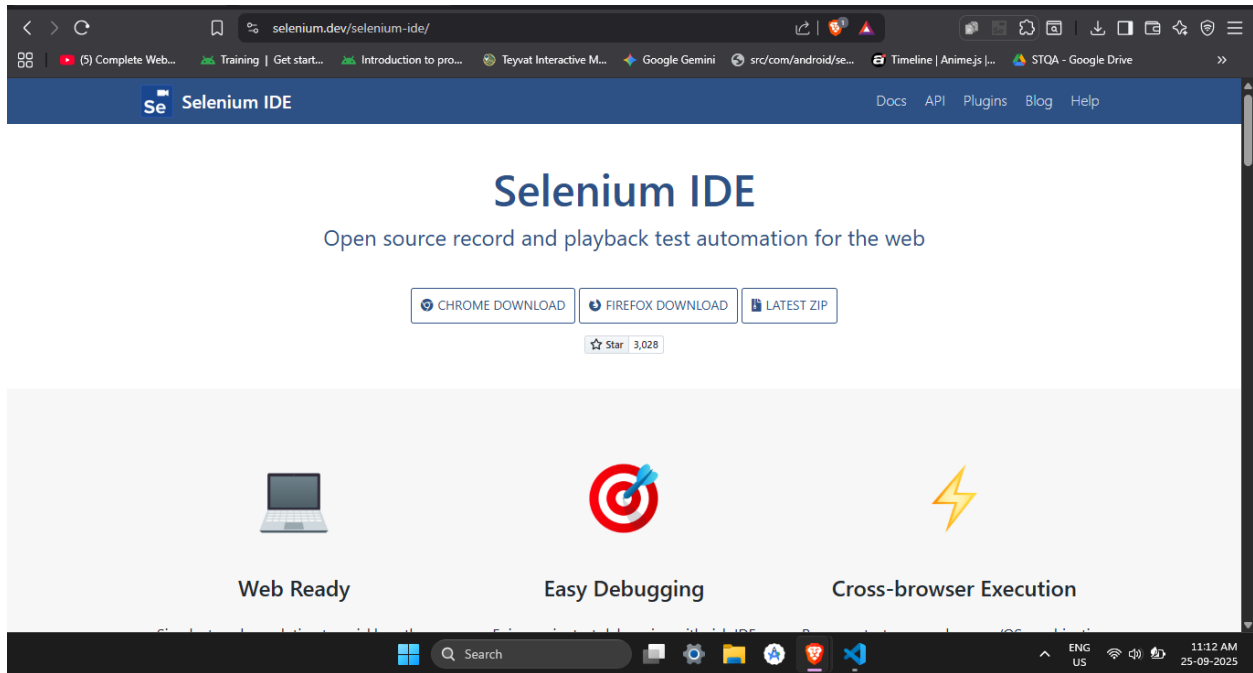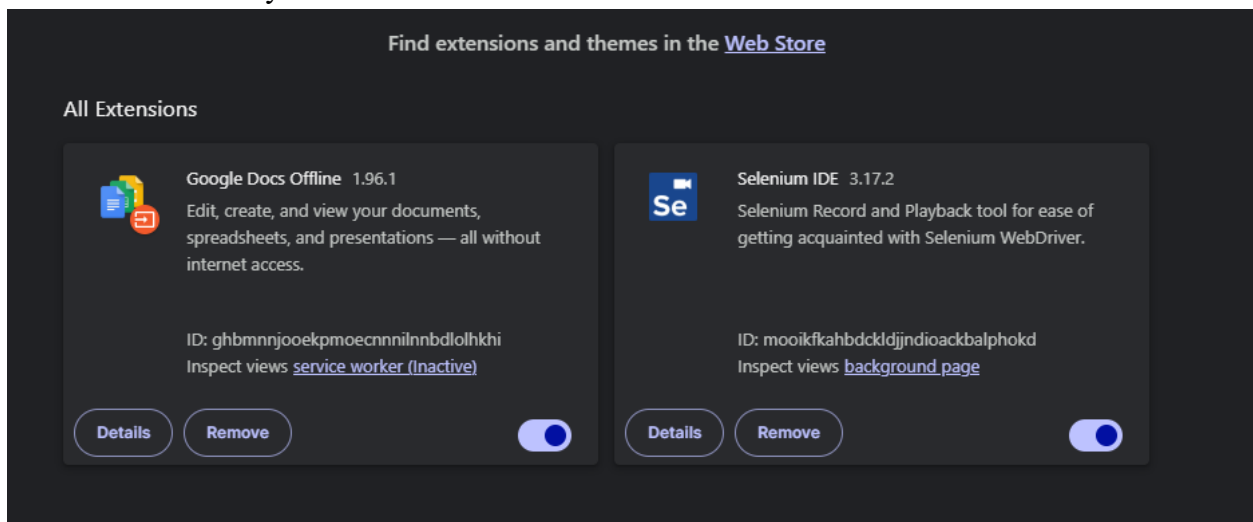# Practical No 1

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

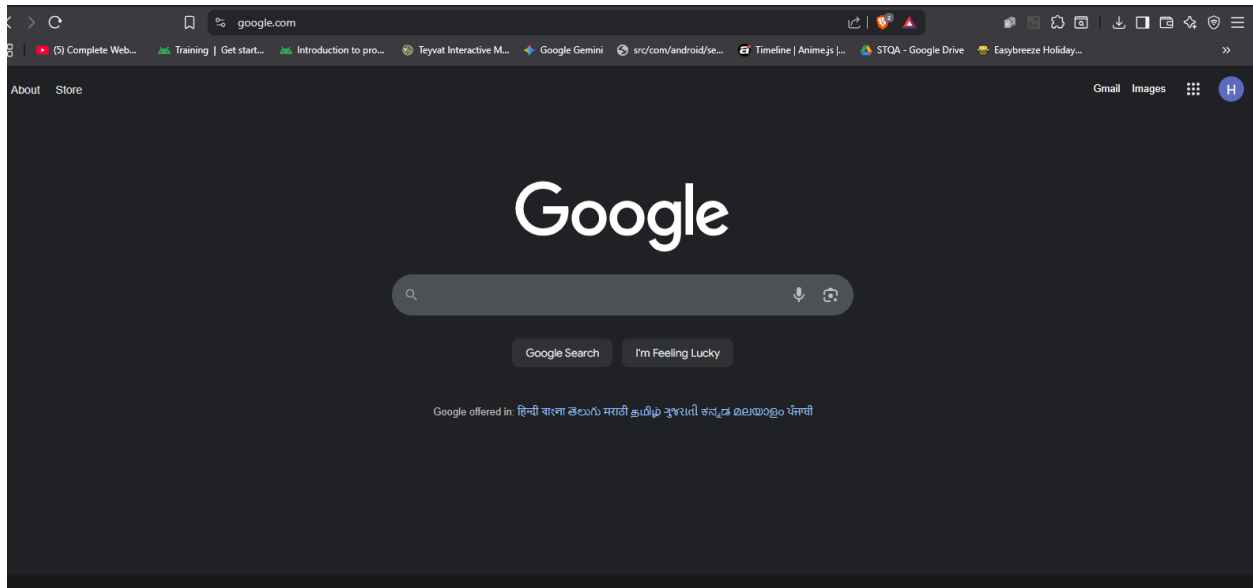Following are the steps for installing Selenium IDE on Mozilla Firefox.


1. Add extension to your browser

For https://www.google.com

Step 1: Open your browser and search for google. Copy and paste the same URL into Selenium IDE, start recording subsequently.

Step 2: Navigate through the google website by choosing options like project route, project timeline etc. And test the website by performing actions such as typing, clicking and dragging. After actions are performed click on Menu below the project name and choose Executing and run all tests. Save the Test Case with a name followed by .side suffix.
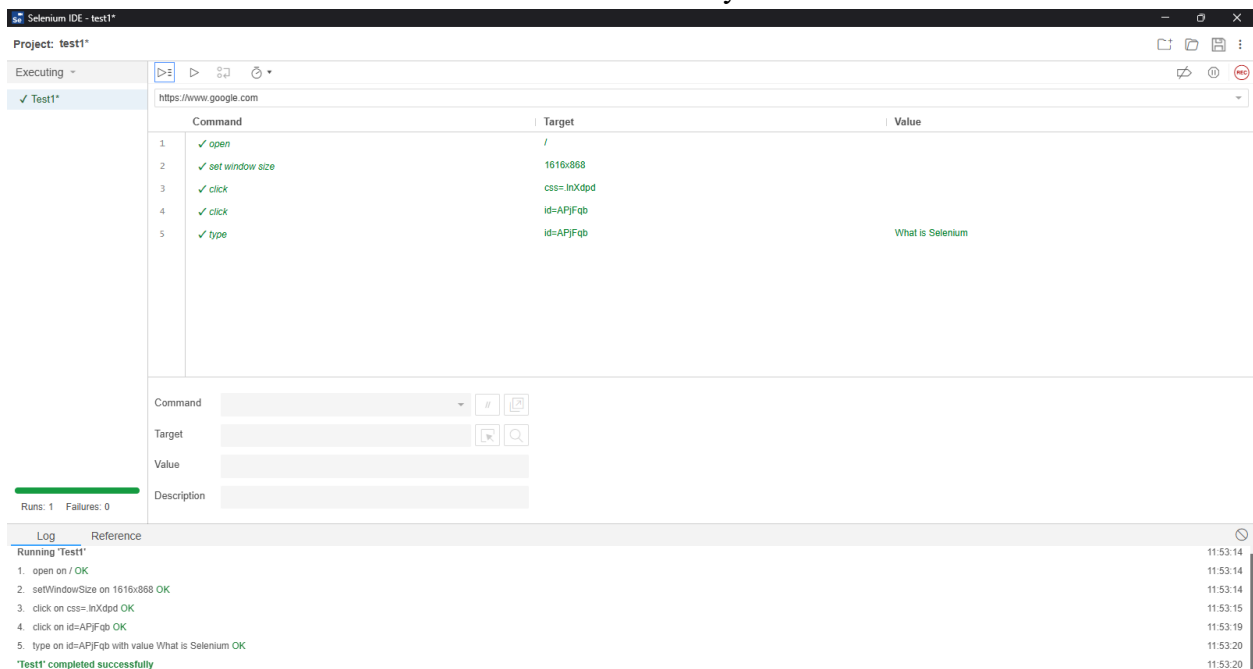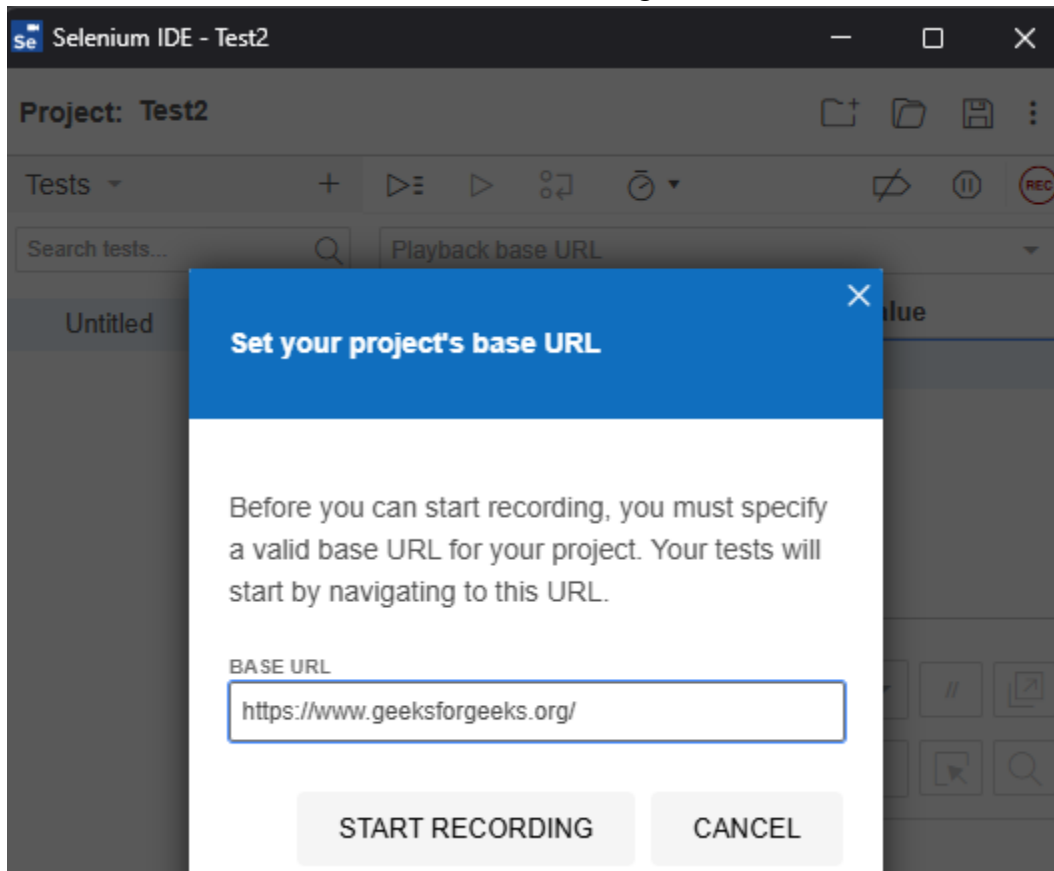
Practical No 2

Aim: Conduct a test suite for 2 different websites using Selenium IDE. Perform various actions like clicking links, filling forms, and verifying content.

For geeksforgeeks.org

1. Open the website and open selenium IDE. Copy the URL and paste it in the given space for further test. Then save & run the test to see the log files.

2. After every successful run it gives a message "completed successfully" with green text highlighted.

3. Save it in the HTML file and open it on your browser webpage.

{ "id": "b28ffb30-f454-4ccb-bc7d-36aea1191ea3", "version": "2.0", "name": "Test2", "url": "https://www.geeksforgeeks.org", "tests": [{ "id": "82d31150-70e7-498f-9c99-6e377b4b1394", "name": "Test2", "commands": [{ "id": "bf322716-5c95-41c4-a229-a16ec10168f8", "comment": "", "command": "open", "target": "/", "targets": [], "value": "" }, { "id": "ceab3fd8-ac9f-450e-b304-07e0c2c55267", "comment": "", "command": "click", "target": "css=.HomePageSearchContainer_homePageSearchContainer_container_input__1LS0r", "targets": [["css=.HomePageSearchContainer_homePageSearchContainer_container_input__1LS0r", "css:finder"], ["xpath=//input[@type='text']", "xpath:attributes"], ["xpath=//div[@id='comp']/div[2]/div/div[2]/input", "xpath:idRelative"], ["xpath=//input", "xpath:position"]], "value": "" }, { "id": "3f3cd4ee-ee84-4abc-866c-91ae557363ef", "comment": "", "command": "type", "target": "css=.HomePageSearchContainer_homePageSearchContainer_container_input__1LS0r", "targets": [["css=.HomePageSearchContainer_homePageSearchContainer_container_input__1LS0r", "css:finder"], ["xpath=//input[@type='text']", "xpath:attributes"], ["xpath=//div[@id='comp']/div[2]/div/div[2]/input", "xpath:idRelative"], ["xpath=//input", "xpath:position"]], "value": "Hello" }, { "id": "e9113d26-136d-4250-bf44-5fd96b76e0be", "comment": "", "command": "click", "target": "css=.HomePageSearchContainer_homePageSearchContainer_heading__DhWmd", "targets": [["css=.HomePageSearchContainer_homePageSearchContainer_heading__DhWmd", "css:finder"], ["xpath=//div[@id='comp']/div[2]/div/div", "xpath:idRelative"], ["xpath=//body/div/div/div/div/div[2]/div/div", "xpath:position"]], "value": "" }, { "id": "f0eec303-90c8-4390-a43f-91992ebc7dd0", "comment": "", "command": "click", "target": "css=._3pxTop", "targets": [["css=._3pxTop", "css:finder"], ["xpath=//div[@id='secondarySubHeader']/div/div[2]/i", "xpath:idRelative"], ["xpath=//div[2]/div/div/div[2]/i", "xpath:position"]], "value": "" }, { "id": "dd309cfc-bf23-4fb6-bfcf-5cd79fbc3074", "comment": "", "command": "click", "target": "css=._3pxTop", "targets": [["css=._3pxTop", "css:finder"], ["xpath=//div[@id='secondarySubHeader']/div/div[2]/i", "xpath:idRelative"], ["xpath=//div[2]/div/div/div[2]/i", "xpath:position"]], "value": "" }, { "id": "ac11648a-0d42-4838-9aa0-ef6b1137c956", "comment": "", "command": "click", "target": "css=.index_homePageContainer__H8GJD", "targets": [["css=.index_homePageContainer__H8GJD", "css:finder"], ["xpath=//div[@id='comp']/div[2]", "xpath:idRelative"], ["xpath=//body/div/div/div/div/div[2]", "xpath:position"]], "value": "" }, { "id": "c8768197-5e7c-4061-b5d3-36d16684ca5b", "comment": "", "command": "click", "target": "id=comp", "targets": [["id=comp", "id"], ["css=#data-mode > #comp", "css:finder"], ["xpath=//div[@id='comp']", "xpath:attributes"], ["xpath=//div[@id='data-mode']/div", "xpath:idRelative"], ["xpath=//div/div/div/div", "xpath:position"]], "value": "" }, { "id": "c468d9db-7c7d-4ea8-814a-52fac1f80c6d", "comment": "", "command": "click", "target": "css=.HomePageSearchContainer_homePageSearchContainer_heading__DhWmd", "targets": [["css=.HomePageSearchContainer_homePageSearchContainer_heading__DhWmd", "css:finder"], ["xpath=//div[@id='comp']/div[2]/div/div", "xpath:idRelative"], ["xpath=//body/div/div/div/div/div[2]/div/div", "xpath:position"]], "value": "" }] }], "suites": [{ "id": "58adf7c9-92ef-4578-b8b3-03ba89c5b9b1", "name": "Default Suite", "persistSession": false, "parallel": false, "timeout": 300, "tests": ["82d31150-70e7-498f-9c99-6e377b4b1394"] }], "urls": ["https://www.geeksforgeeks.org/"], "plugins": [] }

Practical No 3

Aim: Install Selenium server and demonstrate it using a script in Java/PHP.

Steps: Go to URL- https://www.eclipse.org/downloads/
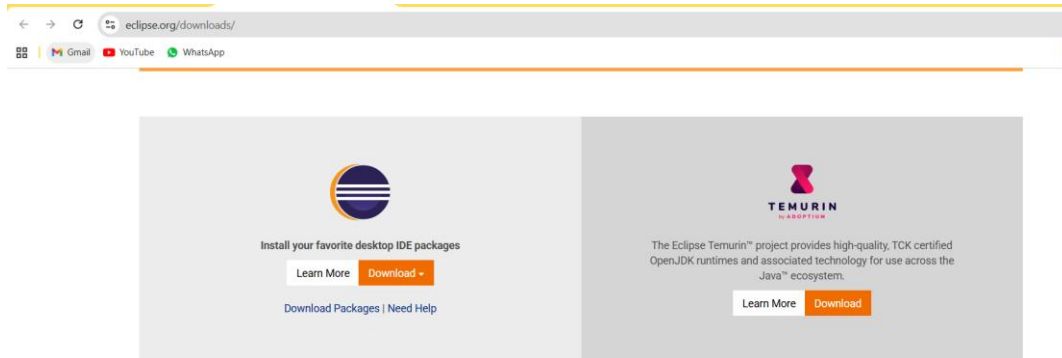
Select **Eclipse IDE for Java Developers** (Click on Windows 64 bit platform)
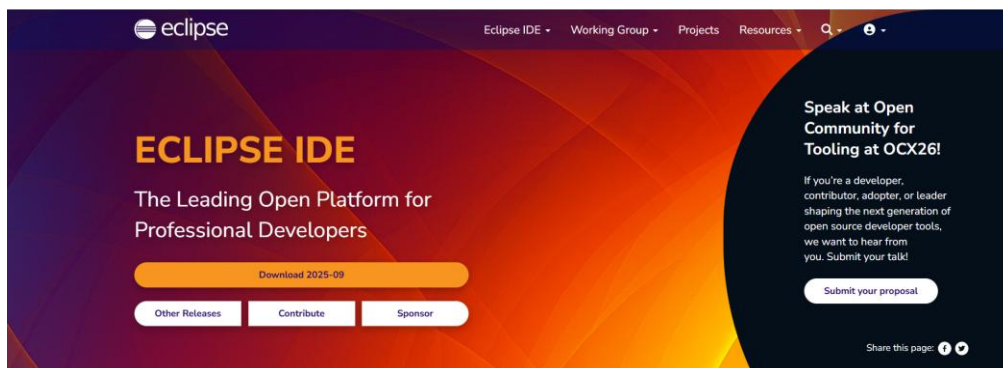
Next download the IDE

Download Selenium server: http://seleniumhq.org/download/

Download Selenium Client driver for Java (from Selenium Client Drivers section)

Go to Eclipse –> Click File –> New –> Project (from various options need to select just "project")

In Select Wizard –> Click Java –> "Java Project"
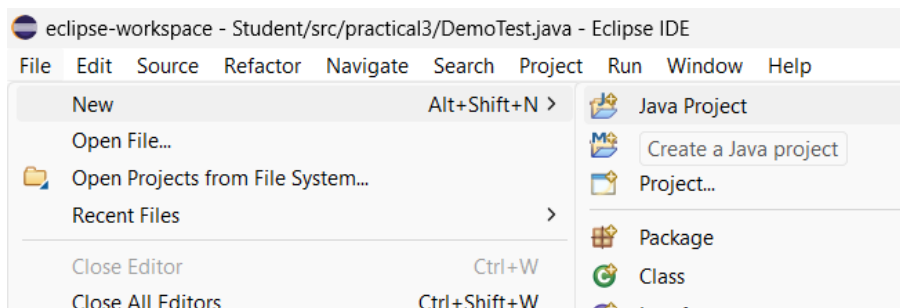
Now we are done with creation of project and need to configure the Selenium Client driver to this Project Right Click "Student" project
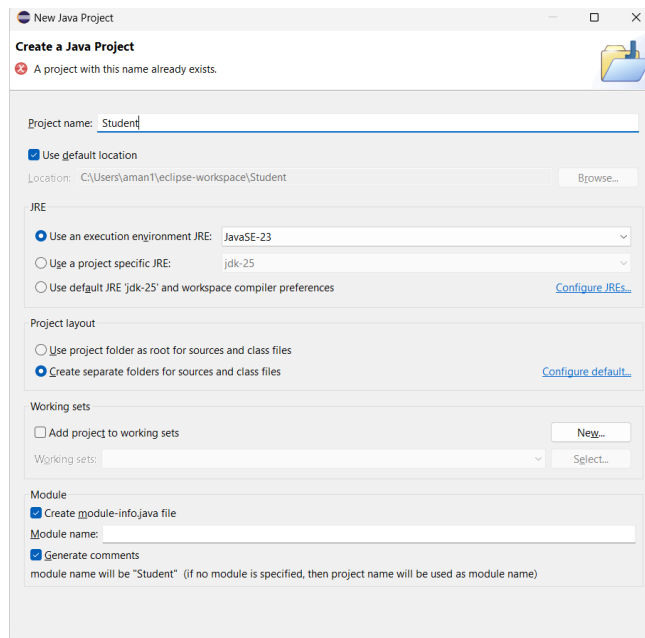
Click "Java Build Path"

Click Libraries tab

Click "Add External JARs" button

Select "Selenium Client Drivers" unzipped in C:Selenium folder (Selenium

Server JAR file should not be added) Click OK
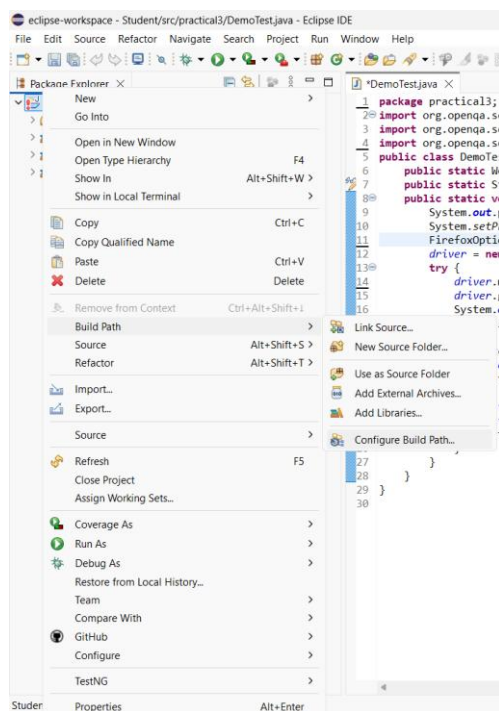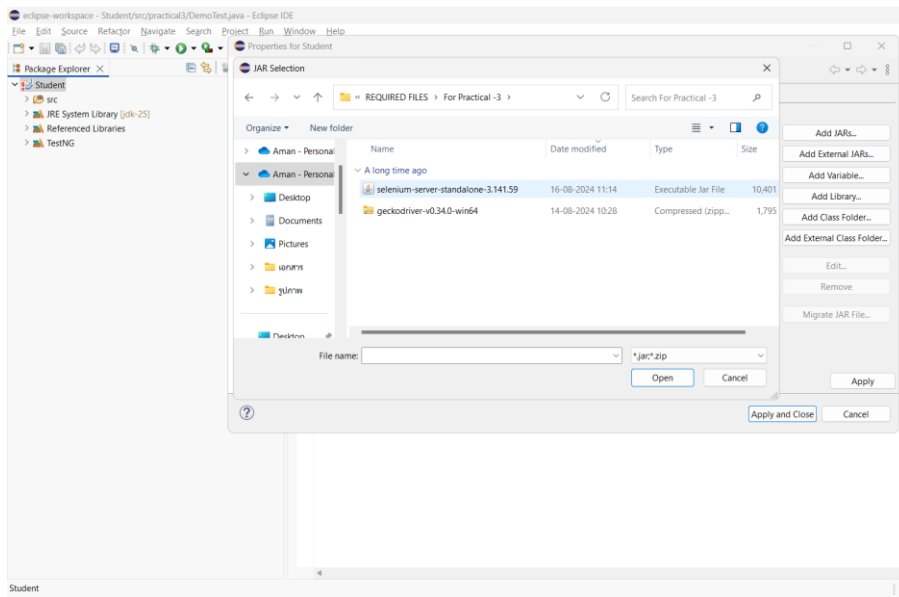
Program:

```java
package practical3;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.firefox.FirefoxDriver;
import org.openqa.selenium.firefox.FirefoxOptions;
public class DemoTest {
    public static WebDriver driver;
    public static String geckoPath = "C:\\Users\\aman1\\OneDrive\\Documents\\geckodriver.exe";
    public static void main(String[] args) {
        System.out.println("Starting Selenium demo...");
        System.setProperty("webdriver.gecko.driver", geckoPath);
        FirefoxOptions options = new FirefoxOptions();
        driver = new FirefoxDriver(options);
        try {
            driver.manage().window().maximize();
            driver.get("https://www.facebook.com/");
            System.out.println("Page title: " + driver.getTitle());
            Thread.sleep(3000);

        } catch (Exception ex) {
            System.err.println("Error: " + ex.toString());
            ex.printStackTrace();
        } finally {
            if (driver != null) {
                driver.quit();
                System.out.println("Driver quit.");
```

```
            }
          }
        }
      }
```

Output:
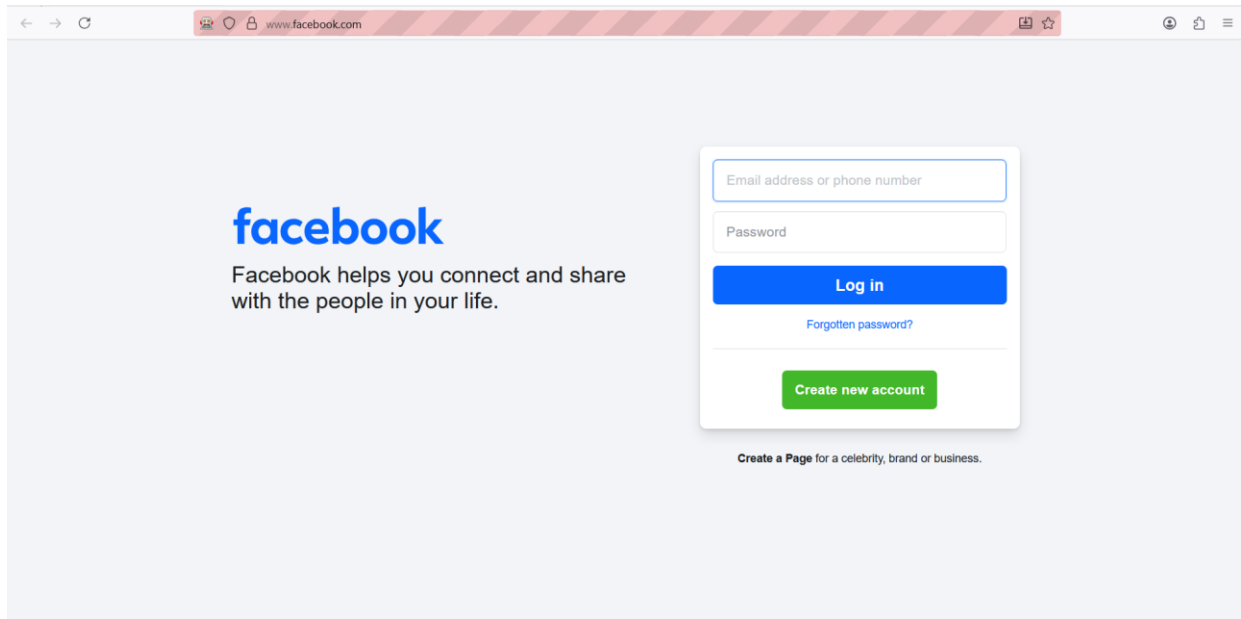

```
Starting Selenium demo...
1759415345830    geckodriver      INFO      Listening on 127.0.0.1:21128
1759415346029    mozrunner::runner        INFO      Running command: "C:\\Program Files\\Mozilla Firefox\\firefox.exe" "--marionette" "-no-remo
console.warn: services.settings: Ignoring preference override of remote settings server
console.warn: services.settings: Allow by setting MOZ_REMOTE_SETTINGS_DEVTOOLS=1 in the environment
1759415346553    Marionette       INFO      Marionette enabled
Dynamically enable window occlusion 0
1759415346637    Marionette       INFO      Listening on port 51432
Read port: 51432
1759415346833    RemoteAgent      WARN      TLS certificate errors will be ignored for this session
Oct 02, 2025 7:59:09 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
JavaScript warning: https://static.xx.fbcdn.net/rsrc.php/v4ihVQ4/yD/l/en_GB-j/NtVYeNijxVG.js, line 36: WEBGL_debug_renderer_info is depreca
Page title: Facebook - log in or sign up
1759415353916    Marionette       INFO      Stopped listening on port 51432
Dynamically enable window occlusion 1
console.error: "Failed to fetch https://spocs.getpocket.com/user:" "NetworkError when attempting to fetch resource."
console.error: (new TypeError("NetworkError when attempting to fetch resource.", ""))
console.error: (new Error("OHTTP was configured for https://ads.mozilla.org/v1/delete_user but we couldn't fetch a valid config", "moz-src:,
JavaScript error: resource://gre/modules/ObliviousHTTP.sys.mjs, line 105: NS_ERROR_XPC_CANT_CONVERT_PRIMITIVE_TO_ARRAY: Cannot convert prim
console.warn: TopSitesFeed: Failed to fetch data from MARS server: NetworkError when attempting to fetch resource.
JavaScript error: resource://services-settings/RemoteSettingsClient.sys.mjs, line 102: Error: Unknown callback
Driver quit.
```

Practical No 4

Aim: Write a program using Selenium WebDriver to automate the log in process on a specific webpage. Verify successful login with appropriate assertions.

Installation:

1. Run this command "pip install selenium" in cmd

```
C:\Users\RDNC>pip install selenium
Requirement already satisfied: selenium in c:\users\rdnc\appdata\local\packages\pythonsoftwarefoundation.python.3.11_qbz5n2kfra8p0\localcache\local-packages\python311\s
ite-packages (4.25.0)
Requirement already satisfied: urllib3<3,>=1.26 in c:\users\rdnc\appdata\local\packages\pythonsoftwarefoundation.python.3.11_qbz5n2kfra8p0\localcache\local-packages\pyt
hon311\site-packages (from urllib3[socks]<3,>=1.26->selenium) (2.2.3)
Requirement already satisfied: trio~=0.17 in c:\users\rdnc\appdata\local\packages\pythonsoftwarefoundation.python.3.11_qbz5n2kfra8p0\localcache\local-packages\python311
\site-packages (from selenium) (0.27.0)
```

2. To check installation run "pip show selenium" in cmd

```
C:\Users\RDNC>pip show selenium
Name: selenium
Version: 4.25.0
Summary: Official Python bindings for Selenium WebDriver
Home-page: https://www.selenium.dev
Author:
Author-email:
License: Apache 2.0
Location: C:\Users\RDNC\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.11_qbz5n2kfra8p0\LocalCache\local-packages\Python311\site-packages
Requires: certifi, trio, trio-websocket, typing_extensions, urllib3, websocket-client
Required-by:
```

Program:

```python
from selenium import webdriver
from selenium.webdriver.chrome.options import Options
from selenium.webdriver.common.by import By
from time import sleep
options=Options()
options.add_experimental_option("excludeSwitches", ["enable-logging"])
print("Testing started")
driver = webdriver.Chrome(options=options)
driver.get("https://www.saucedemo.com/")
sleep(3)
title=driver.title
print(f"Page title is {title}")
driver.find_element(By.ID, "user-name").send_keys("standard_user")
driver.find_element(By.ID, "password").send_keys("secret_sauce")
driver.find_element(By.ID, "login-button").click()
sleep(3)
first_item = driver.find_element(By.CLASS_NAME, "inventory_item")
assert first_item.is_displayed(), "First inventory item is not displayed"
first_item_name = first_item.find_element(By.CLASS_NAME, "inventory_item_name").text
print(f"First item name: {first_item_name}")
print("Test PASSED: Mr. RDNC, your LOGIN is successful and first inventory item is verified")
driver.quit()
```

Output:

Swag Labs

| Username |
| Password |

Login

Accepted usernames are:

standard_user
locked_out_user
problem_user
performance_glitch_user
error_user
visual_user

Password for all users:

secret_sauce

≡　　　　　Swag Labs　　　　　🛒

Products　　　　　　　　　　　▼ Name (A to Z) ▼

Sauce Labs Backpack

carry.allTheThings() with the sleek, streamlined Sly Pack that melds uncompromising style with unequaled laptop and tablet protection.

$29.99　　　　　　　　　　　Add to cart

Sauce Labs Bike Light

A red light isn't the desired state in testing but it sure helps when riding your bike at night. Water-resistant with 3 lighting modes, 1 AAA battery included.

```
Testing started
Page title is Swag Labs
First item name: Sauce Labs Backpack
Test PASSED: Mr. RDNC, your LOGIN is successful and first inventory item is verified
```

Practical No 5

Aim: Write a program using Selenium WebDriver to update 10 student records in an Excel file. Perform data manipulation and verification

Program:

```java
import java.io.File;
import java.io.IOException;
import jxl.Sheet;
import jxl.Workbook;
import jxl.read.biff.BiffException;
import jxl.write.Number;
import jxl.write.WritableSheet;
import jxl.write.WritableWorkbook;
import jxl.write.WriteException;
import org.testng.annotations.*;
public class Studentupdate {
private static final String INPUT_FILE =
"C:\\Users\\aman1\\OneDrive\\Documents\\student_records.xls";
private static final String OUTPUT_FILE =
"C:\\Users\\aman1\\OneDrive\\Documents\\student_records_updateds.xls";
@Test
public void testImportexport1() throws IOException, BiffException, WriteException {
File inputWorkbook = new File(INPUT_FILE);
Workbook w;
try {
w = Workbook.getWorkbook(inputWorkbook);
Sheet s = w.getSheet(0);
WritableWorkbook copy = Workbook.createWorkbook(new File(OUTPUT_FILE), w);
WritableSheet sheet = copy.getSheet(0);
int studentsAbove60 = 0;
// Process data
for (int i = 1; i <= 10; i++) {
String studentStr = s.getCell(0, i).getContents();
String marksStr = s.getCell(1, i).getContents();
try {
int studentNumber = Integer.parseInt(studentStr);
int marks = Integer.parseInt(marksStr);
int updatedMarks = marks + 10;
// Update the marks in the same column
Number updatedMarksCell = new Number(1, i, updatedMarks);
sheet.addCell(updatedMarksCell);
// Check if the original marks are above 60
if (marks > 60) {
studentsAbove60++;
}
System.out.println("Record successfully updated for student " + studentNumber + ": " +
marks + "-> " + updatedMarks);
```

```
} catch (NumberFormatException e) {
System.out.println("Invalid data for student in row " + (i + 1) + ": " + studentStr +
", " + marksStr);
}
}
}
// Write and close
copy.write();
copy.close();
w.close();
System.out.println("All records successfully updated");
System.out.println("Number of students who scored above 60 (before update): " +
studentsAbove60);
} catch (IOException | BiffException | WriteException e) {
e.printStackTrace();
}
}
}
}
```

Output:

```
[RemoteTestNG] detected TestNG version 7.11.0
SLF4J(W): No SLF4J providers were found.
SLF4J(W): Defaulting to no-operation (NOP) logger implementation
SLF4J(W): See https://www.slf4j.org/codes.html#noProviders for further details.
Record successfully updated for student 1: 20-> 30
Record successfully updated for student 2: 30-> 40
Record successfully updated for student 3: 40-> 50
Record successfully updated for student 4: 50-> 60
Record successfully updated for student 5: 60-> 70
Record successfully updated for student 6: 70-> 80
Record successfully updated for student 7: 80-> 90
Record successfully updated for student 8: 90-> 100
Record successfully updated for student 9: 100-> 110
Record successfully updated for student 10: 110-> 120
All records successfully updated
Number of students who scored above 60 (before update): 5
PASSED: Studentupdate.testImportexport1

===============================================
    Default test
    Tests run: 1, Failures: 0, Skips: 0
===============================================


===============================================
Default suite
Total tests run: 1, Passes: 1, Failures: 0, Skips: 0
===============================================
```

Before: excel file

	A	B
	Student	Marks
1	1	20
2	2	30
3	3	40
4	4	50
5	5	60
6	6	70
7	7	80
8	8	90
9	9	100
10	10	110

After: excel file

	A	B
	Student	Marks
1	1	30
2	2	40
3	3	50
4	4	60
5	5	70
6	6	80
7	7	90
8	8	100
9	9	110
10	10	120

Note: I have updated the marks by adding +10 to each student

Practical No 6

Aim: Write a program using Selenium WebDriver to select the number of students who have scored more than 60 in any one subject (or all subjects). Perform data extraction and analysis.

Program:

```java
import java.io.File;
import java.io.IOException;
import jxl.Sheet;
import jxl.Workbook;
import jxl.read.biff.BiffException;
import org.testng.annotations.*;
public class Studentupdate {
private static final String INPUT_FILE =
"C:\\Users\\aman1\\OneDrive\\Documents\\student_records.xls";
@Test
public void testImportexport1() throws IOException, BiffException {
File inputWorkbook = new File(INPUT_FILE);
Workbook w;
try {
w = Workbook.getWorkbook(inputWorkbook);
Sheet s = w.getSheet(0);
int studentsAbove60 = 0;
// Process data
for (int i = 1; i <= 10; i++) {
String studentStr = s.getCell(0, i).getContents();
String marksStr = s.getCell(1, i).getContents();
try {
int studentNumber = Integer.parseInt(studentStr);
int marks = Integer.parseInt(marksStr);
// Check if the marks are above 60
if (marks > 60) {
studentsAbove60++;
System.out.println("Student " + studentNumber + " scored above 60: " + marks);
}
} catch (NumberFormatException e) {
System.out.println("Invalid data for student in row " + (i + 1) + ": " + studentStr +
", " + marksStr);
}
}
w.close();
```

```
System.out.println("Number of students who scored above 60: " + studentsAbove60);
} catch (IOException | BiffException e) {
e.printStackTrace();
}
}
}
```

Output:

```
[RemoteTestNG] detected TestNG version 7.11.0
SLF4J(W): No SLF4J providers were found.
SLF4J(W): Defaulting to no-operation (NOP) logger implementation
SLF4J(W): See https://www.slf4j.org/codes.html#noProviders for further details.
Student 6 scored above 60: 70
Student 7 scored above 60: 80
Student 8 scored above 60: 90
Student 9 scored above 60: 100
Student 10 scored above 60: 110
Number of students who scored above 60: 5
PASSED: Studentupdate.testImportexport1

===============================================
    Default test
    Tests run: 1, Failures: 0, Skips: 0
===============================================


===============================================
Default suite
Total tests run: 1, Passes: 1, Failures: 0, Skips: 0
===============================================
```

Practical No 7

Aim: 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

Program:
```java
package qqqqqq;
import java.util.List;
import java.util.concurrent.TimeUnit;
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.FirefoxOptions;
import org.openqa.selenium.firefox.FirefoxDriverLogLevel;
public class llll {
    public static void main(String[] args) {
        System.setProperty("webdriver.gecko.driver",
            "C:\\Users\\aman1\\OneDrive\\Documents\\geckodriver.exe");
        FirefoxOptions options = new FirefoxOptions();
        options.setLogLevel(FirefoxDriverLogLevel.ERROR);
        options.addPreference("dom.webnotifications.enabled", false);
        options.addPreference("dom.push.enabled", false);
        options.addPreference("media.autoplay.default", 1);
        options.addPreference("privacy.trackingprotection.enabled", true);
        WebDriver driver = new FirefoxDriver(options);
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);
        driver.get("https://wikipedia.com");
        List<WebElement> buttons = driver.findElements(By.tagName("button"));
        System.out.println("The number of buttons is " + buttons.size());
        List<WebElement> inputs = driver.findElements(By.tagName("input"));
        System.out.println("The number of input fields is " + inputs.size());
        for (WebElement button : buttons) {
            System.out.println("Button text: " + button.getText());
        }
        for (WebElement input : inputs) {
            System.out.println("Input type: " + input.getAttribute("type"));
        }
        driver.quit();
    }
}
```

Output:

```
1759405655649   geckodriver      INFO    Listening on 127.0.0.1:65138
console.warn: services.settings: Ignoring preference override of remote settings server
console.warn: services.settings: Allow by setting MOZ_REMOTE_SETTINGS_DEVTOOLS=1 in the environment
Dynamically enable window occlusion 0
Read port: 54412
Oct 02, 2025 5:17:38 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
The number of buttons is 2
The number of input fields is 3
Button text: Search
Button text: Read Wikipedia in your language
Input type: hidden
Input type: search
Input type: hidden
Dynamically enable window occlusion 1
console.error: "Failed to fetch https://spocs.getpocket.com/user:" "NetworkError when attempting to fetch resource."
console.error: (new TypeError("NetworkError when attempting to fetch resource.", ""))
console.error: (new Error("OHTTP was configured for https://ads.mozilla.org/v1/delete_user but we couldn't fetch a valid config", "moz-src:/
JavaScript error: resource://gre/modules/ObliviousHTTP.sys.mjs, line 105: NS_ERROR_XPC_CANT_CONVERT_PRIMITIVE_TO_ARRAY: Cannot convert primi
console.warn: TopSitesFeed: Failed to fetch data from MARS server: NetworkError when attempting to fetch resource.
JavaScript error: resource://services-settings/RemoteSettingsClient.sys.mjs, line 102: Error: Unknown callback
```

Practical No 8

Aim: 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.

Program:

```java
package qqqqqq;
import java.util.List;
import java.util.concurrent.TimeUnit;
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.firefox.FirefoxDriver;
public class llll {
    @SuppressWarnings("deprecation")
    public static void main(String[] args) {
        System.setProperty("webdriver.gecko.driver",
"C:\\Users\\aman1\\OneDrive\\Documents\\geckodriver.exe");
        // Initialize FirefoxDriver
        WebDriver driver = new FirefoxDriver();
        String url = "https://wikipedia.com";
        driver.get(url);
        // Implicit wait
        driver.manage().timeouts().implicitlyWait(30, TimeUnit.SECONDS);
        try {
            // Locate a combo box (select element)
            WebElement comboBox = driver.findElement(By.cssSelector("select"));
            // Find all options in the combo box
            List<WebElement> options = comboBox.findElements(By.tagName("option"));
            System.out.println("Number of items in the combo box: " + options.size());
            for (WebElement option : options) {
                System.out.println(option.getText());
            }
        } catch (Exception e) {
            System.out.println("No combo box found on the page!");
        }
        // Close the browser
        driver.close();
    }
}
```

Output:

```
1759406025391   RemoteAgent     WARN    TLS certificate errors will be ignored for this session
Oct 02, 2025 5:23:47 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
Number of items in the combo box: 76
Afrikaans
Shqip
العربية
Asturianu
Azərbaycanca
Български
閩南語 / Bân-lâm-gú
বাংলা
```