

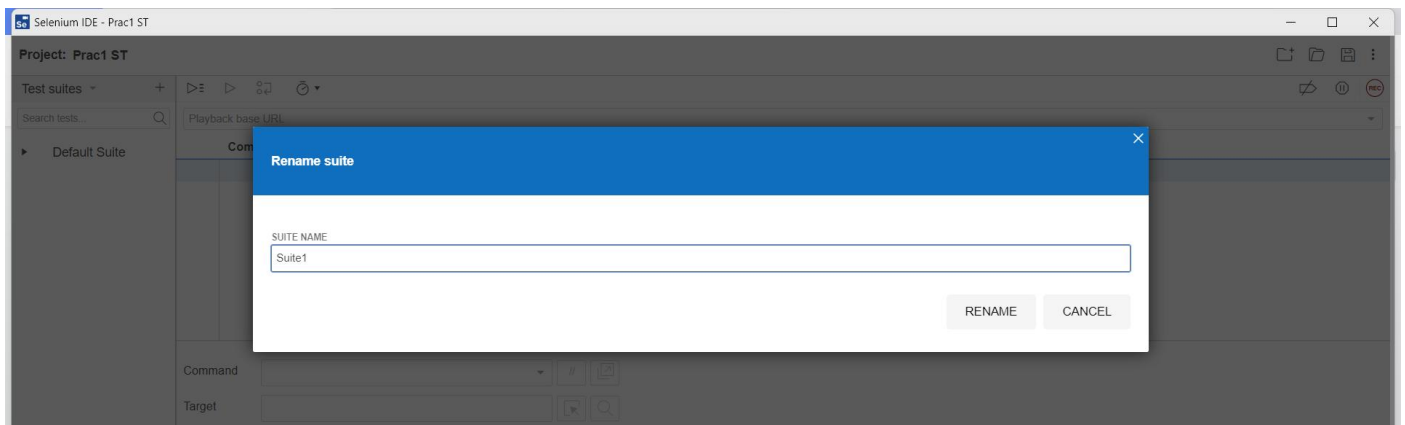
**TYCS SEM 5, SUBJECT: Software Testing and Quality Assurance, Name: Subiksh  
Shashidharan, Roll no: 08**

**Practical 1**

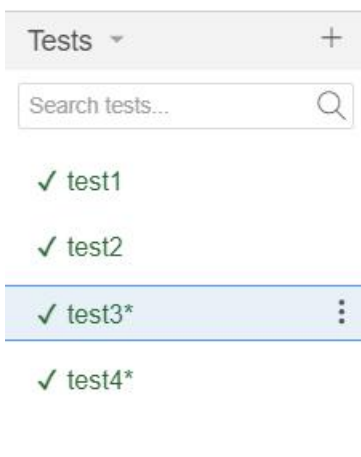
**Aim :** Install Selenium IDE; Write a test suite containing minimum 4 test cases for different formats.

**STEPS:**

- 1) Google “Selenium IDE chrome” and click on the first link. Add the “Selenium IDE” extension to your browser.
- 2) For testing, we need to create a test case suite, so we create the same in Selenium IDE.
- 3) Press CTRL+2 and Rename the Suite, “Suite1”



- 4) Add tests in the Selenium IDE, total 4 tests
- 5) We will use 4 different websites in each of the tests



6) For Test1:

<https://www.google.com>

	Command	Target	Value
1	open	/	
2	set window size	1297x816	
3	click	name=q	
4	type	name=q	abcdef
5	send keys	name=q	\$(KEY_ENTER)

## 7) For Test2:

https://classroom.google.com/u/0/

	Command	Target	Value
1	open	/	
2	set window size	1298x816	
3	type	id=sb_form_q	bing search
4	send keys	id=sb_form_q	\${KEY_ENTER}
5	mouse over	id=desc	
6	mouse out	id=desc	
7	click	linkText=Bing	

## 8) For Test3:

https://classroom.google.com/u/0/

	Command	Target	Value
1	open	https://www.calculator.net/	
2	set window size	1298x816	
3	click	css=div:nth-child(1) > .scinm:nth-child(2)	
4	click	css=div:nth-child(3) > .sciop:nth-child(4)	
5	click	css=div:nth-child(3) > .scinm:nth-child(2)	
6	click	css=.scieq:nth-child(4)	

## 9) For Test4:

https://classroom.google.com/u/0/

	Command	Target	Value
1	✓ open	https://classroom.google.com/u/0/	
2	✓ set window size	1297x816	
3	✓ mouse over	css=.GR7Qld.NMm5M	
4	✓ click	css=gHz6xd:nth-child(2) .YVvGBb:nth-child(2)	
5	✓ close		

10) Press CTRL+2 to go to Suites and Add 4 Tests

11) Now we can run this suite which will run all the 4 tests

12) **Note** : To play a suite you must select a test case from within that suite

▼ ✓ Suite1*	Command	Target
✓ test3	1 ✓ open	https://www.calculator.net/
✓ test4	2 ✓ set window size	1298x816
✓ test1*	3 ✓ click	css=div:nth-child(1) > .scinm:nth-child(2)
✓ test2*	4 ✓ click	css=div:nth-child(3) > .sciop:nth-child(4)
	5 ✓ click	css=div:nth-child(3) > .scinm:nth-child(2)
	6 ✓ click	css=.scieq:nth-child(4)

## Practical 2

**Aim :** Conduct a test suite for any two web sites.

- 1) Create a New Test Suite, we name it Suite1
- 2) Create two tests for two different websites
- 3) Test 1 (t1) :

- 1.open on <https://www.google.com/> OK07:41:27
- 2.setWindowSize on 960x816 OK07:41:27
- 3.type on name=q with value test1 OK07:41:27
- 4.sendKeys on name=q with value \${KEY\_ENTER} OK07:41:28
- 5.runScript on window.scrollTo(0,3.200000047683716) OK07:41:28
- 6.click on name=q OK07:41:30
- 7.type on name=q with value test11 OK07:41:30
- 8.sendKeys on name=q with value \${KEY\_ENTER} OK07:41:30
- 9.close OK

- 4) Test 2 (t2) :

- 1.open on <https://www.bing.com/> OK07:48:10
- 2.setWindowSize on 960x816 OK07:48:11
- 3.type on id=sb\_form\_q with value test2 OK07:48:11
- 4.sendKeys on id=sb\_form\_q with value \${KEY\_ENTER} OK07:48:11
- 5.click on id=sb\_form\_q OK07:48:12
- 6.type on id=sb\_form\_q with value test22 OK07:48:12
- 7.sendKeys on id=sb\_form\_q with value \${KEY\_ENTER} OK07:48:12
- 8.close OK07:48:13

- 4) Press CTRL+2 to go to Suites and Add 4 Tests
- 5) Now we can run this suite which will run all the 4 tests

- 6) **Note :** To play a suite you must select a test case from within that suite

Selenium IDE - STQA prac2\*

Project: STQA prac2\*

Test suites +

Search tests...

https://www.bing.com/

Command	Target	Value
✓ send keys	name=q	\${KEY_ENTER}
✓ run script	window.scrollTo(0,3.200000047683716)	
✓ click	name=q	
✓ type	name=q	test11
✓ send keys	name=q	\${KEY_ENTER}
✓ close		

Command: open

Target: <https://www.google.com/>

Value:

Description:

Log Reference

Running 't2'

1. open on <https://www.bing.com/> OK 07:52:38
2. setWindowSize on 960x816 OK 07:52:38
3. type on id=sb\_form\_q with value test2 OK 07:52:38
4. sendKeys on id=sb\_form\_q with value \${KEY\_ENTER} OK 07:52:38
5. click on id=sb\_form\_q OK 07:52:39
6. type on id=sb\_form\_q with value test22 OK 07:52:39
7. sendKeys on id=sb\_form\_q with value \${KEY\_ENTER} OK 07:52:39
8. close OK 07:52:40

't2' completed successfully 07:52:40

## Practical 3

**Aim :** Install Selenium server (Selenium RC) and demonstrate it using a script in Java/PHP

### Selenium-RC

#### 1. Introduction

Selenium-RC is the solution for tests that need more than simple browser actions and linear execution.

Selenium-RC uses the full power of programming languages to create more complex tests like reading and writing files, querying a database, emailing test results.

You'll want to use Selenium-RC whenever your test requires logic not supported by Selenium-IDE.

What logic could this be? For example, Selenium-IDE does not directly support:

- condition statements
- iteration
- logging and reporting of test results
- error handling, particularly unexpected errors
- database testing
- test case grouping
- re-execution of failed tests
- test case dependency
- screenshot capture of test failures

Although these tasks are not supported by Selenium directly, all of them can be achieved by using programming techniques with a language-specific Selenium-RC client library.

Pre-requisites :

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

- Visit <https://www.oracle.com/technetwork/java/javase/downloads/>
- Download the jdk 8 and install it.

##### 2) **To Download "Netbeans 8.2 IDE":**

- Visit <https://www.oracle.com/technetwork/java/javase/downloads/jdk-netbeans-jsp-3413139-esa.html>
- Click "Download".
- Installation:
  - Open Setup File
  - It will automatically locate the JDK. Choose path, and click "Install".
- After installation, click "Launch" or open Netbeans 8.2 from START menu in Windows.

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

###### **a) For "Selenium Server Driver":**

- Visit <https://www.selenium.dev/downloads>
- Under section "Selenium Server (Grid)", click download **Latest stable version 4.3.0**
- You'll get the executable jar file(selenium-server-standalone-4.3.0)

###### **b) For "Selenium Java Driver":**

- Visit - <https://github.com/SeleniumHQ/selenium/releases/download/selenium-4.3.0/selenium-java-4.3.0.zip>
- Extract the file and you'll see two jar files. From them, we'll be using this

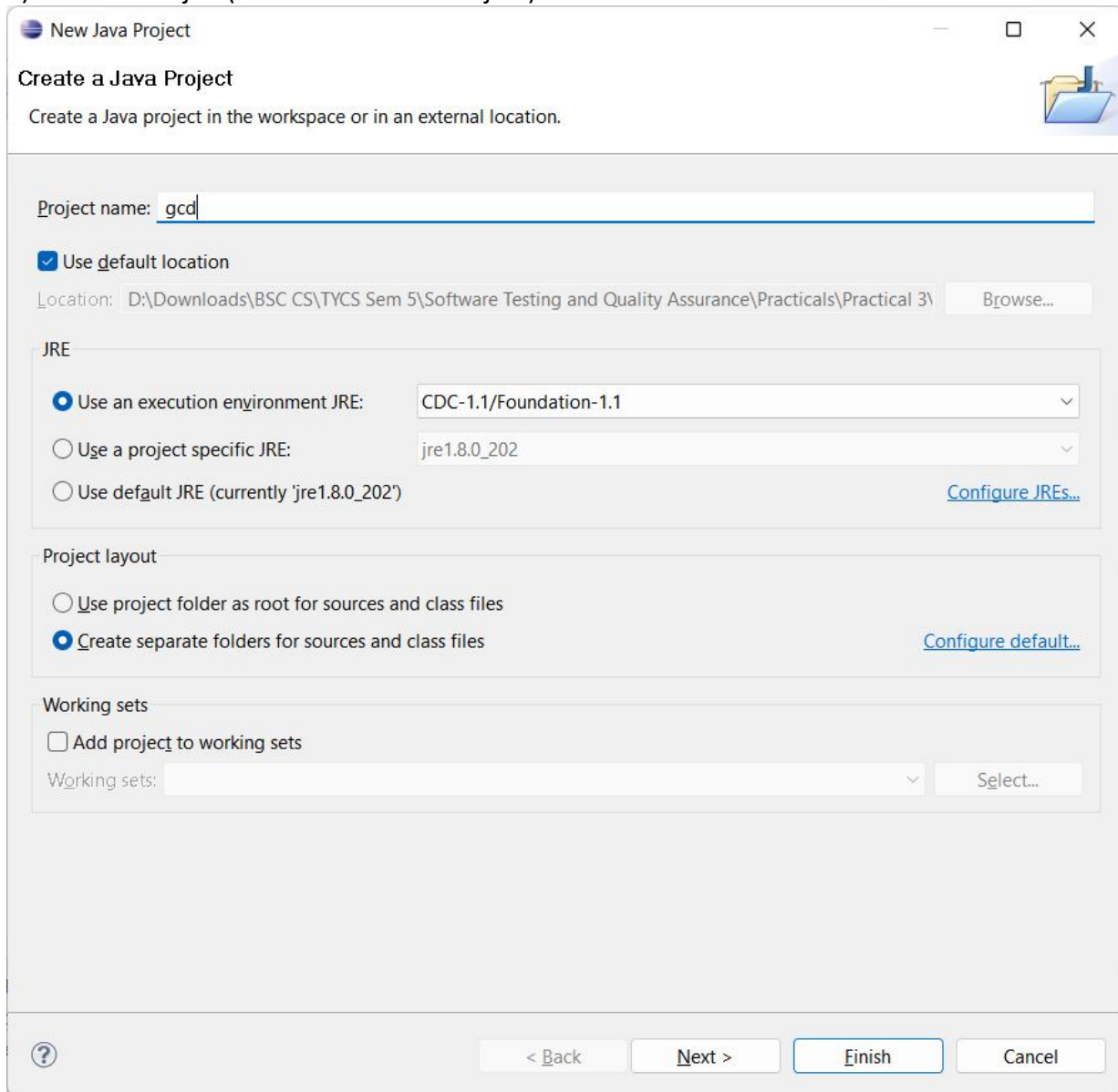
executable jar file

#### 4) To Download “Chromium Web Driver”:

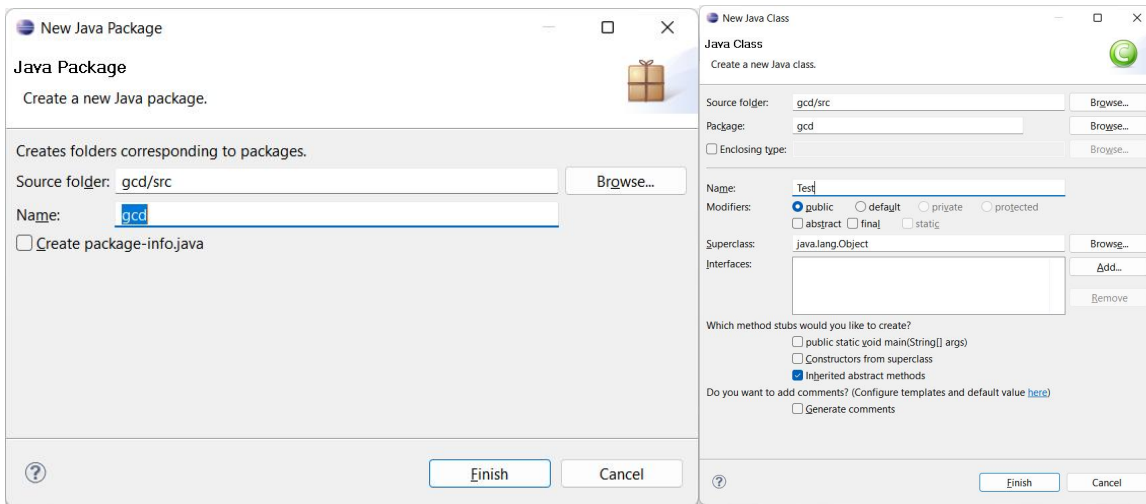
- Visit <https://chromedriver.storage.googleapis.com/index.html?path=103.0.5060.134/> for 103 version
- Extract the zip file
- You’ll get the application file “chromedriver.exe”.

#### STEPS:

- 1) Open Eclipse. Select your workspace directory. Click Launch:
- 2) Create a Project(File > New > Java Project):

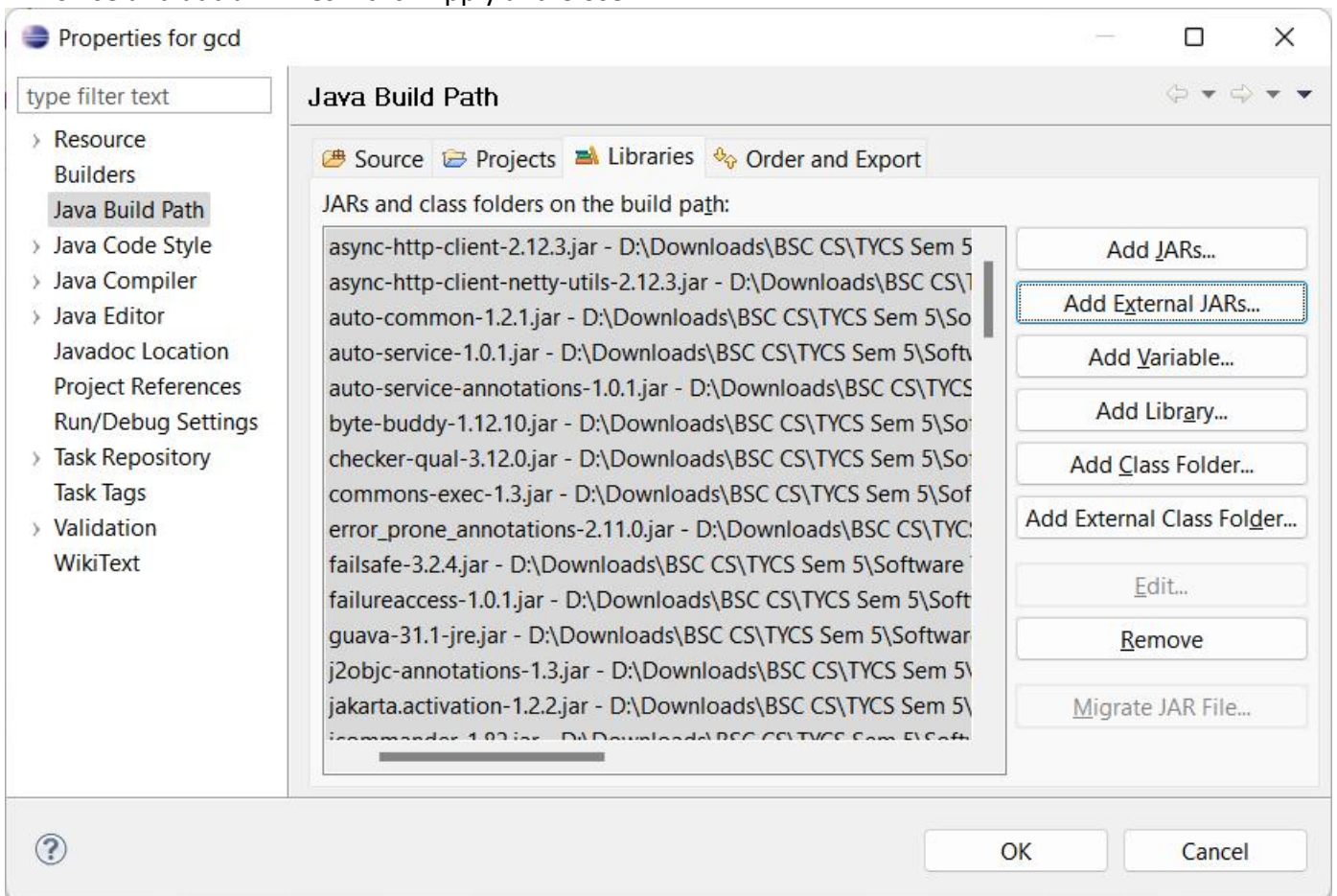


- 3) Name the project as “gcd” > click Finish > click Don’t Create module:
- 4) Close the “Welcome” tab.
- 5) Create a Package(right-click on Project Name > New > Package > Name it > Finish):
- 6) Create a Class(right-click on Project Name > New > Class > Name it > Finish):



## 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 > Chrome 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 "chromiumdriver" in a String driverPath
- And we'll paste the copied URL in the .get() method of the WebDriver class

---(Test.java)---

```

package gcd;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class Test {
    private static WebDriver driver = null;
    public static void main(String[] args) {

```



```

System.setProperty("webdriver.chrome.driver", "D:\\Downloads\\BSC CS\\TYCS Sem
5\\Software Testing and Quality Assurance\\Practicals\\Practical 4
php\\chromedriver.exe");
driver = new ChromeDriver();

driver=new ChromeDriver();
driver.get("file:///D:/Downloads/BSC CS/TYCS Sem 5/Software Testing and Quality
Assurance/Practicals/Practical 3/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);
}
}

```

NOTE[ Keep Java Compiler(under Configure Build Path to 1.7) if getting error : `method sendKeys(CharSequence[]) in the type WebElement is not applicable for the arguments (String)`

10) Run the file from Eclipse IDE:

• OUTPUT:

gcdhtml.html

File | D:\Downloads\BSC CS\TYCS Sem 5\Software Testing and Quality Assurance\Practicals\Practical 3\gcdhtml.html

Chrome is being controlled by automated test software.

---Program to calculate GCD of two numbers---

---

Enter Number 1:

Enter Number 2:

GCD:

11) Finish!



## Practical 4

**Aim :** Write and test a program to login a specific web page.

### 1) To Download “JDK”:

- Visit <https://www.oracle.com/technetwork/java/javase/downloads/>
- Download the jdk 8 and install it.

### 2) To Download “Netbeans 8.2 IDE”:

- Visit <https://www.oracle.com/technetwork/java/javase/downloads/jdk-netbeans-jsp-3413139-esa.html>
- Click “Download”.
- Installation:
  - Open Setup File
  - It will automatically locate the JDK. Choose path, and click “Install”.
- After installation, click “Launch” or open Netbeans 8.2 from START menu in Windows.

### 3) To Download “Selenium Server Driver and Client Driver(JAR files)”:

#### a) For “Selenium Server Driver”:

- Visit <https://www.selenium.dev/downloads>
- Under section “Selenium Server (Grid)”, click download **Latest stable version 4.3.0**
- You’ll get the executable jar file(selenium-server-standalone-4.3.0)

#### b) For “Selenium Java Driver”:

- Visit - <https://github.com/SeleniumHQ/selenium/releases/download/selenium-4.3.0/selenium-java-4.3.0.zip>
- Extract the file and you’ll see two jar files. From them, we’ll be using this executable jar file

### 4) To Download “Chromium Web Driver”:

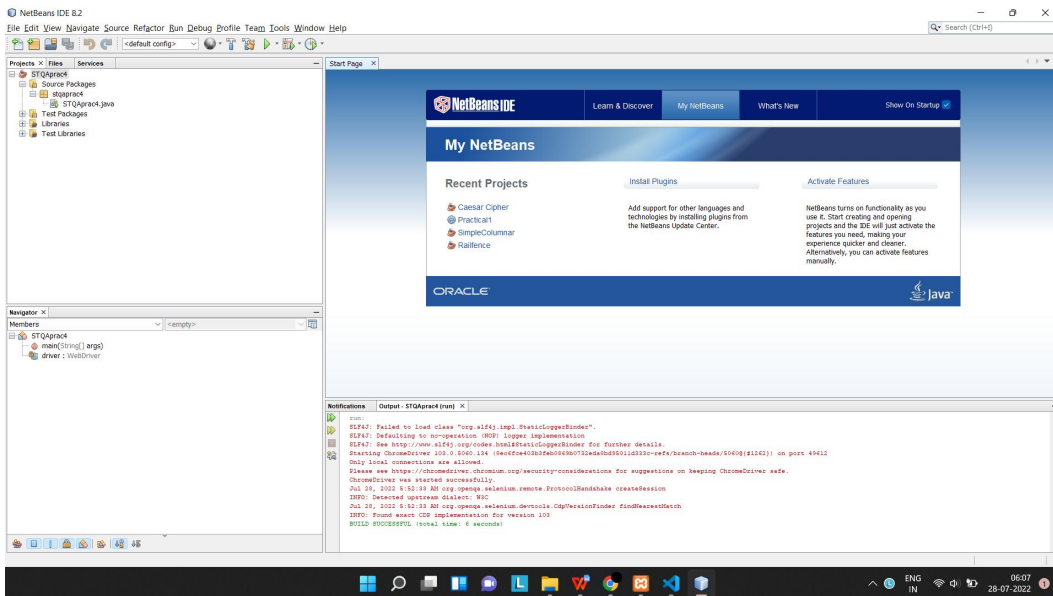
- Visit <https://chromedriver.storage.googleapis.com/index.html?path=103.0.5060.134/> for 103 version
- Extract the zip file
- You’ll get the application file “chromiumdriver.exe”.

### 5) Download and install XAMPP

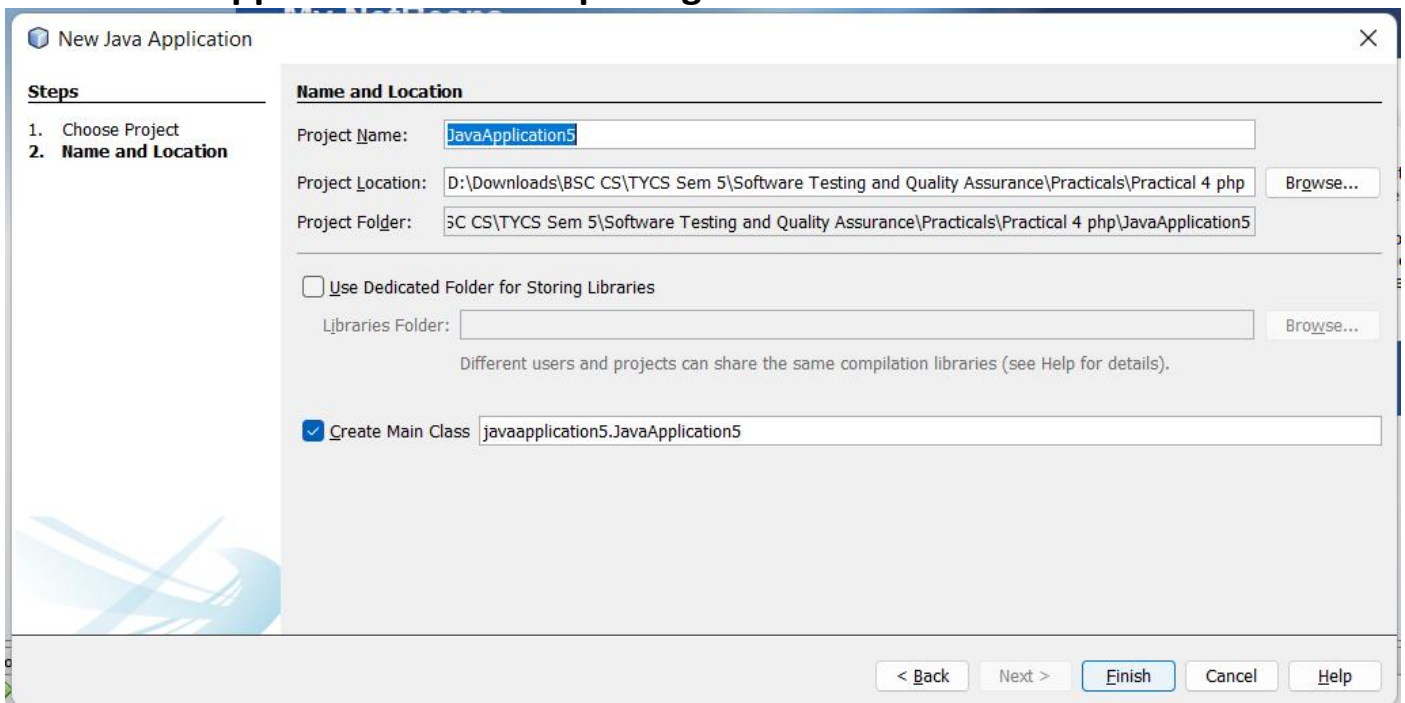
- Visit <https://www.apachefriends.org/download.html> .

STEPS :

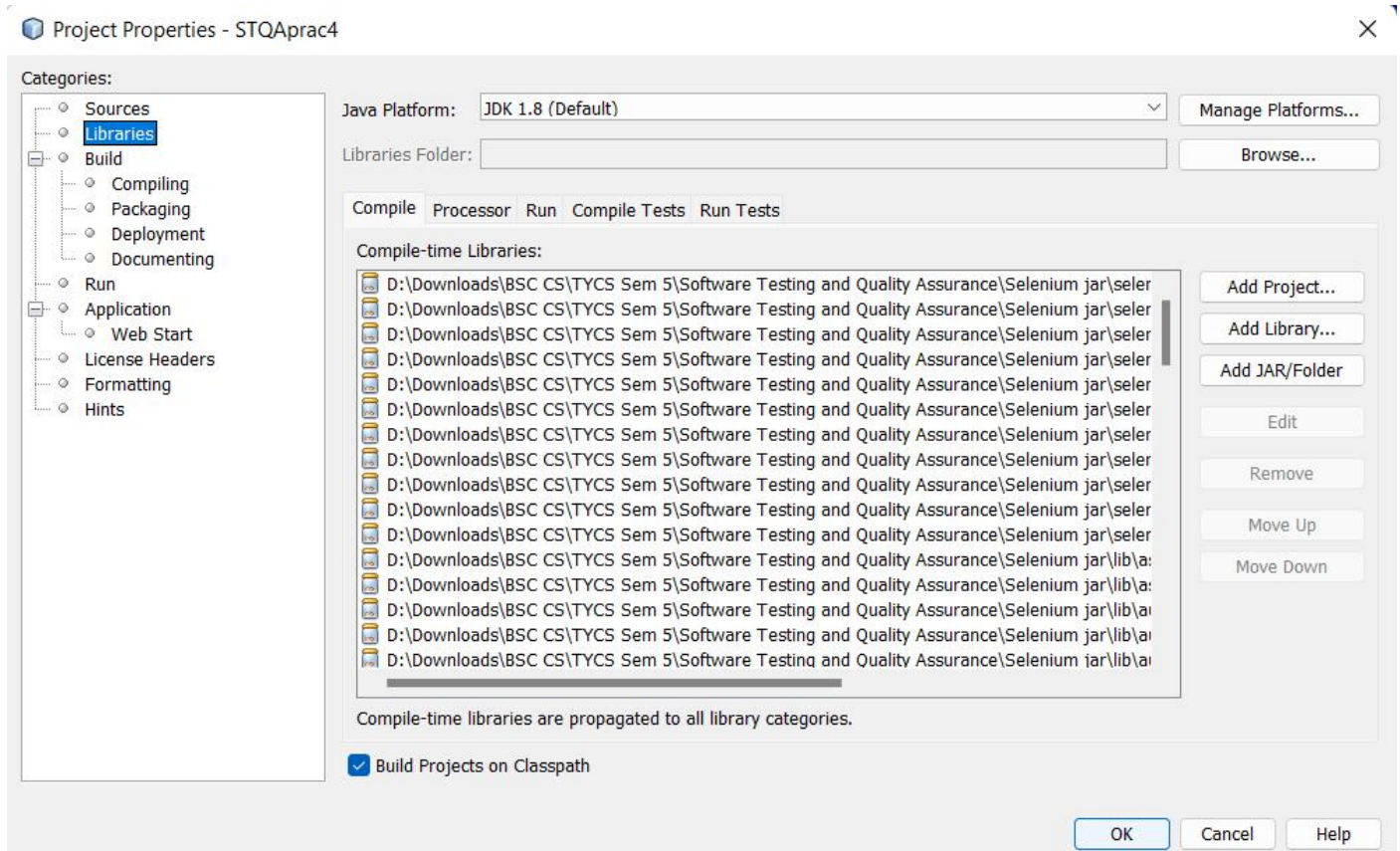
### Open Netbeans 8.2



Select Java Application -> Give a package Name and Click on Finish Button



Now Right Click on the Project- > Go to properties -> Select Library -> On the right side select Add jar/Folder -> Go to the location where selenium Server and Java Driver jar files are available and add all.



Now we will create an **HTML** file with a **form** and a **Submit** Button.

Code : [login.html](#)

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <title></title>
    <meta name="description" content="">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet" href="">
  </head>
  <body>
    <form id="login" action="User.php" method="post" accept-charset="UTF-8">
      Username*:
      <input type="text" name="username" id="username" maxlength="50">
      Password*:
      <input type="password" name="password" id="password" maxlength="50"><br>
      <input type="submit" name="button" value="Submit">
    </form>
  </body>
```

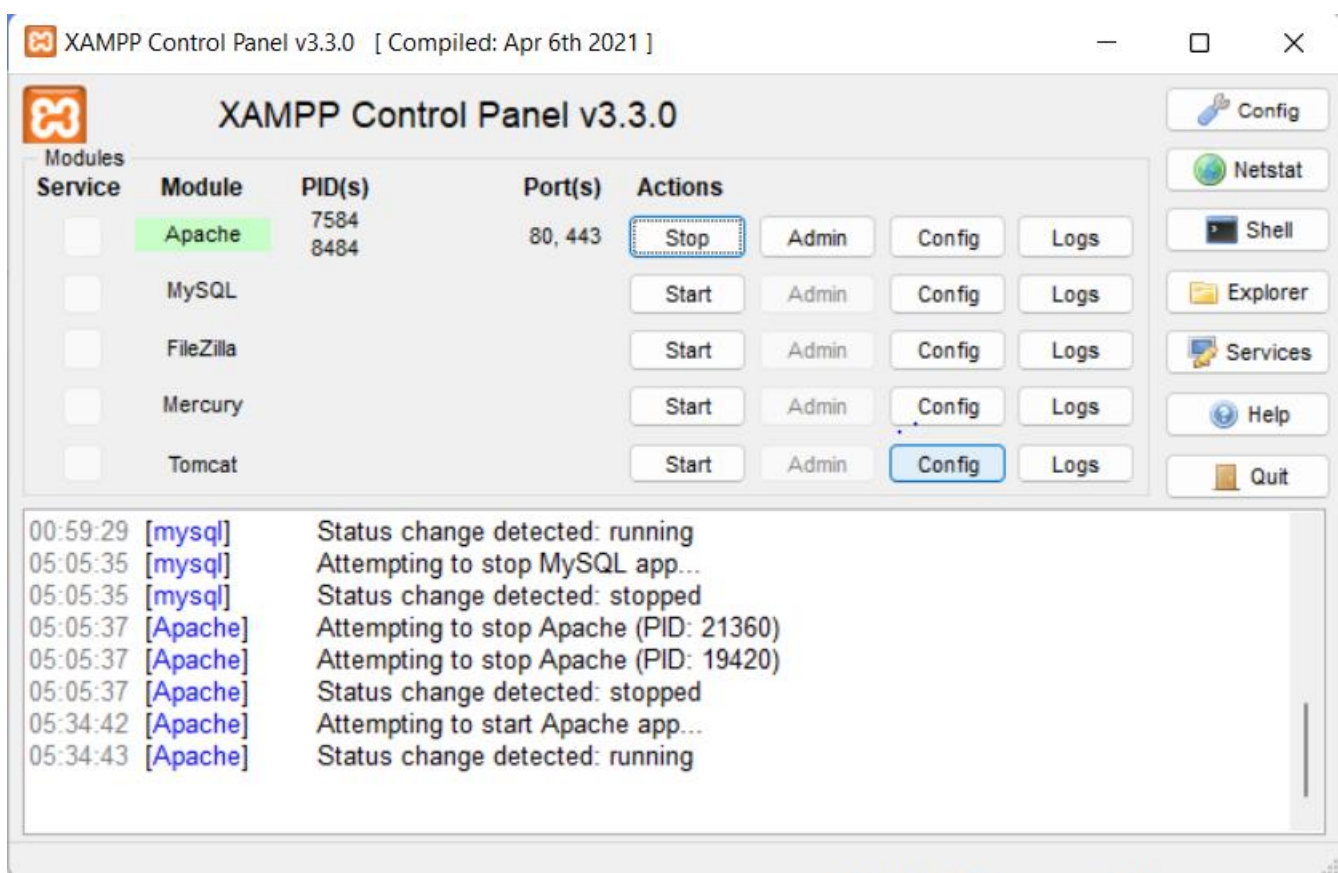
</html>

Now we will create a **PHP file** with the **form validation**.

Code : [User.php](#)

```
<?php
$u = $_POST['username'];
$p = $_POST['password'];
if(($u=="test")&&($p=="test"))
{
    echo "Login Successful";
}
else
{
    echo "Invalid user";
}
```

Now that we have our webpage ready lets open **XAMPP control Panel** and start **localhost services**.(This will allow us to open login.html via localhost)



We will keep both: [User.php](#) and [login.html](#) inside /htdocs directory where xampp was installed.

Now we have the following link to access our webpage :

<http://localhost/STQA%20prac%204/login.html>

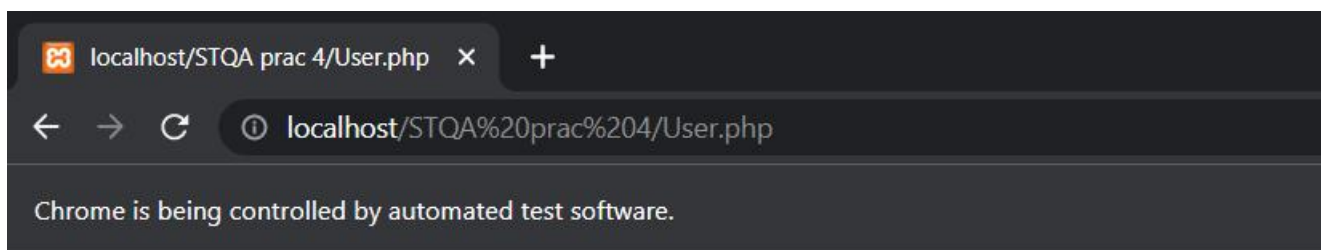
Now that our webpage is ready, let's create the **Java file for automation**.  
Code : [STQAprac4.java](#)

```
package stqaprac4;

import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;

public class STQAprac4 {
    private static WebDriver driver = null;
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", "D:\\Downloads\\BSC CS\\TYCS Sem
5\\Software Testing and Quality Assurance\\Practicals\\Practical 4
php\\chromedriver.exe");
        driver = new ChromeDriver();
        driver.get("http://localhost/STQA%20prac%204/login.html");
        driver.findElement(By.name("username")).sendKeys("test");
        System.out.println("Username Entered");
        driver.findElement(By.name("password")).sendKeys("test");
        System.out.println("Password Entered");
        driver.findElement(By.name("button")).click();
        System.out.println("Clicked on Submit");
        //driver.quit();
    }
}
```

Now let's run our Java file :-



Login Successful



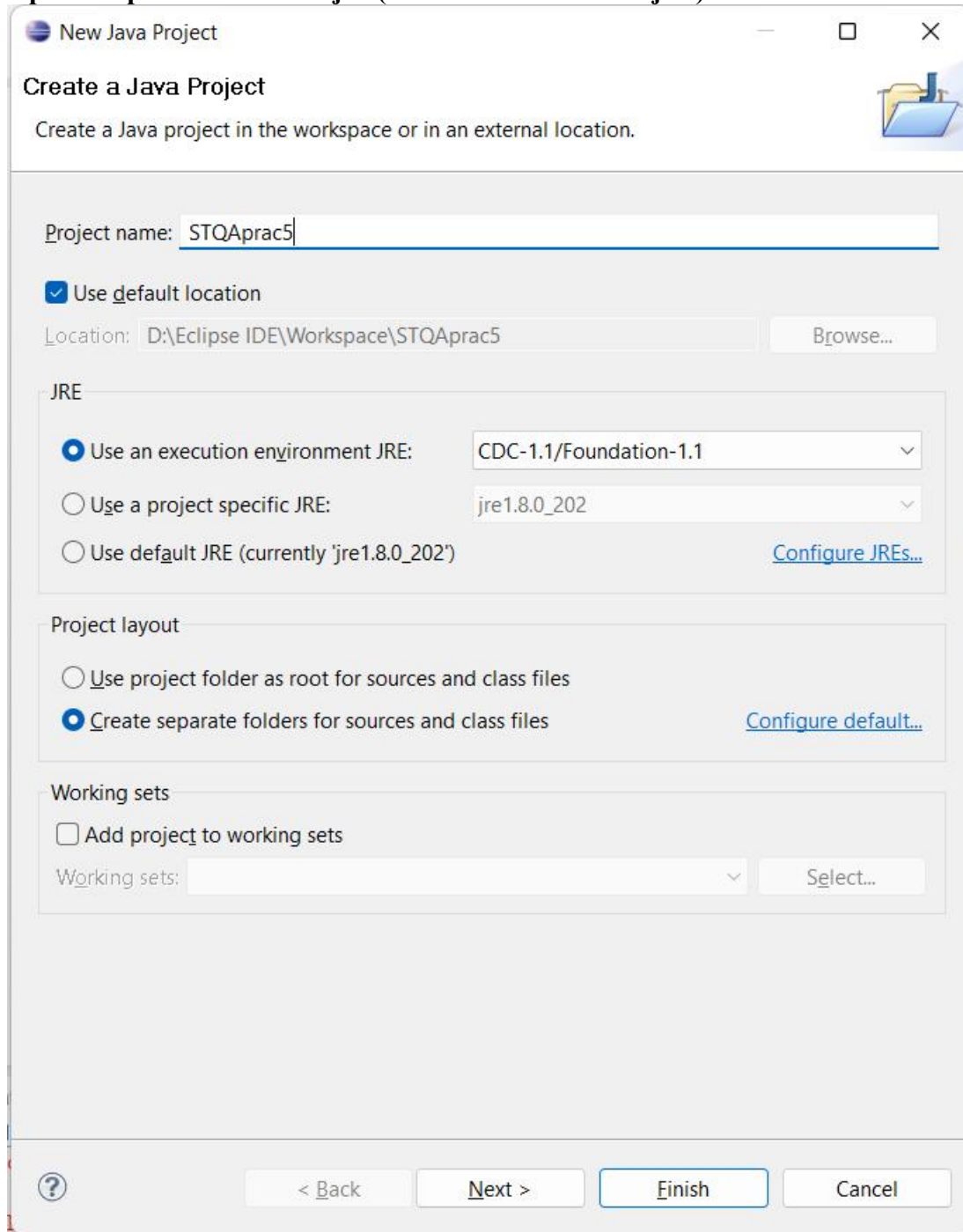
## Practical 5

**Aim :** Write and test a program to update 10 student records into table into Excel file

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)

**Open Eclipse. Create a Project(File > New > Java Project):**



The screenshot shows the 'New Java Project' dialog box in Eclipse. The title bar says 'New Java Project'. The main heading is 'Create a Java Project' with a subtext 'Create a Java project in the workspace or in an external location.' and a folder icon. The 'Project name' field contains 'STQAprac5'. The 'Use default location' checkbox is checked. The 'Location' field shows 'D:\Eclipse IDE\Workspace\STQAprac5' with a 'Browse...' button. The 'JRE' section has three options: 'Use an execution environment JRE:' (selected) with a dropdown showing 'CDC-1.1/Foundation-1.1', 'Use a project specific JRE:' with a dropdown showing 'jre1.8.0\_202', and 'Use default JRE (currently 'jre1.8.0\_202')' with a 'Configure JREs...' link. The 'Project layout' section has two options: 'Use project folder as root for sources and class files' and 'Create separate folders for sources and class files' (selected) with a 'Configure default...' link. The 'Working sets' section has an 'Add project to working sets' checkbox and a 'Working sets:' dropdown with a 'Select...' button. At the bottom are buttons for '?', '< Back', 'Next >', 'Finish', and 'Cancel'.

**Create a Class(Project> New> Java Class):**

New Java Class

Java Class

⚠ The use of the default package is discouraged.

Source folder: STQAprac5/src Browse...

Package: (default) Browse...

☐ Enclosing type: Browse...

Name: Excelwriter

Modifiers: ☒ public ☐ default ☐ private ☐ protected  
☐ abstract ☐ final ☐ static

Superclass: java.lang.Object Browse...

Interfaces: Add... Remove

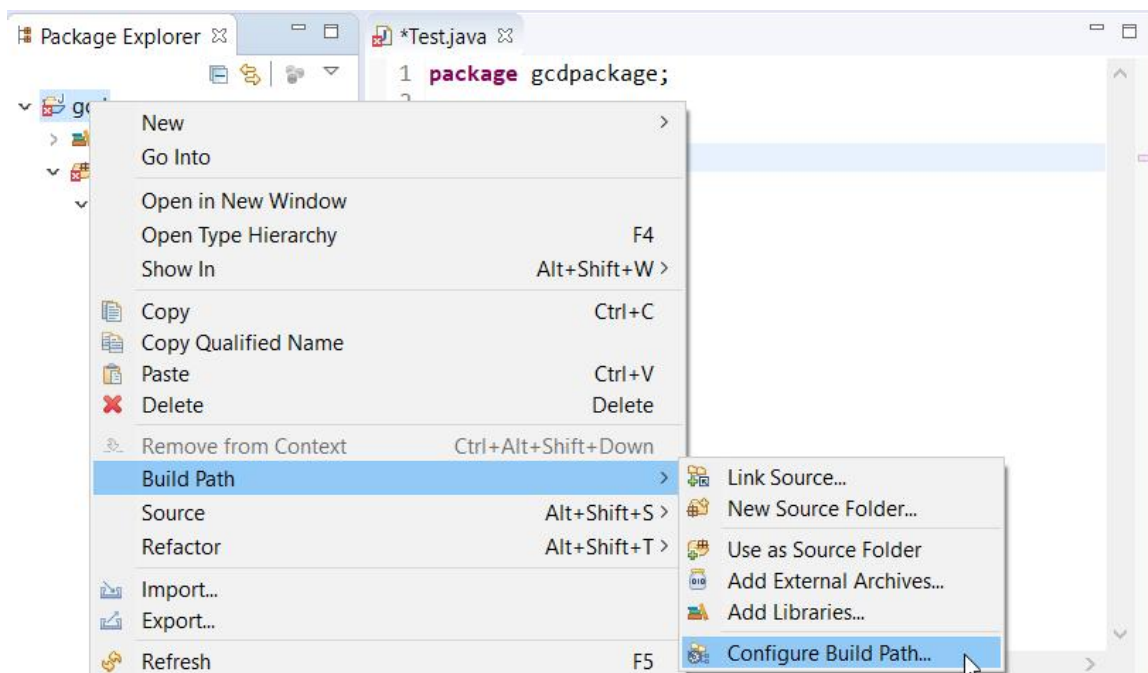
Which method stubs would you like to create?  
☐ public static void main(String[] args)  
☐ Constructors from superclass  
☒ Inherited abstract methods

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

Finish Cancel

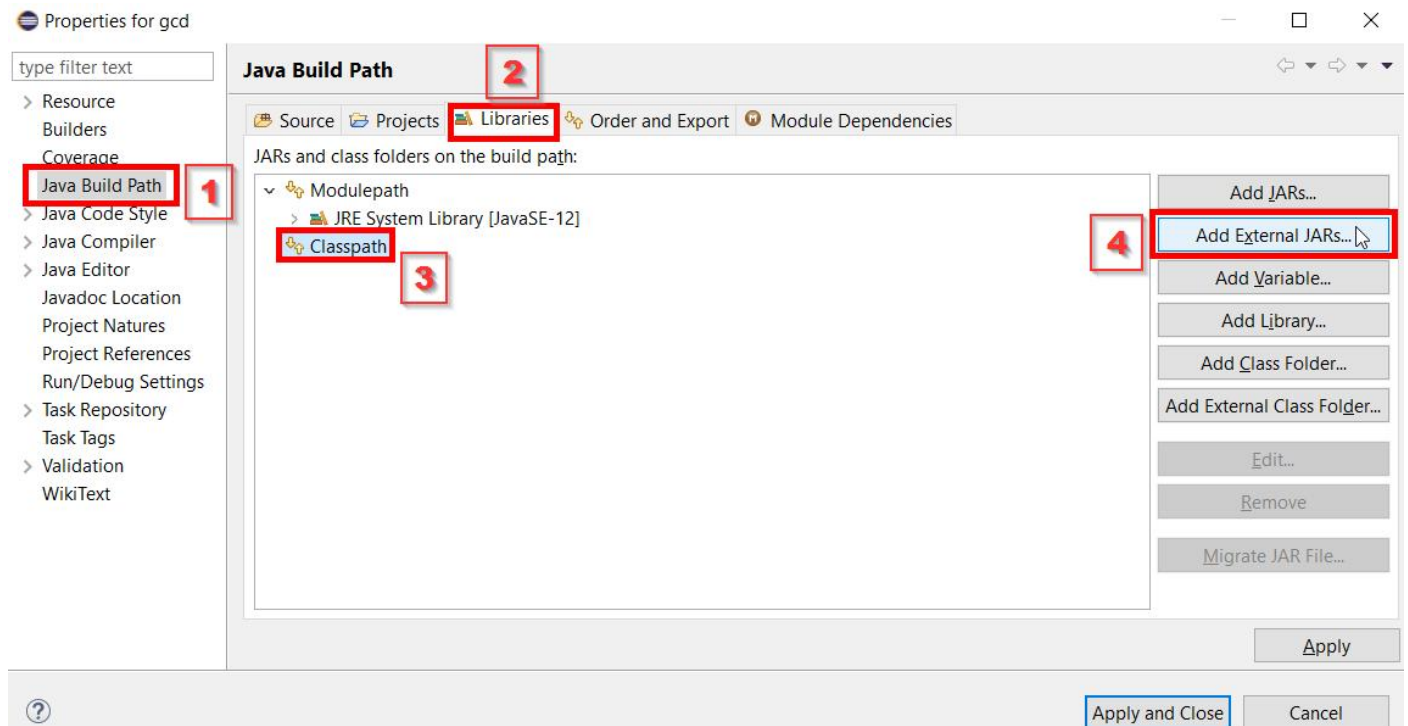
### Adding "JXL(JAR file)" in Eclipse IDE:

- right-click on Project Name > Build Path > Configure Build Path...

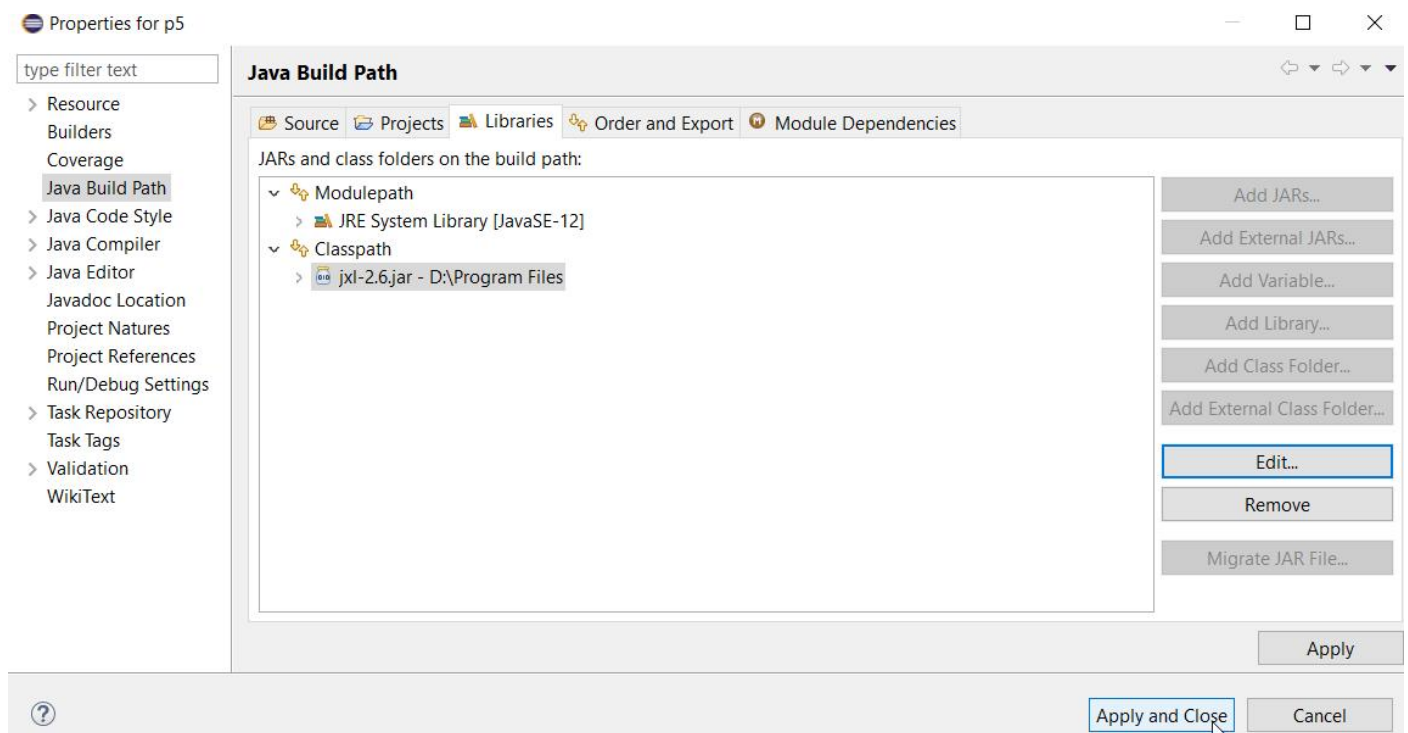




now go under: Java Build Path > Libraries > Classpath > click Add External JARs...



Browse and add JAR file > click Apply and Close :



Code : [STQAprac4.java](#)

```
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!!!!");
}
}

```

**Run the file from Eclipse IDE:**

• **OUTPUT:**

Problems Javadoc Declaration Console

<terminated> Excelwriter [Java Application] C:\Program Files\Java\jre1.8.0\_202\bin\javaw.exe (28-Jul-2022 1:12:45 pm)

Excel File Created!!!!

	A	B	C	D	E
1	Student Name	Subject1	Subject2	Subject3	Total
2	Carls	50	50	50	150
3	James	45	45	45	135
4	Paul	60	60	60	180
5	Philip	55	55	55	165
6	Smith	70	70	70	210
7	Thomson	45	45	45	135
8	Rhodey	67	67	67	201
9	Stark	78	78	78	234
0	Gary	89	89	89	267
1	AnneMarie	90	90	90	270

This PC > Data (D:) > Downloads > BSC CS > TYCS Sem 5 > Software Testing and Quality Assurance > Practicals > Practi

Name	Date modified	Type	Size
build	28-07-2022 12:43	File folder	
nbproject	28-07-2022 12:40	File folder	
src	28-07-2022 12:40	File folder	
test	28-07-2022 12:40	File folder	
build.xml	28-07-2022 12:40	XML Document	4 KB
manifest.mf	28-07-2022 12:40	MF File	1 KB
student.xls	28-07-2022 12:43	XLS Worksheet	14 KB

## Practical 6

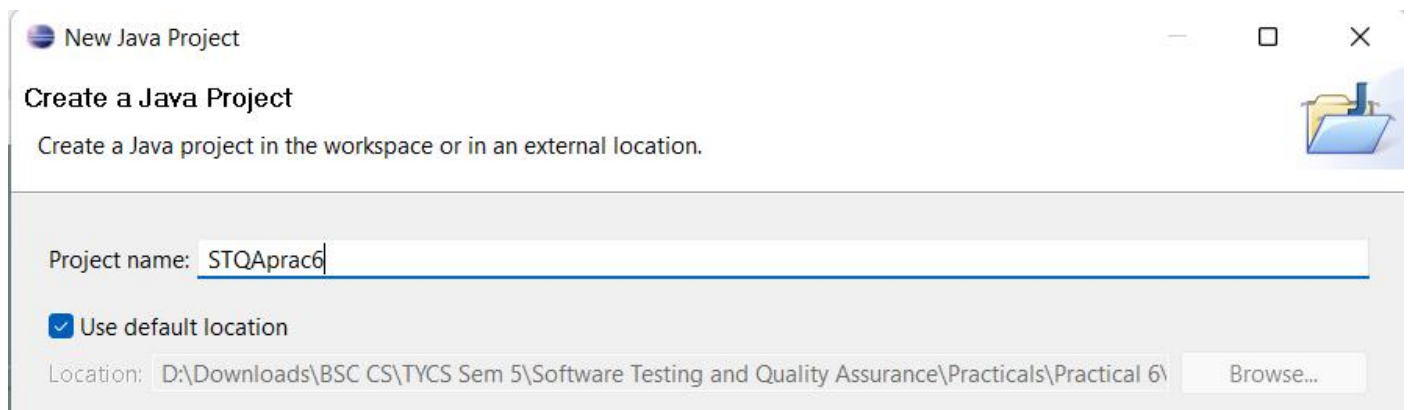
**Aim :** Write and test a program to select the number of students who have scored more than 60 in any one subject (or all subjects).

### PRE-REQUISITES:

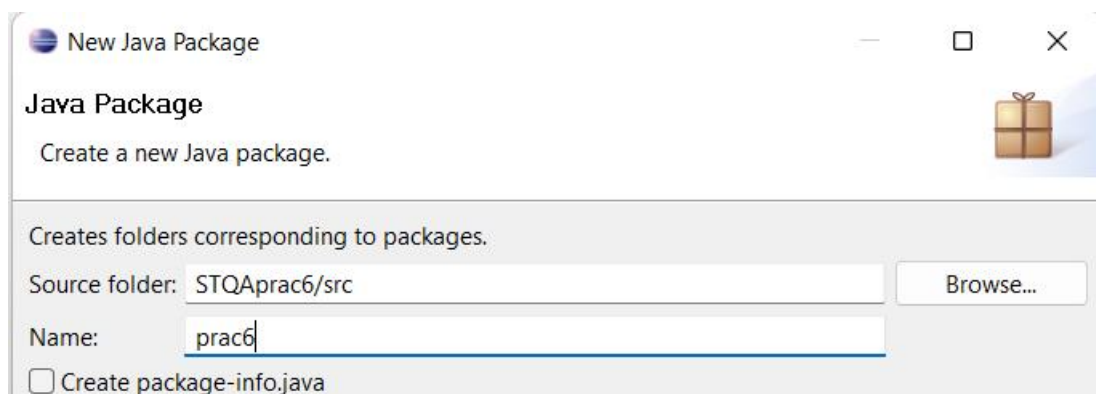
- 1) Check that you have Eclipse IDE.
- 2) Check that you have JXL.JAR.
- 3) Check that you've the Excel file("student.xls") that we'll be working on for reading data.

### STEPS:

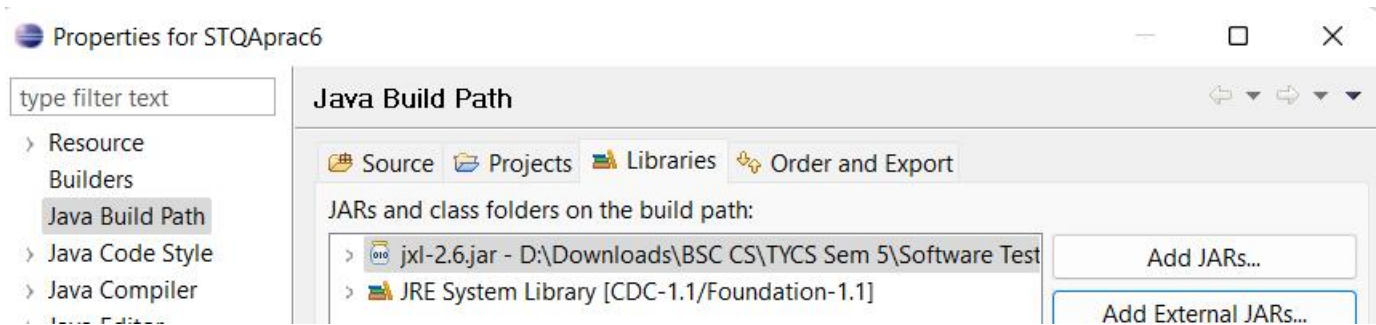
- 1) Open Eclipse. Select your workspace directory. Click Launch:
- 2) Create a Project(File > New > Java Project):
- 3) Name the project as "STQAprac6" > click Finish > click Don't Create module:



- 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  $\geq 60$  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 prac6;

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("D://Downloads//BSC CS//TYCS Sem 5//Software Testing and
Quality Assurance//Practicals//Practical 6//STQAprac6//student.xlsx");
    test.read();
}
}

```

9) Run the file from Eclipse IDE

Inputfile provided is-

	A	B	C	D	E	
1	Student Name	Subject1	Subject2	Subject3	Total	
2	Carls	50	50	50	150	
3	James	45	45	45	135	
4	Paul	60	60	60	180	
5	Philip	55	55	55	165	
6	Smith	70	70	70	210	
7	Thomson	45	45	45	135	
8	Rhodey	67	67	67	201	
9	Stark	78	78	78	234	
10	Gary	89	89	89	267	
11	AnneMarie	90	90	90	270	

• OUTPUT:

```

<terminated> Excelreader [Java Application] C:\Program Files\Java\jre1.8.0_202\bin\javaw.exe (10-Sep-2022 11:36:45 am)
Total number of students who scored more than 60 in one or more subjects: 6

```

10) Finish!

## Practical 7

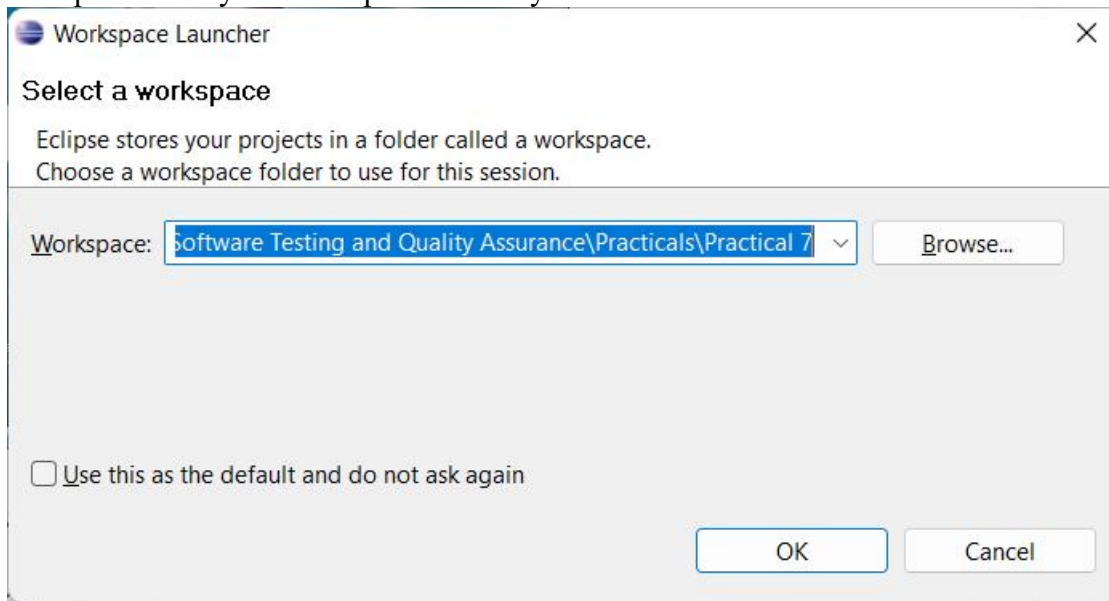
**Aim :** Write and test a program to provide total number of objects present / available on the page.

### PRE-REQUISITES:

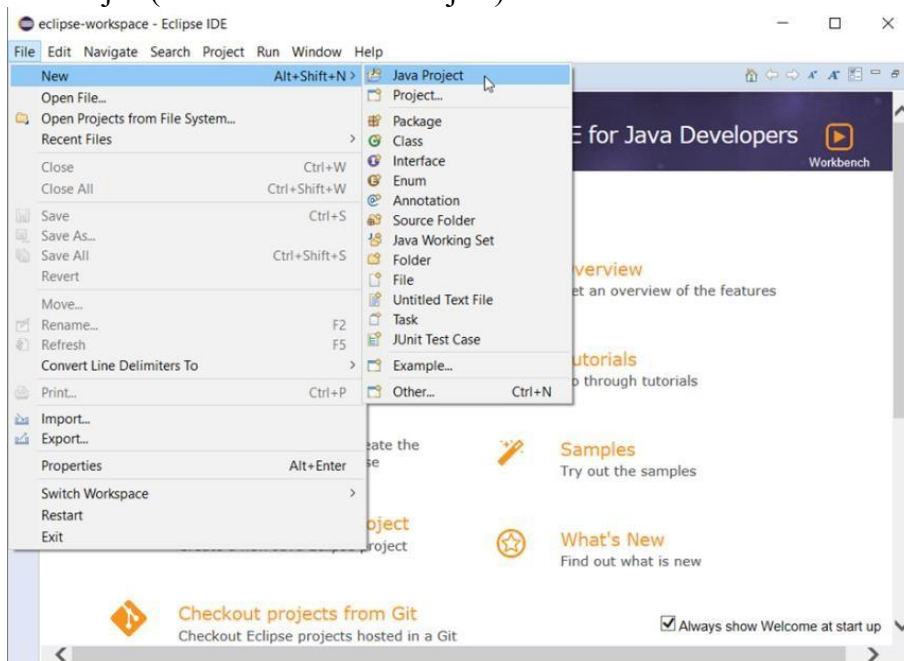
- 1) Check that you have JDK.
- 2) Check that you have Eclipse IDE.
- 3) Check that you have Selenium Server Driver and Client Driver (JAR files).
- 4) Check that you have Chromium Driver.
- 5) Check that you have a stable Internet connection.

### STEPS:

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



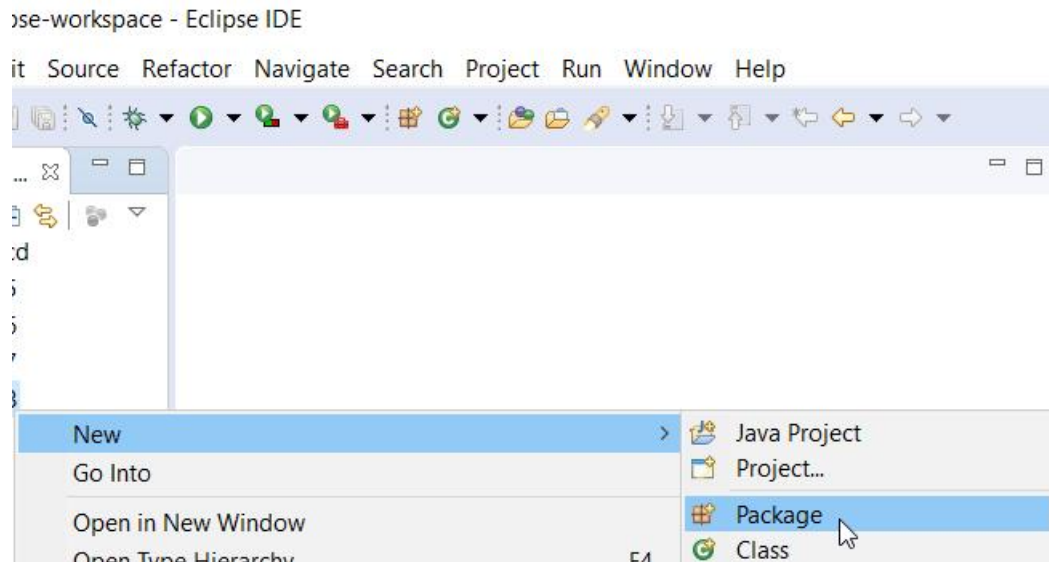
- 2) Create a Project(File > New > Java Project):



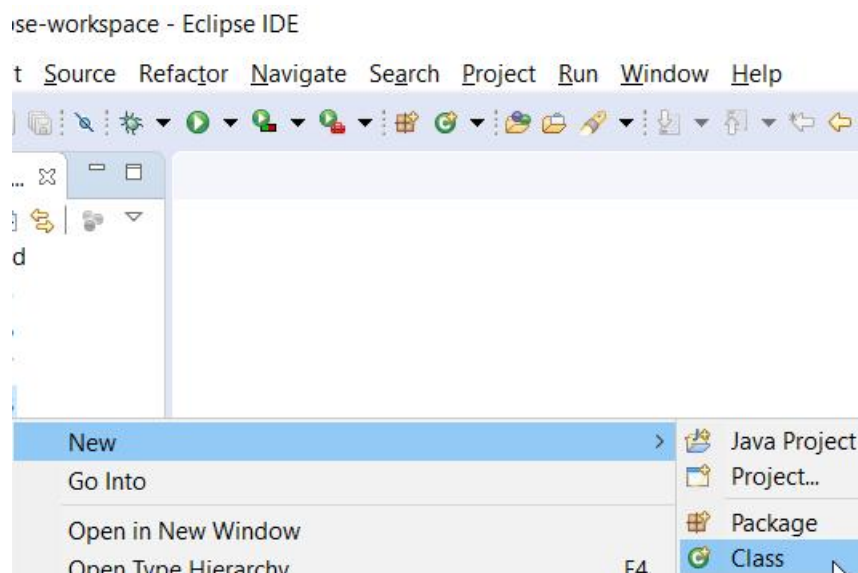
- 3) Name the project as "STQAprac7" > click Finish > click Don't Create module
- 4) Close the "Welcome" tab.



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

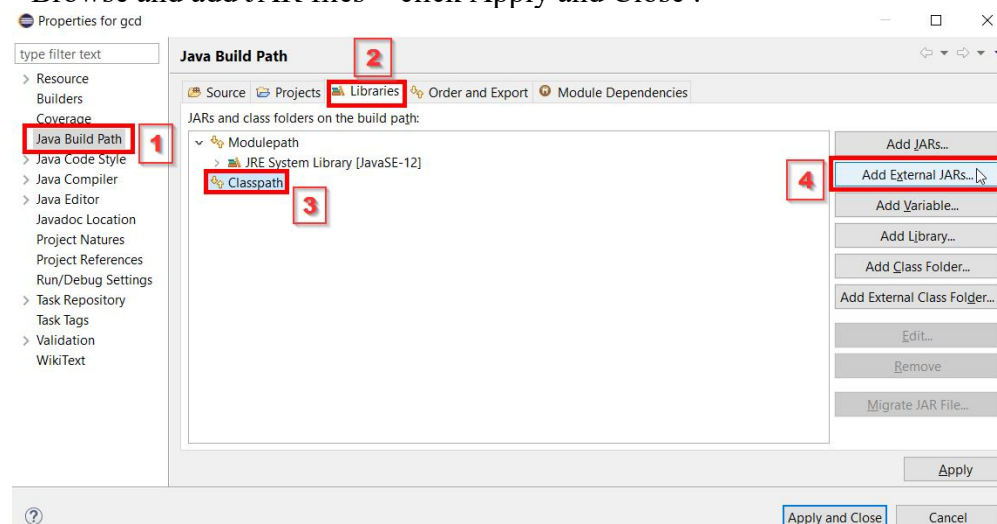


6) Create a Class(right-click on Project Name > New > Class > Name it > Finish):



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 "ChromiumDriver" in a String driverPath

### ---(FindAllLinks.java)---

```
package Prac7STQA;
```

```
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.chrome.*;
//import org.openqa.selenium.chrome.ChromeOptions;
//import org.openqa.selenium.chrome.ChromeProfile;
//import org.openqa.selenium.chrome.internal.ProfilesIni;
```

```
public class FindAllLinks {
    static String driverPath = "D:\\Downloads\\BSC CS\\TYCS Sem 5\\Software Testing and Quality Assurance\\Practicals\\Practical 4 php\\chromedriver.exe";
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver",driverPath);
        WebDriver driver = new ChromeDriver();
        String appUrl ="https://www.google.co.in/";
        driver.get(appUrl);
        java.util.List<WebElement> links = driver.findElements(By.tagName("a")); //a is anchor tag
        for (int i = 1; i<links.size(); i=i+1)
        {
            System.out.println(links.get(i).getText());
            System.out.println(links.get(i).getAttribute("href"));
        }
        System.out.println("Total No. of Links: "+links.size());
        driver.quit();
    }
}
```

## 9) Run the file from Eclipse IDE: OUTPUT:

Problems @ Javadoc Declaration Console

<terminated> FindAllLinks [Java Application] C:\Program Files\Java\jre1.8.0\_202\bin\javaw.exe (23-Sep-2022 2:47:40 pm)

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=nl&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=nl&source=homepage&sa=X&ved=0ahUK)  
বাংলা

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=bn&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=bn&source=homepage&sa=X&ved=0ahUK)  
தெலுగు

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=te&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=te&source=homepage&sa=X&ved=0ahUK)  
मराठी

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=mr&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=mr&source=homepage&sa=X&ved=0ahUK)  
தமிழ்

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=ta&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=ta&source=homepage&sa=X&ved=0ahUK)  
ગુજરાતી

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=gu&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=gu&source=homepage&sa=X&ved=0ahUK)  
ಕನ್ನಡ

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=kn&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=kn&source=homepage&sa=X&ved=0ahUK)  
മലയാളം

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=ml&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=ml&source=homepage&sa=X&ved=0ahUK)  
ਪੰਜਾਬੀ

[https://www.google.co.in/setprefs?sig=0\\_lRoSEhtyQmSt\\_g3kskrIJooSKEw%3D&hl=pa&source=homepage&sa=X&ved=0ahUK](https://www.google.co.in/setprefs?sig=0_lRoSEhtyQmSt_g3kskrIJooSKEw%3D&hl=pa&source=homepage&sa=X&ved=0ahUK)  
About

[https://about.google/?utm\\_source=google-IN&utm\\_medium=referral&utm\\_campaign=hp-footer&fg=1](https://about.google/?utm_source=google-IN&utm_medium=referral&utm_campaign=hp-footer&fg=1)  
Advertising

[https://www.google.co.in/intl/en\\_in/ads/?subid=ww-ww-et-g-awa-a-g\\_hpafoot1\\_1!o2&utm\\_source=google.com&utm\\_m](https://www.google.co.in/intl/en_in/ads/?subid=ww-ww-et-g-awa-a-g_hpafoot1_1!o2&utm_source=google.com&utm_m)  
Business

[https://www.google.co.in/services/?subid=ww-ww-et-g-awa-a-g\\_hpbfoot1\\_1!o2&utm\\_source=google.com&utm\\_medium=](https://www.google.co.in/services/?subid=ww-ww-et-g-awa-a-g_hpbfoot1_1!o2&utm_source=google.com&utm_medium=)  
How Search works

<https://google.com/search/howsearchworks/?fg=1>  
Privacy

<https://policies.google.com/privacy?hl=en-IN&fg=1>  
Terms

<https://policies.google.com/terms?hl=en-IN&fg=1>

<https://www.google.co.in/preferences?hl=en-IN&fg=1>

[https://www.google.co.in/advanced\\_search?hl=en-IN&fg=1](https://www.google.co.in/advanced_search?hl=en-IN&fg=1)

[https://www.google.co.in/history/privacyadvisor/search/unauth?utm\\_source=googlemenu&fg=1&cctld=co.in](https://www.google.co.in/history/privacyadvisor/search/unauth?utm_source=googlemenu&fg=1&cctld=co.in)

<https://www.google.co.in/history/optout?hl=en-IN&fg=1>

[https://support.google.com/websearch/?p=ws\\_results\\_help&hl=en-IN&fg=1](https://support.google.com/websearch/?p=ws_results_help&hl=en-IN&fg=1)  
Total No. of Links: 26

## Practical 8

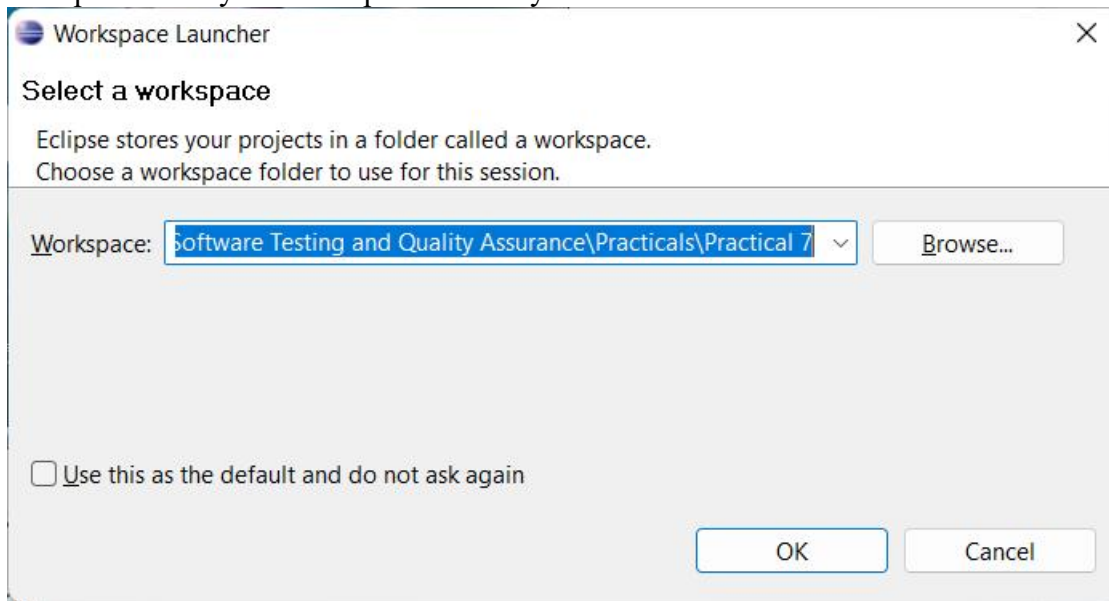
**Aim :** Write and test a program to get the number of items in a list / combo box.

### PRE-REQUISITES:

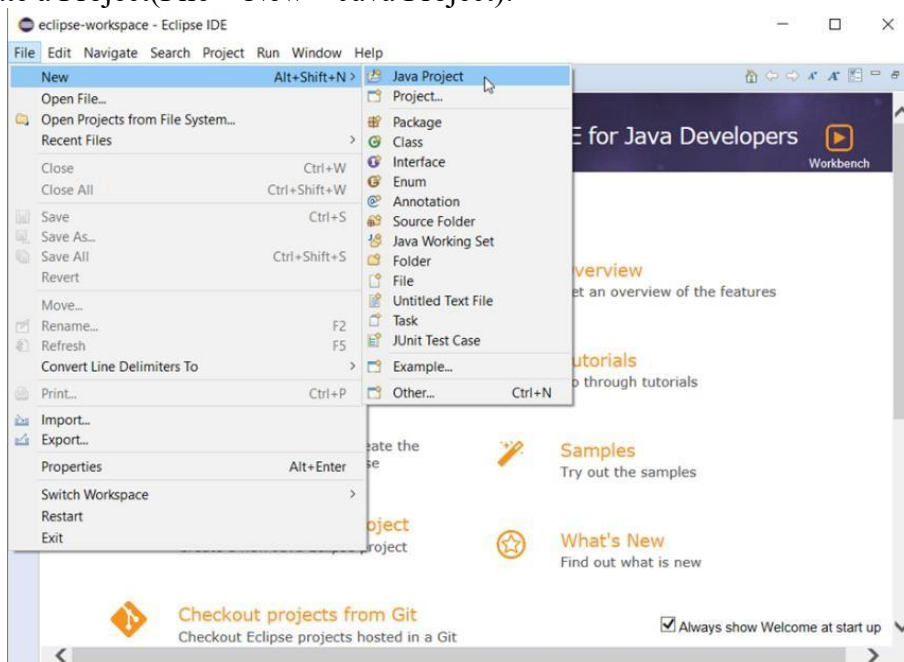
- 1) Check that you have JDK.
- 2) Check that you have Eclipse IDE.
- 3) Check that you have Selenium Server Driver and Client Driver (JAR files).
- 4) Check that you have Chromium Driver.
- 5) Check that you have a stable Internet connection.

### STEPS:

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

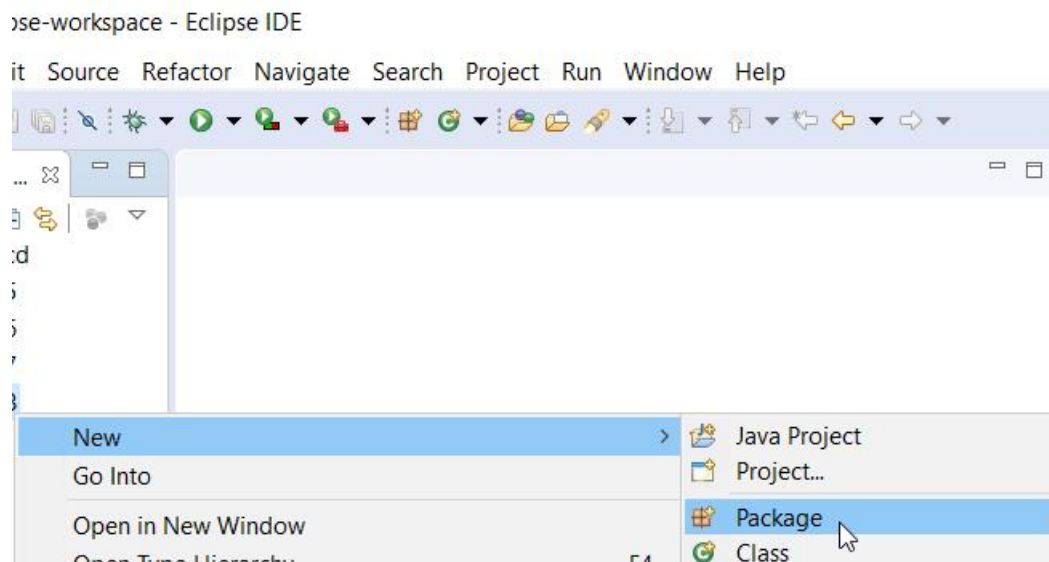


- 2) Create a Project(File > New > Java Project):

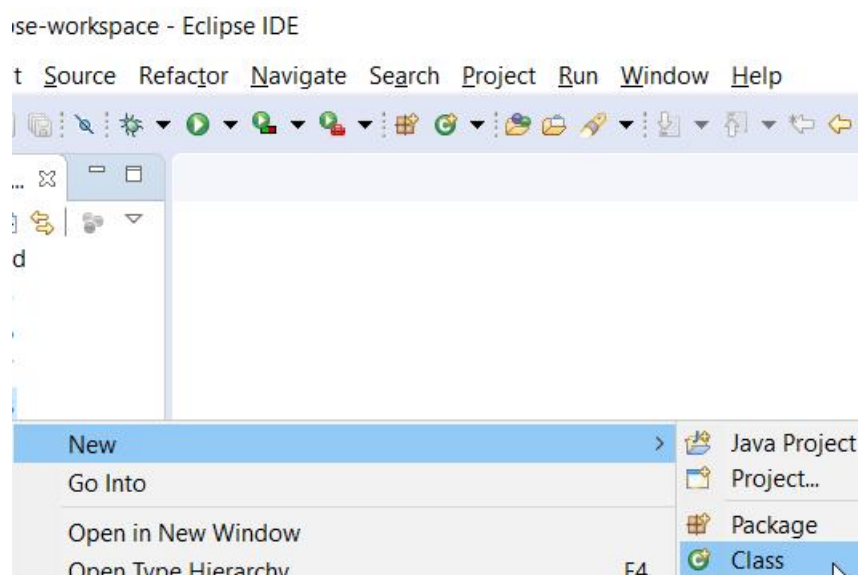


- 3) Name the project as "STQAprac7" > click Finish > click Don't Create module
- 4) Close the "Welcome" tab.

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

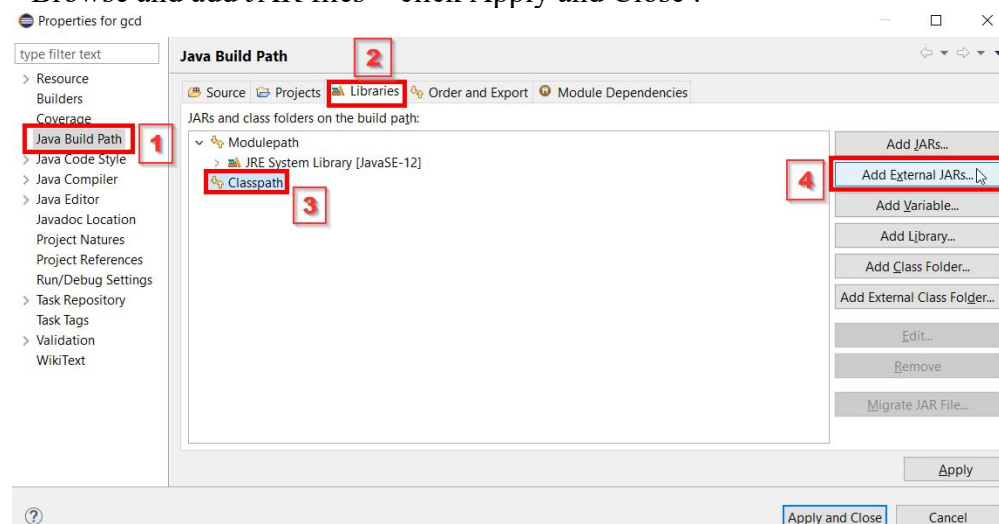


9) Create a Class(right-click on Project Name > New > Class > Name it > Finish):



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 :

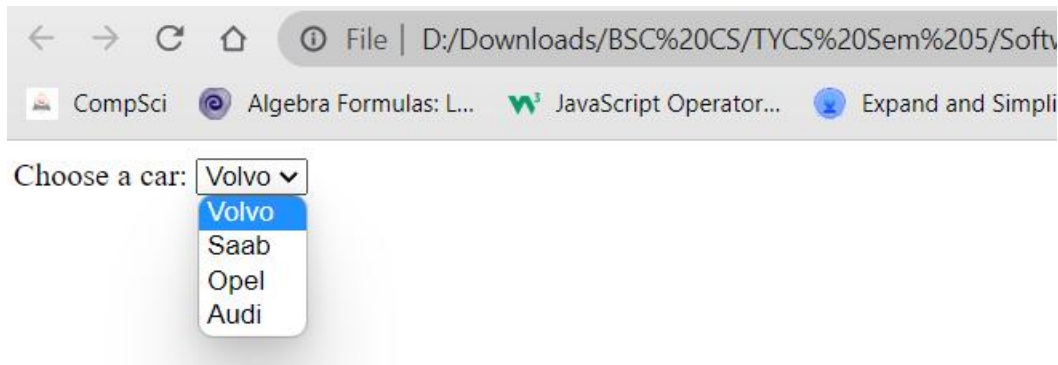




8) Create HTML file in a notepad > Save it > Open it in browser > Copy the URL:  
(NOTE THAT: as this is our LOCAL FILE, this file will be opened thru STATIC URL in script)

---(combobox.html)---

```
<!DOCTYPE html>
<html>
<body>
<form action="/action_page.php">
  <label for="cars">Choose a car:</label>
  <select name="cars" id="cars">
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
    <option value="opel">Opel</option>
    <option value="audi">Audi</option>
  </select>
</form>
</body>
</html>
```



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 "ChromiumDriver" in a String driverPath

---(ComboBox.java)---

```
package prac8STQA;

import java.util.List;

import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.chrome.*;
import org.openqa.selenium.support.ui.Select;

public class ComboBox {
```

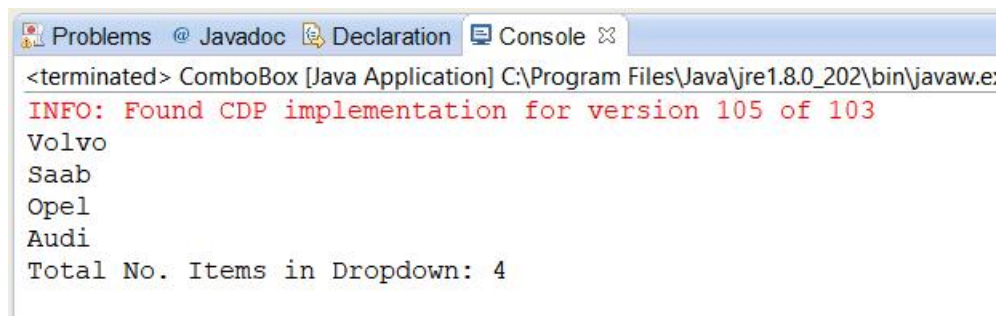
```

static String driverPath = "D:\\Downloads\\BSC CS\\TYCS Sem 5\\Software Testing and
Quality Assurance\\Practicals\\Practical 4 php\\chromedriver.exe";
    public static void main(String[] args) {
        System.setProperty("webdriver.chrome.driver", driverPath);
        WebDriver driver = new ChromeDriver();
        String appUrl = "file:///D:/Downloads/BSC CS/TYCS Sem 5/Software Testing and
Quality Assurance/Practicals/Practical 8/combobox.html"; //STATIC URL(LOCAL FILE)
        driver.get(appUrl);
        Select oSelect = new Select(driver.findElement(By.id("cars")));
        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:**



The screenshot shows the Eclipse IDE's Console window. The title bar includes tabs for Problems, Javadoc, Declaration, and Console. The console output is as follows:

```

<terminated> ComboBox [Java Application] C:\Program Files\Java\jre1.8.0_202\bin\javaw.e
INFO: Found CDP implementation for version 105 of 103
Volvo
Saab
Opel
Audi
Total No. Items in Dropdown: 4

```



## Practical 9

**Aim :** Load Testing using JMeter.

### PRE-REQUISITES:

1) To Download “JDK”:

- Visit <https://www.oracle.com/technetwork/java/javase/downloads/jdk12-downloads-5295953.html>
- Download this file “jdk-12.0.2\_windows-x64\_bin.exe” and install it.

2) To Download “Apache JMeter”:

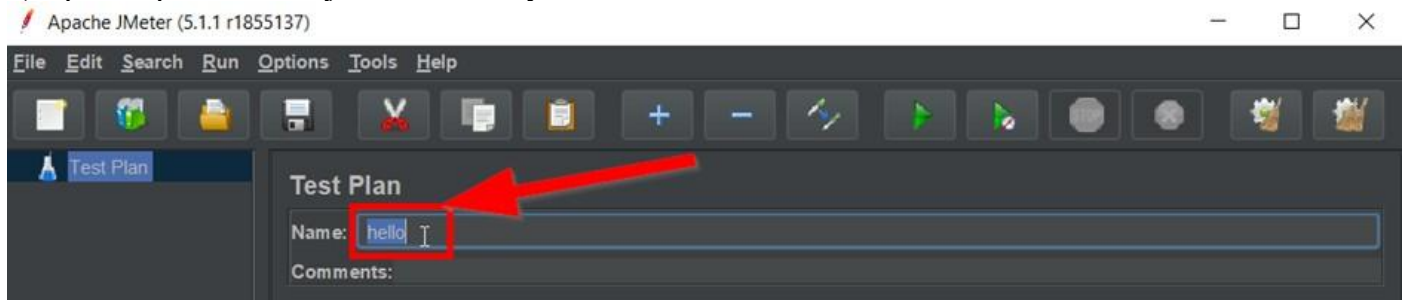
- Visit [https://jmeter.apache.org/download\\_jmeter.cgi](https://jmeter.apache.org/download_jmeter.cgi)
- Under section “Apache JMeter 5.1.1 (Requires Java 8+)”
- Under sub-section “Binaries”, download “apache-jmeter-5.1.1.zip” file.

### • Installation:

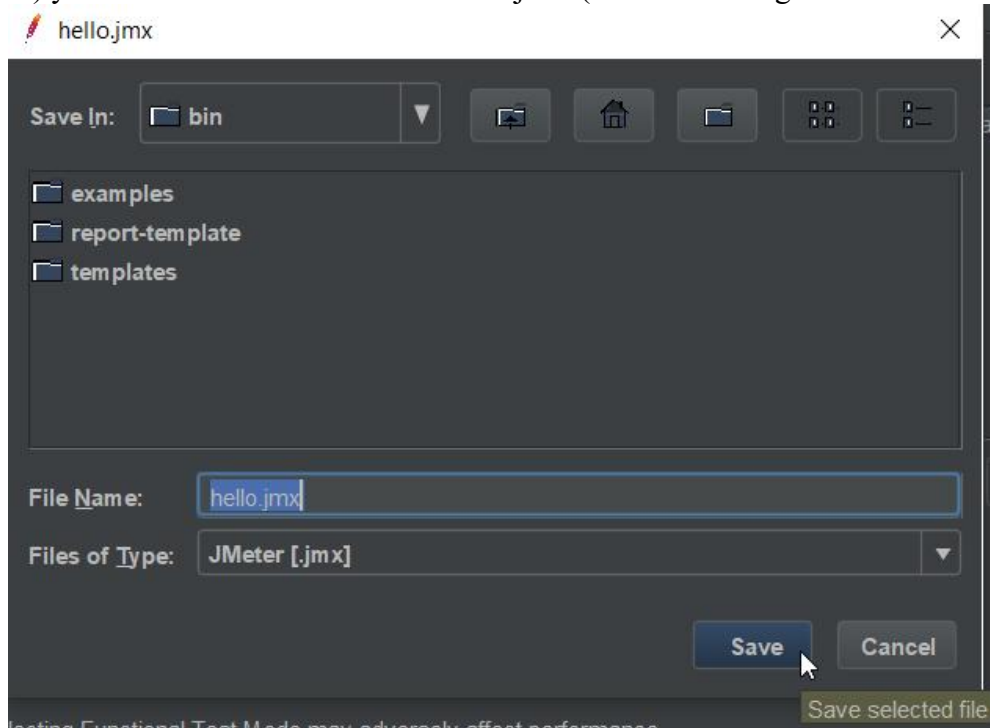
- Extract the “apache-jmeter-5.1.1.zip” file.
- Navigate to: apache-jmeter-5.1.1 > bin > the “ApacheJMeter.jar” file is your working space.

### STEPS:

1) Open “ApacheJMeter.jar” file. Name your Test Plan as “hello”:

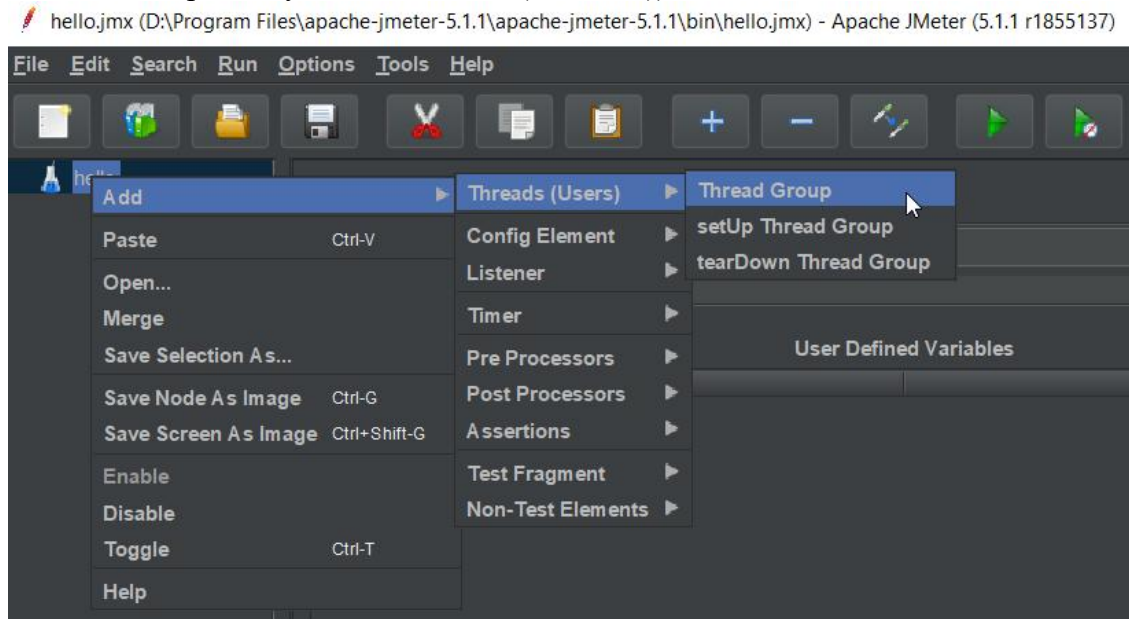


2) Save(CTRL+S) your Test Plan. It will be saved as “.jmx”(i.e. Java Management Extensions):

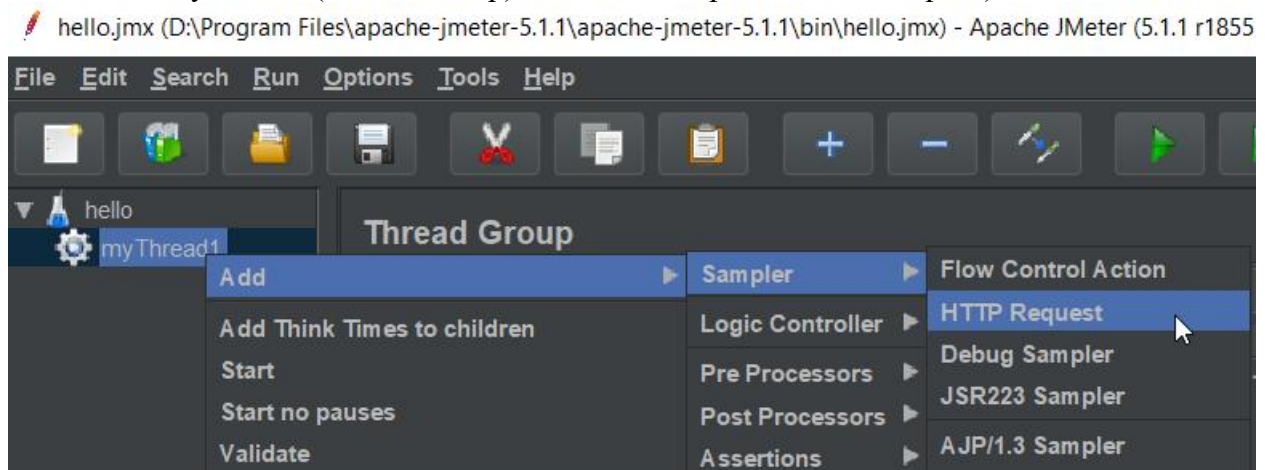


3) Create a Thread Group

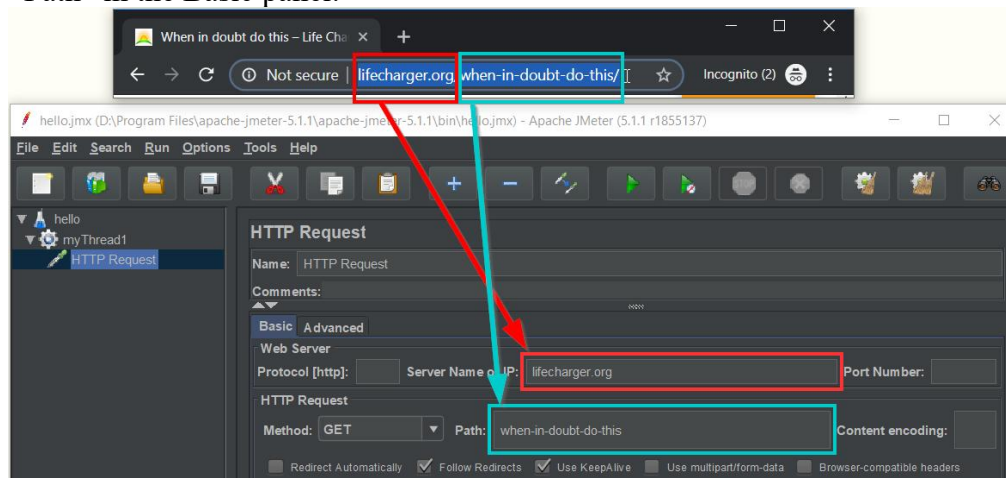
(right-click over “hello(Test Plan)” > Add > Thread(Users) > Thread Group > Name your Thread Group as “myThread1” > Save(CTRL+S)):



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

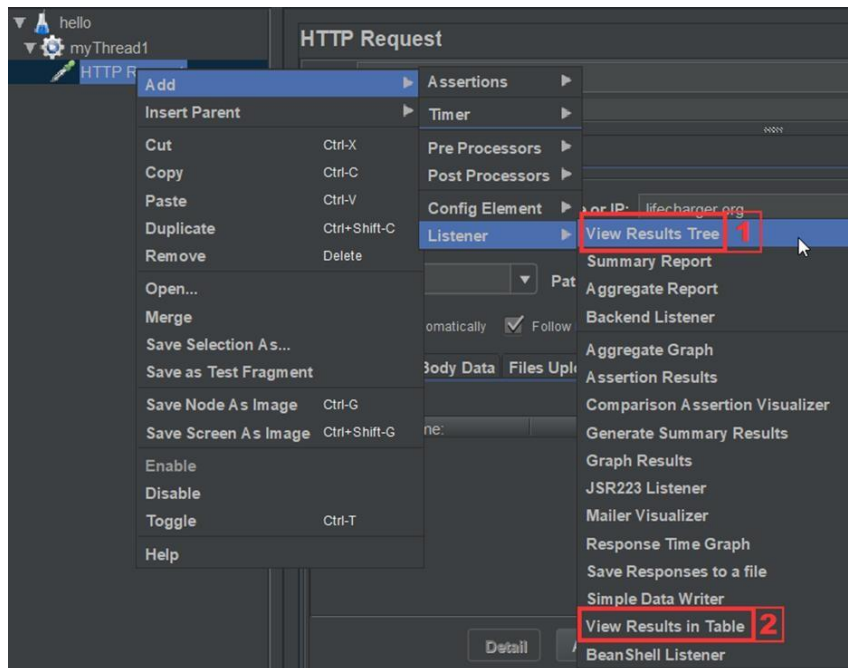


5) Now visit any website page with a next path. Then set website name as “Server Name or IP” & next path as “Path” in the Basic panel:

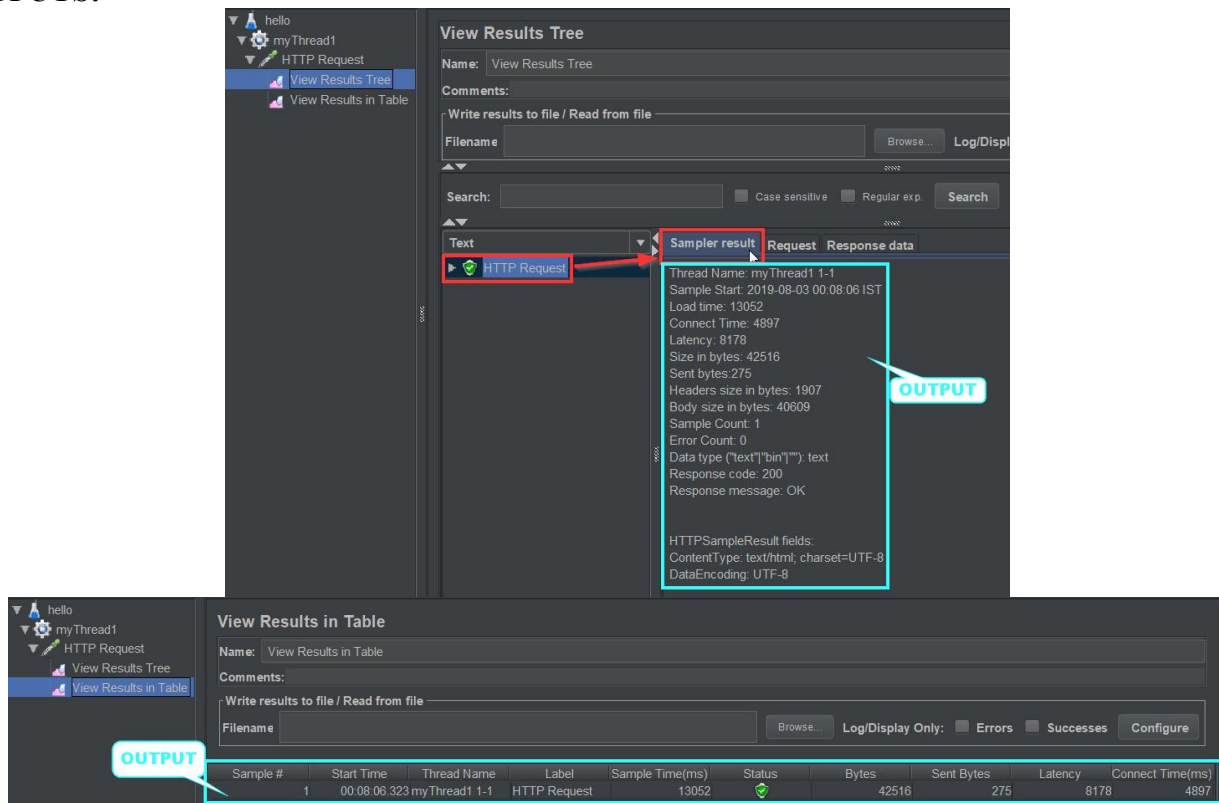


6) Under HTTP Request Sampler, add 2 “Listeners”, namely View Results Tree & View Results in Table:

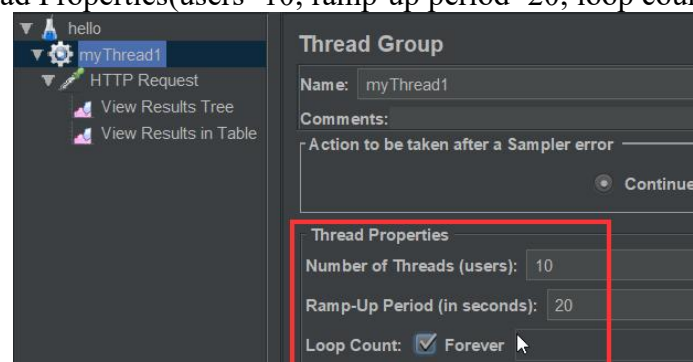
(right-click over HTTP Request(Sampler) > Add > Listener > View Results Tree) & (right-click over HTTP Request(Sampler) > Add > Listener > View Results in Table):



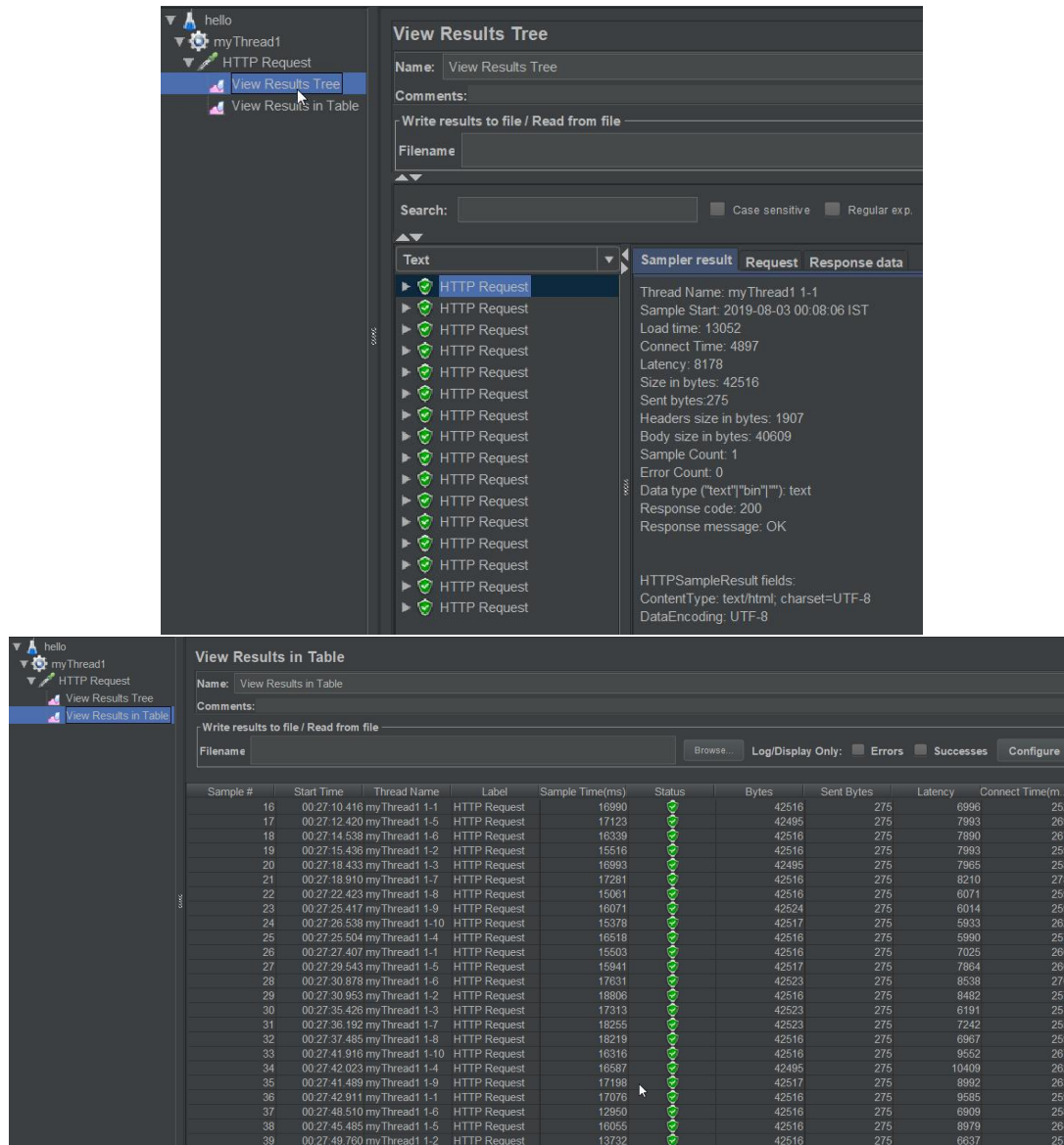
7) Save(CTRL+S) & Run(CTRL+R) the file and wait for a while. You'll see some:  
• **OUTPUTS:**



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:**



The top screenshot shows the 'View Results Tree' panel. The left sidebar shows a test plan named 'hello' with a thread group 'myThread1' containing an 'HTTP Request' sampler. The 'View Results Tree' panel is selected, showing a list of 10 'HTTP Request' samplers. The right pane shows the details for the selected sampler, including Thread Name, Sample Start, Load time, Connect Time, Latency, Size in bytes, Sent bytes, Headers size in bytes, Body size in bytes, Sample Count, Error Count, Data type, Response code, and Response message.

The bottom screenshot shows the 'View Results Table' panel. The left sidebar is the same. The 'View Results Table' panel is selected, showing a table of test results. The table has columns for Sample #, Start Time, Thread Name, Label, Sample Time(ms), Status, Bytes, Sent Bytes, Latency, and Connect Time(m...).

Sample #	Start Time	Thread Name	Label	Sample Time(ms)	Status	Bytes	Sent Bytes	Latency	Connect Time(m...
16	00:27:10.416	myThread1 1-1	HTTP Request	16990	Success	42516	275	6996	252
17	00:27:12.420	myThread1 1-5	HTTP Request	17123	Success	42495	275	7993	269
18	00:27:14.538	myThread1 1-6	HTTP Request	16339	Success	42516	275	7890	267
19	00:27:15.436	myThread1 1-2	HTTP Request	15516	Success	42516	275	7993	259
20	00:27:18.433	myThread1 1-3	HTTP Request	16993	Success	42495	275	7965	258
21	00:27:18.910	myThread1 1-7	HTTP Request	17281	Success	42516	275	8210	279
22	00:27:22.423	myThread1 1-8	HTTP Request	15081	Success	42516	275	8071	269
23	00:27:25.417	myThread1 1-9	HTTP Request	16071	Success	42524	275	8014	269
24	00:27:26.538	myThread1 1-10	HTTP Request	15378	Success	42517	275	5933	262
25	00:27:25.504	myThread1 1-4	HTTP Request	16518	Success	42516	275	5990	257
26	00:27:27.407	myThread1 1-1	HTTP Request	15503	Success	42516	275	7025	260
27	00:27:29.543	myThread1 1-5	HTTP Request	15941	Success	42517	275	7864	260
28	00:27:30.878	myThread1 1-6	HTTP Request	17631	Success	42523	275	8538	270
29	00:27:30.953	myThread1 1-2	HTTP Request	18806	Success	42516	275	8482	257
30	00:27:35.426	myThread1 1-3	HTTP Request	17313	Success	42523	275	6191	251
31	00:27:36.192	myThread1 1-7	HTTP Request	18255	Success	42523	275	7242	255
32	00:27:37.485	myThread1 1-8	HTTP Request	18219	Success	42516	275	6967	259
33	00:27:41.916	myThread1 1-10	HTTP Request	16316	Success	42516	275	9552	267
34	00:27:42.023	myThread1 1-4	HTTP Request	16587	Success	42495	275	10409	262
35	00:27:41.489	myThread1 1-9	HTTP Request	17198	Success	42517	275	8992	263
36	00:27:42.911	myThread1 1-1	HTTP Request	17076	Success	42516	275	9585	269
37	00:27:48.510	myThread1 1-6	HTTP Request	12950	Success	42516	275	6909	258
38	00:27:45.485	myThread1 1-5	HTTP Request	16055	Success	42516	275	8079	264
39	00:27:49.760	myThread1 1-2	HTTP Request	13732	Success	42516	275	6837	257

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.