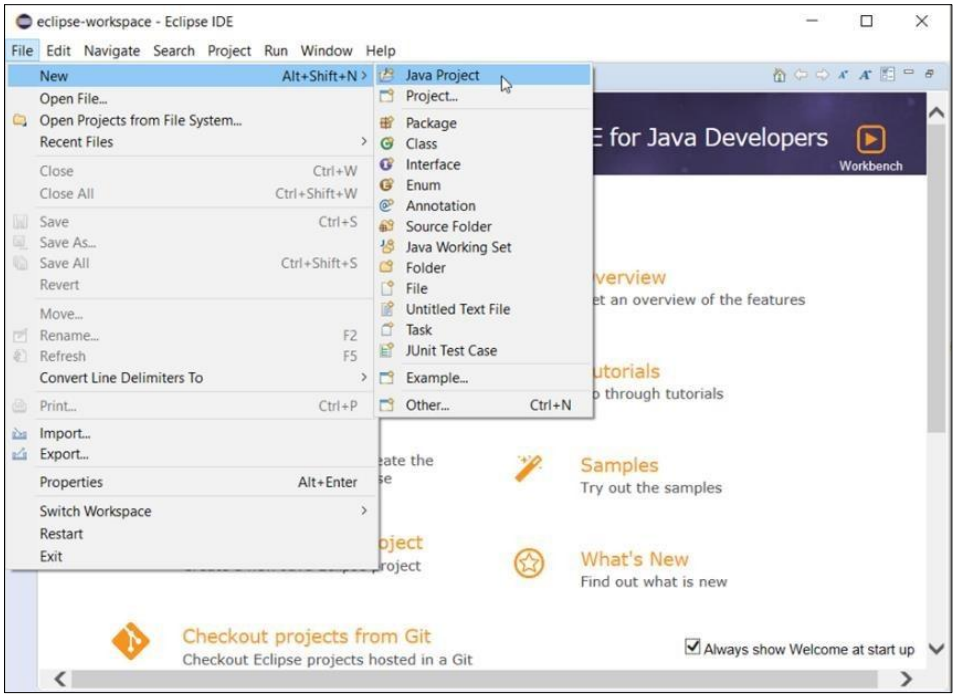
1) Check that you have **JDK**.
2) Check that you have **Eclipse IDE**.
3) Check that you have **Selenium *Server Driver* and *Client Driver*(JAR files)**.
4) Check that you have **Gecko Driver**.
5) Check that you have a stable Internet connection.

STEPS:

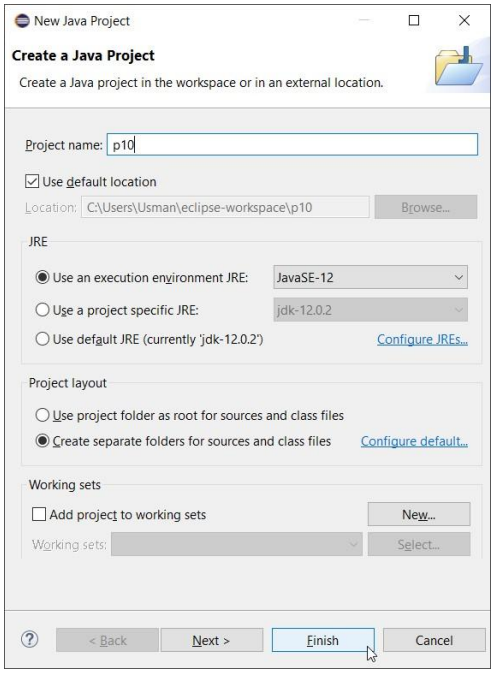
1) **Open Eclipse**. Select your workspace directory. Click **Launch:**

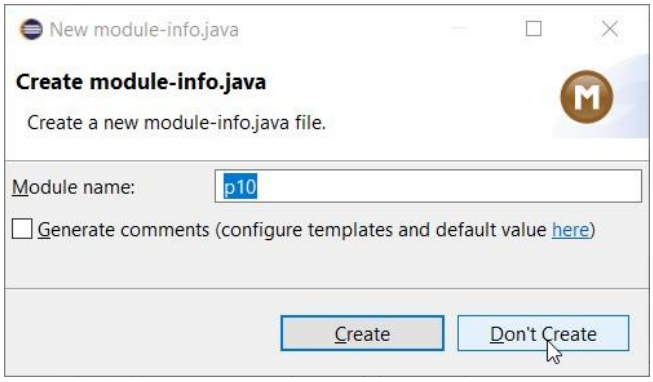


2) **Create** a Project(**File > New > Java Project**):



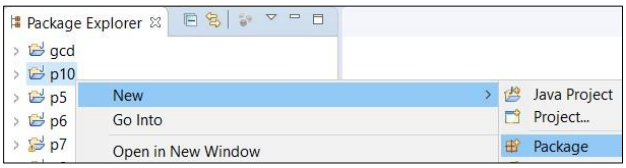
3) **Name the project** as “p10” **>** click **Finish >** click **Don’t Create** module:

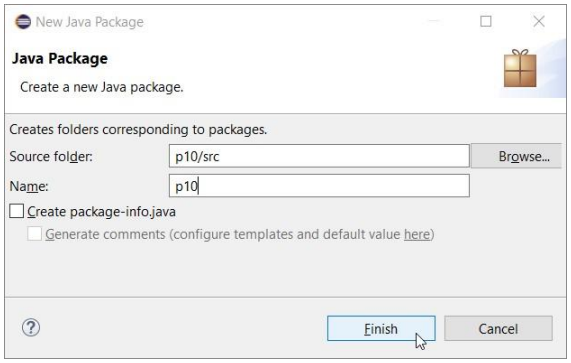




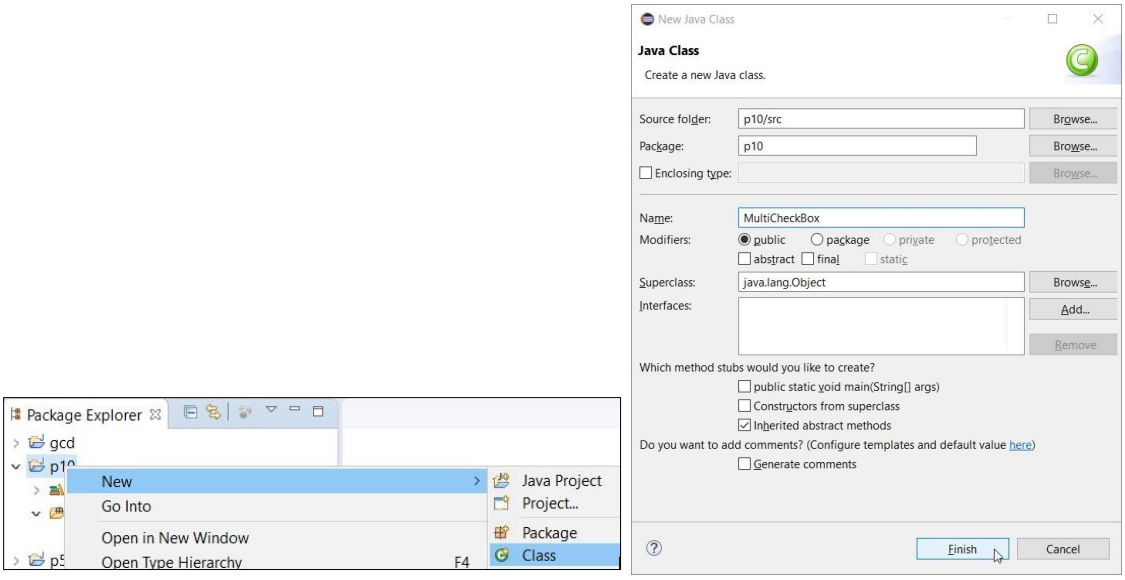
4) **Close the “Welcome” tab**.

5) **Create** a Package(**right-click on Project Name > New > Package > Name** it **> Finish**):

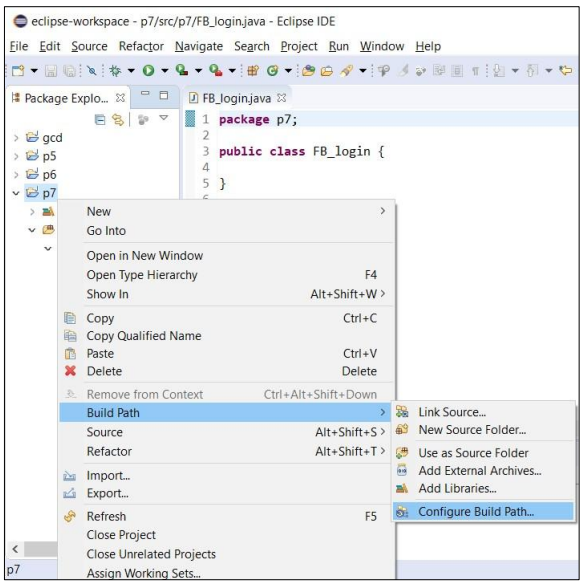




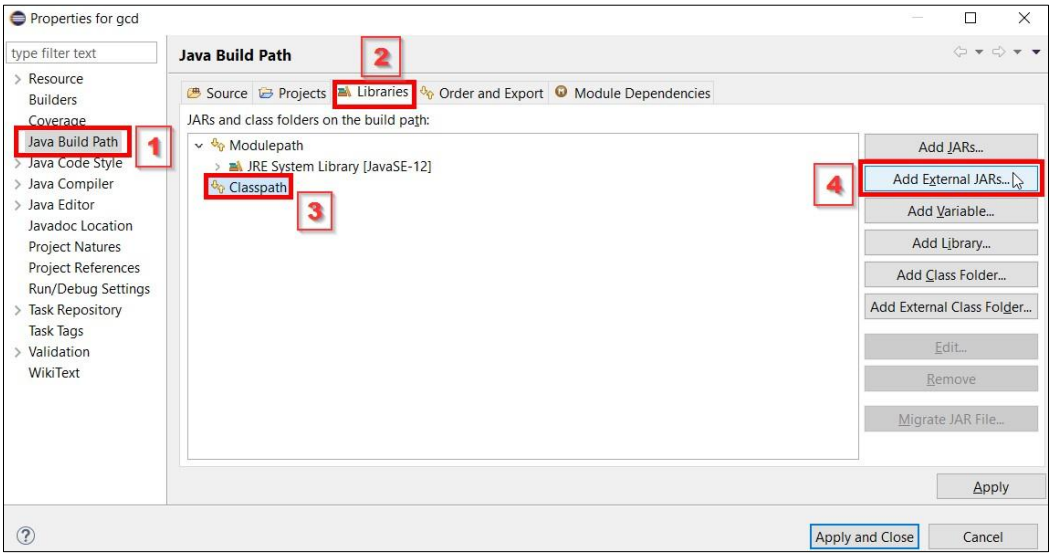
6) **Create** a Class(**right-click on Project Name > New > Class > Name** it **> Finish**):



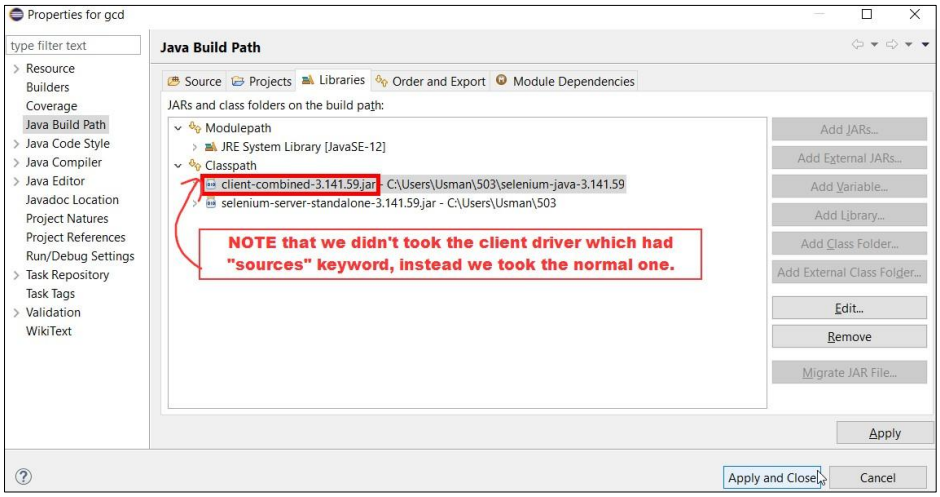
7) Adding **"Selenium *Server Driver* and *Client Driver*(JAR files)"** in Eclipse IDE**: • right-click on Project Name > Build Path > Configure Build Path…**



- now go under: **Java Build Path > Libraries > Classpath >** click **Add External JARs…**



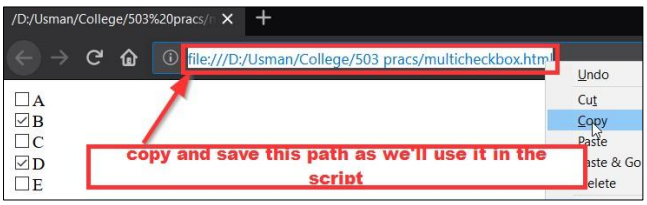
- Browse and **add JAR files >** click **Apply and Close :**



8) Create HTML file in a notepad **> Save it > Open it in browser > Copy the URL:**
(NOTE THAT: as this is our LOCAL FILE, this file will be opened thru STATIC URL in script)

---(multicheckbox.html)---

```
<input type="checkbox" value="A">A<br>
<input type="checkbox" value="B" CHECKED>B<br>
<input type="checkbox" value="C">C<br>
<input type="checkbox" value="D" CHECKED>D<br>
<input type="checkbox" value="E">E<br>
```



9) Creating the ***script*** *in JAVA*:
(NOTE that this **script** will be run by Eclipse IDE)

(In simple words, it's like we are
-ordering Eclipse to run a script or to do a job
-of opening the browser, visiting the URL
-and finding the WebElement By "xpath" with the help of Selenium Drivers -
and to show the result.
-Hence automating the work in browser)

- Now we'll put the path of our LOCAL FILE(multicheckbox.html) in a string
- Also put the path of "geckodriver" in a String ***driverPath***

---(MultiCheckBox.java)---

```
package p10;
 import java.util.List; import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver; import
org.openqa.selenium.WebElement; import
org.openqa.selenium.firefox.FirefoxDriver; import
org.openqa.selenium.firefox.*; import
org.openqa.selenium.firefox.FirefoxOptions; import
org.openqa.selenium.firefox.FirefoxProfile; import
org.openqa.selenium.firefox.internal.ProfilesIni;

public class MultiCheckBox {
	static String driverPath = "C:\\Users\\Usman\\503\\geckodriver.exe";
public static void main(String[] args) {
		System.setProperty("webdriver.gecko.driver",driverPath);
		//DesiredCapabilities capabilities = DesiredCapabilities.firefox();
		//capabilities.setCapability("marionette",true);
		//ProfilesIni allProfiles = new ProfilesIni();
		//FirefoxProfile fp = new FirefoxProfile();
		//fp.setPreference(FirefoxProfile.PORT_PREFERENCE,"7055");
		//FirefoxOptions options = new FirefoxOptions();
		//options.setProfile(fp);
		WebDriver driver = new FirefoxDriver();
		 String appUrl = "https://www.toolsqa.com/automation-practice-form/";
//DYNAMIC URL(WEBSITE)
		//String appUrl =
"file:///D:/Usman/College/503%20pracs/multicheckbox.html"; //STATIC URL(LOCAL
FILE)
		driver.get(appUrl);

		List<WebElement> checkBoxes =
driver.findElements(By.xpath("//input[@type='checkbox']"));
			int checkedCount=0, uncheckedCount=0;
for(int i=0; i<checkBoxes.size(); i++){
System.out.println(i+" checkbox is selected
"+checkBoxes.get(i).isSelected());
			if(checkBoxes.get(i).isSelected()) {checkedCount++;}
else {uncheckedCount++;}
		}
		//driver.quit();
		System.out.println("No. of selected checkbox: "+checkedCount);
		System.out.println("No. of unselected checkbox: "+uncheckedCount);
	}
}
```

10) Run the file from Eclipse IDE:

- **OUTPUT:**

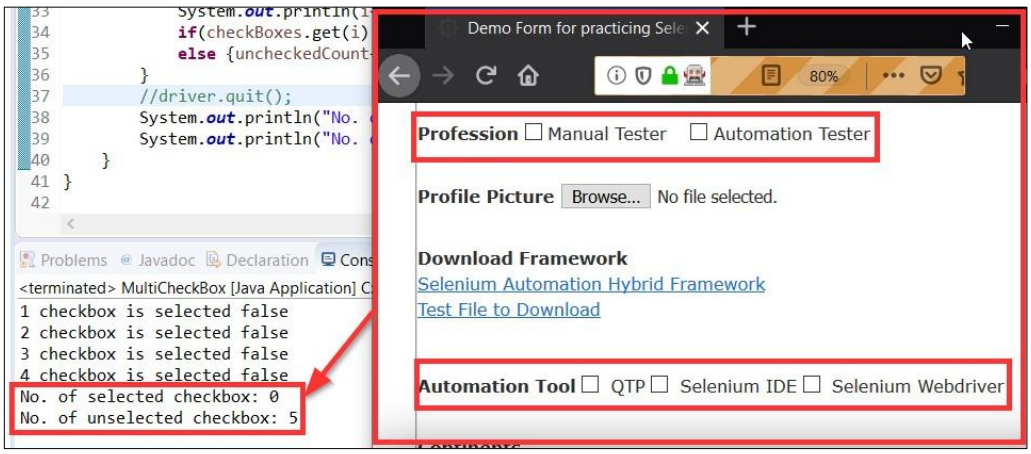


Figure 1: by using the DYNAMIC URL(website)