



AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH

Department: Computer Science and Engineering

Faculty of Science and Technology(FST)

Fall 2021-22

Section – B

Software Quality and Testing

Assignment on Selenium

A Software Quality and Testing assignment submitted by

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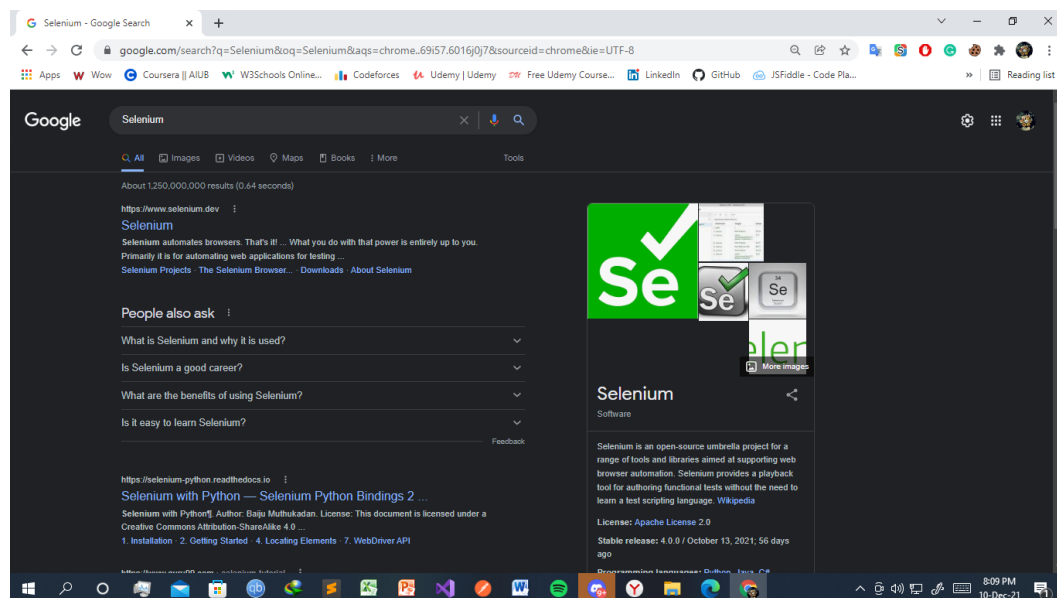
1 INSTALLATION PROCESS

To install selenium to test any project we need to understand 3 things.

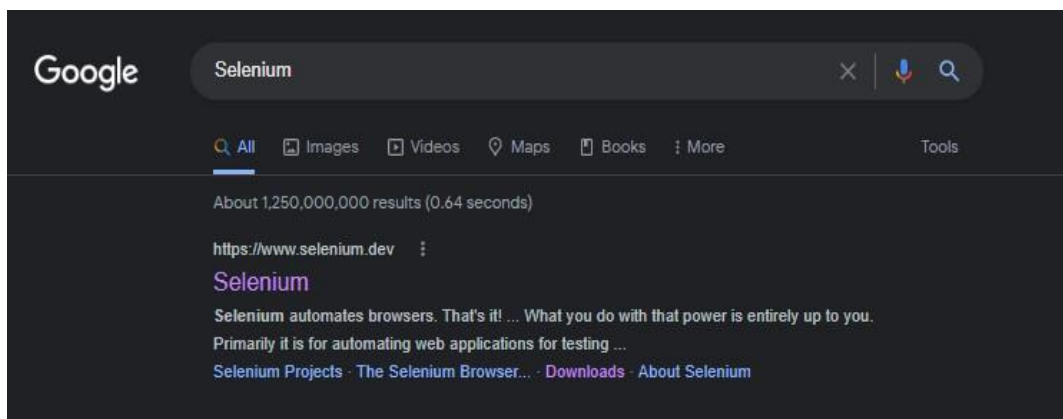
1. There are different programming language library exists for different programming language. Like the library for Java is in 'JAR' files (.jar). C# library is in 'DLL' files (.dll). So, for different programming language we need to download suitable "Selenium WebDriver Library."

So if we're working with Java Project we need to download the "JAR" files. For C# we need to download the "DLL" files.

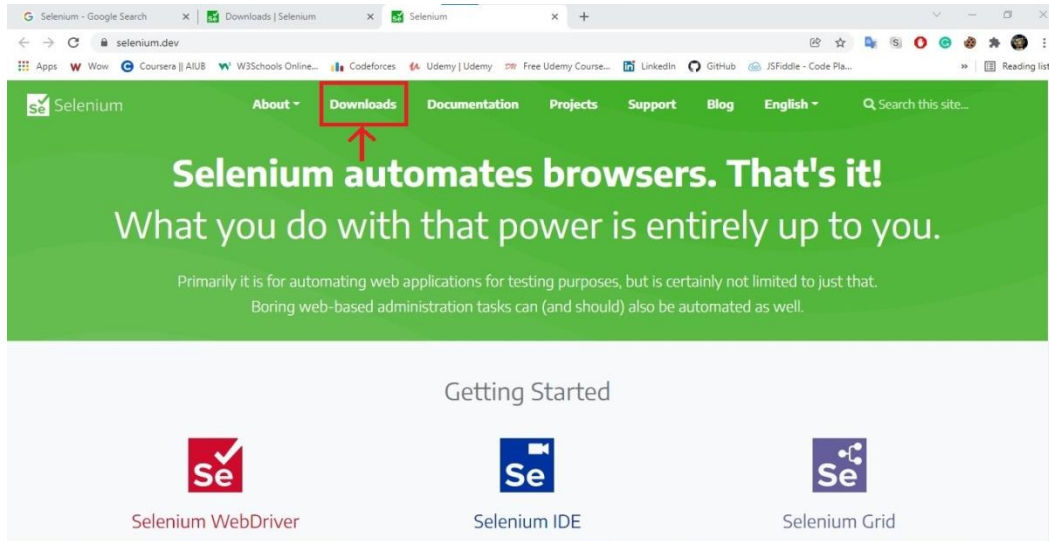
I. Search Selenium in Google.



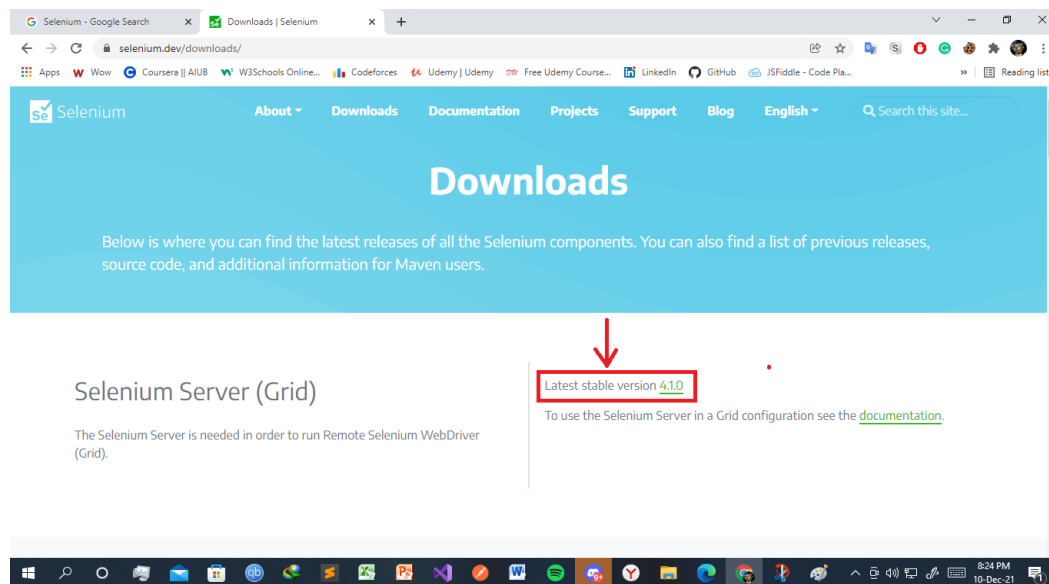
II. Go to the link <https://www.selenium.dev>



III. From Home Page go to “Downloads” tab from Navbar.



IV. From the Downloads page, click on the available “Stable” version. It will start the download.

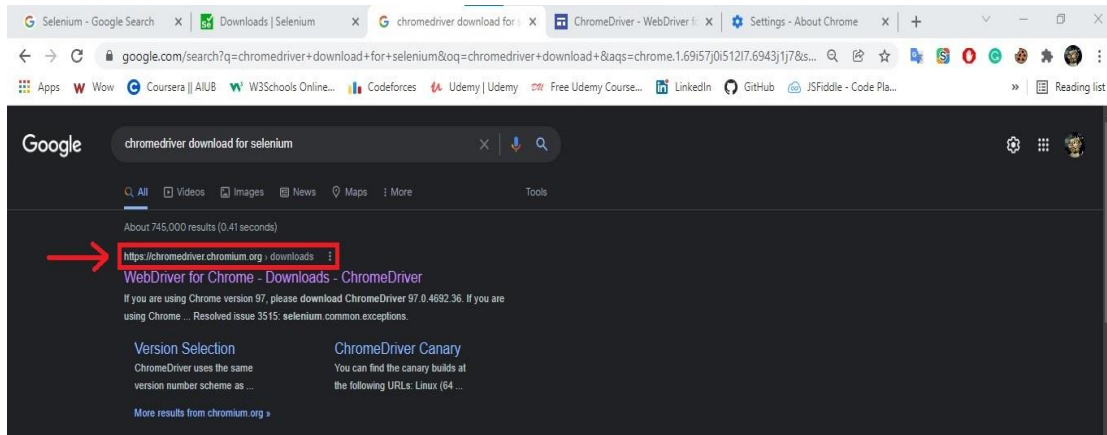


V. After downloading it will give a warning. We have to press “Keep” to continue the process.

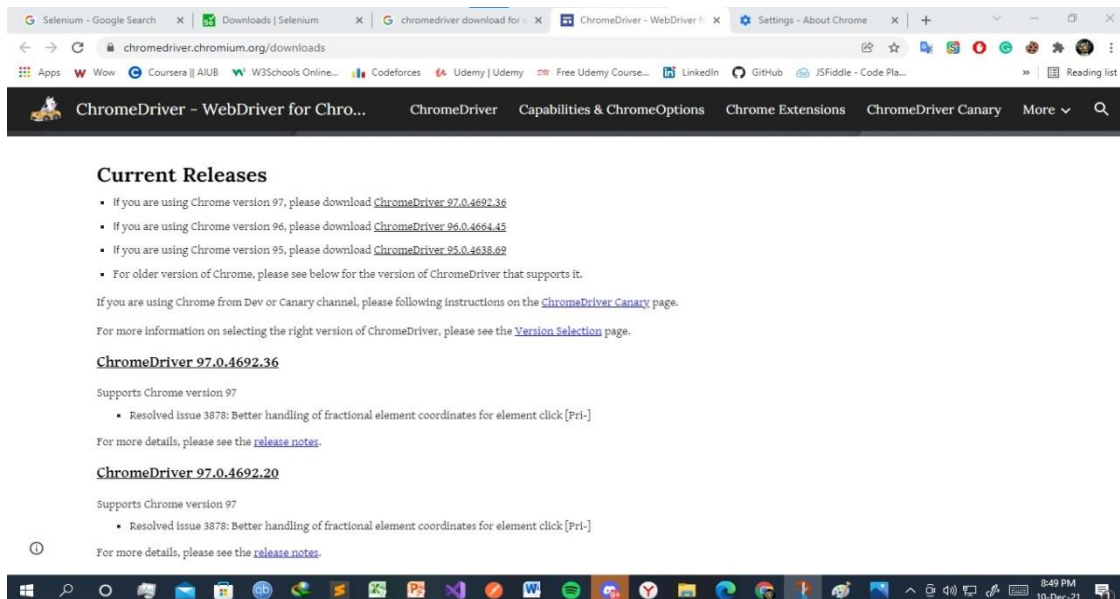


2. We also need to download the “Driver Executable Files.” It’s a ‘.exe’ file and common in every Programming language.

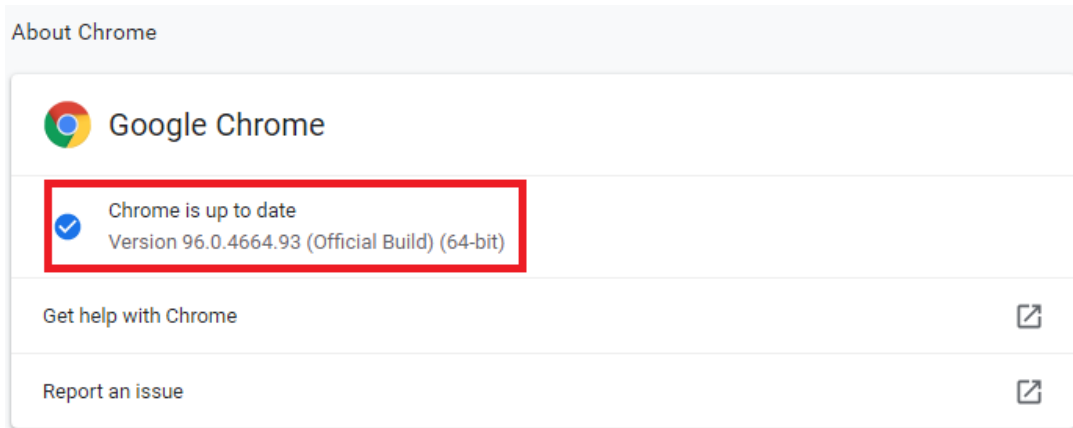
VI. First we must have a browser installed for the executable file. For this I’m using Google Chrome. So I need to download the Chrome Executable file. Go to Google and search “Chrome Driver Download for Selenium.” And click on the link <https://chromedriver.chromium.org/downloads>



VII. There will be several chrome driver version.



- VIII. To download the compatible version we need to check our Google Chrome Version. We need to match the version with our current Google Chrome version.



- IX. According to my Google Chrome version, I will now choose the best compatible version for the executable file. Click on it.

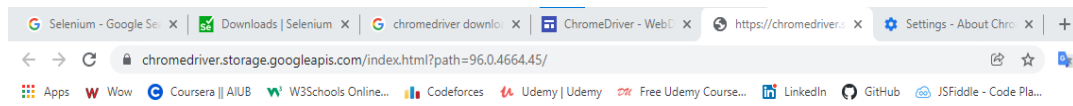
ChromeDriver 96.0.4664.45

Supports Chrome version 96

- Resolved issue 3445: Impossible to access elements in iframe inside a shadow root [Pri-3]

For more details, please see the [release notes](#).

- X. After Clicking on the version driver, it will get us to this page. From here we need to download the zip file for windows (win32) by just clicking on it.



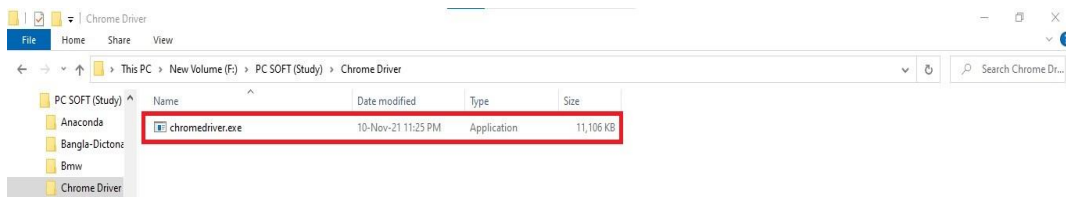
Index of /96.0.4664.45/

	Name	Last modified	Size	ETag
	Parent Directory		-	
	chromedriver_linux64.zip	2021-11-16 09:35:54	9.64MB	318c85b6709902b2e62a55da22362b05
	chromedriver_mac64.zip	2021-11-16 09:35:56	7.85MB	60622681d95f2087005305628cea2d1a
	chromedriver_mac64_m1.zip	2021-11-16 09:35:58	7.44MB	8dd9b44b86d433e51a0b04089c6c13fc
	chromedriver_win32.zip	2021-11-16 09:36:00	5.80MB	b1c93546ea5f304a9e7ac8b3944af7dc
	notes.txt	2021-11-16 09:36:05	0.00MB	7e1ce9231396cabd06e1ff2b0e539fe5

XI. It will start and finish download on its own. There will be no warning this time.



XII. Now Extract the zip file after downloading. We will get a exe file.



3. Need a “Browser”, the executable file we downloaded for. For this project I’m using Google Chrome.

Download and Install process is now complete.

2 BENEFITS AND SPECIALTY OF SELENIUM

Companies are increasingly turning to open source automated testing technologies to reduce the cost and work associated with manual testing for each project. The main reasons are:

- ✚ Business Expenses Have Been Reduced
- ✚ The number of tests we can validate using manual testing is limited. We can spend more time building new tests and adding them to your automated test suite because of automation.
- ✚ After defining a suite, it is very easy to reuse tests for different use cases or different projects. The advantage is that you can easily link other projects to the automated test suite.
- ✚ Errors can occur when testing complex use cases. Automated tests, on the other hand, give you the same results every time you run them, so you can run your tests with 100% accuracy.
- ✚ It reduces our stress also.

One such open source automated testing tool for websites is Selenium.

The specialty of selenium:

- ✚ Selenium's performance, execution speed, and browser interaction are far superior than any other automation tool.
- ✚ The test packages, the Modes of Selenium available for unattended execution, and the fact that the test script can be developed in any of the language that Selenium supports
- ✚ Selenium supports different operating systems.
- ✚ Selenium support different programming languages such as Python, Pearl, Ruby, PHP, C#, Java, JavaScript;
- ✚ Selenium supports most of the popular browsers.

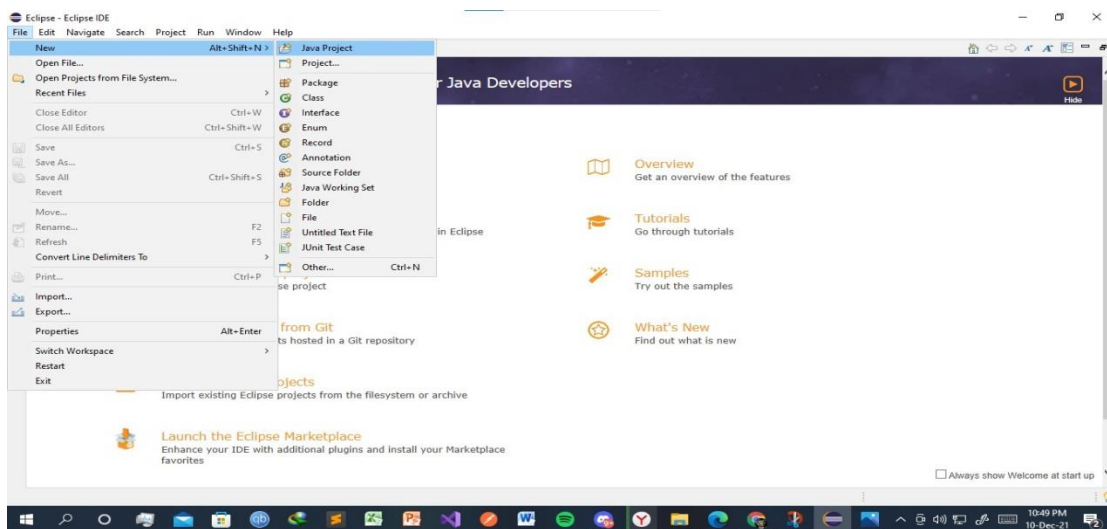
Those points makes selenium ahead of any other automation tool.

3 PROJECT TESTING WITH SELENIUM

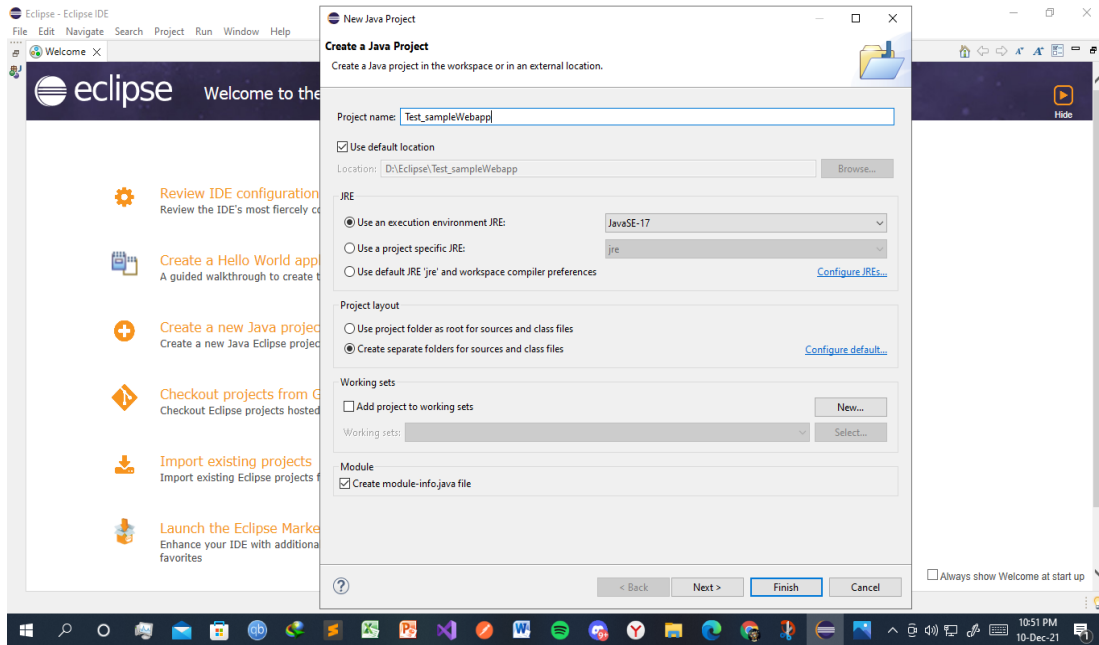
To test a project we worked with Eclipse IDE. To run Java with the IDE, Java Development Kit (JDK) must be installed and the path variable should be properly integrated with the IDE.

1. Creating Prtoject

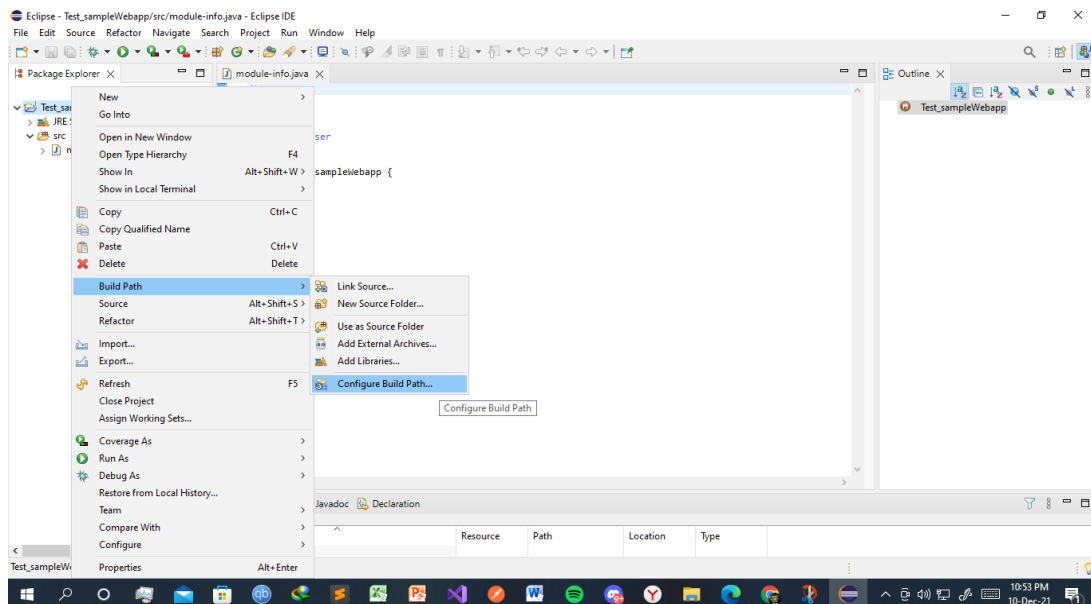
- I. Open Eclipse and go to create project.



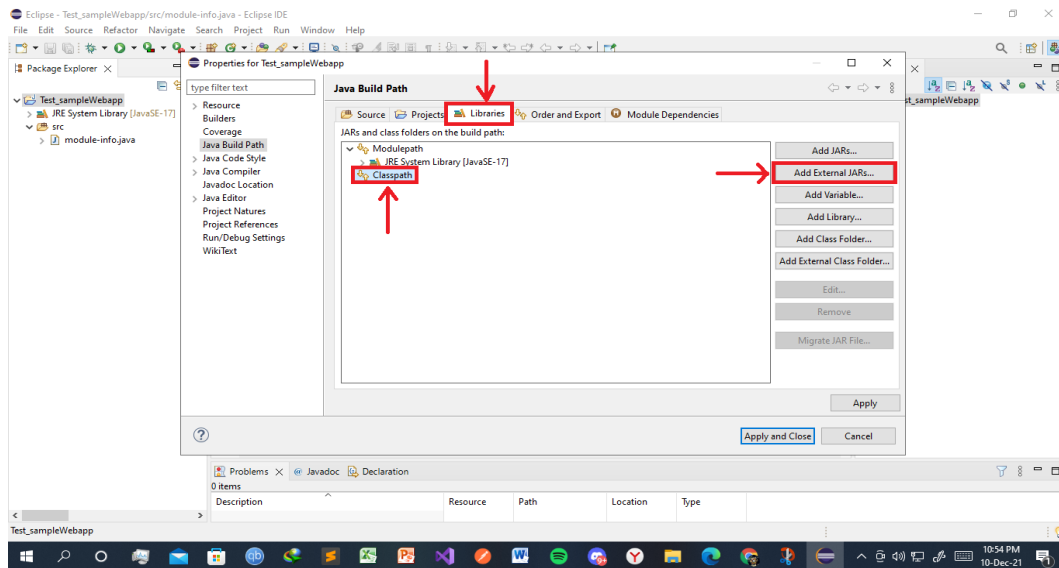
II. It will open a page like this. Name a Project.



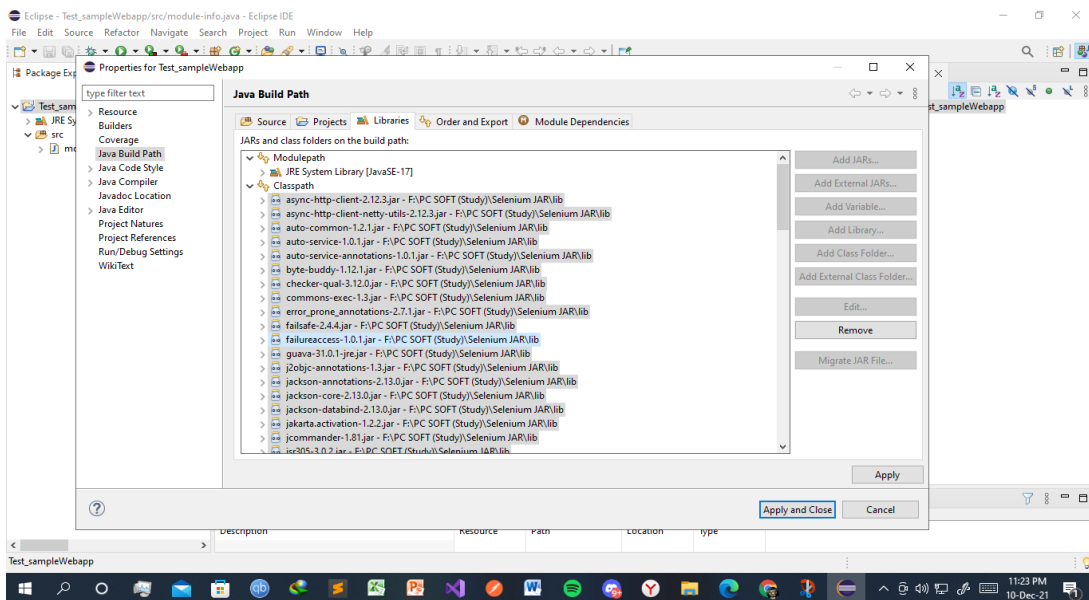
III. Right click on the project that has been created > Build path > configure build path.



- IV. A new window will open. Select “Libraries” from the top navbar of the window. Then click on “Classpath” under the section of libraries and select “Add External JARs”.



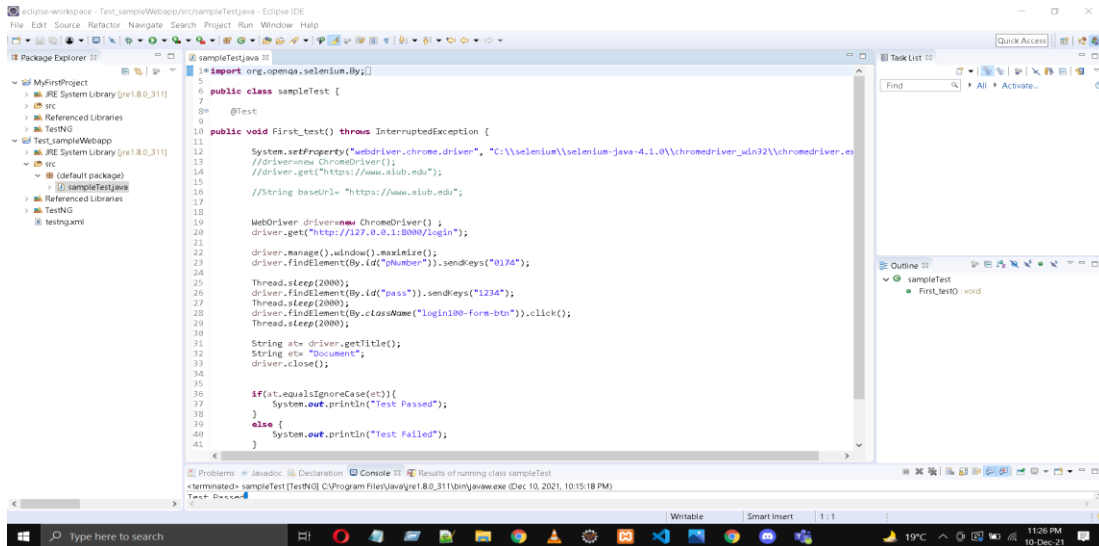
- V. After clicking on “Add External JARs”, a selection window will open, select all the JAR files from extracting the Zip file of the Selenium that we downloaded. Click apply and change to finish the process.



2. Testing a Web Development project

- VI. Initially trying to test the “Login” module of the website that we developed. After solving several error, the code is finally ready to run and test the module.

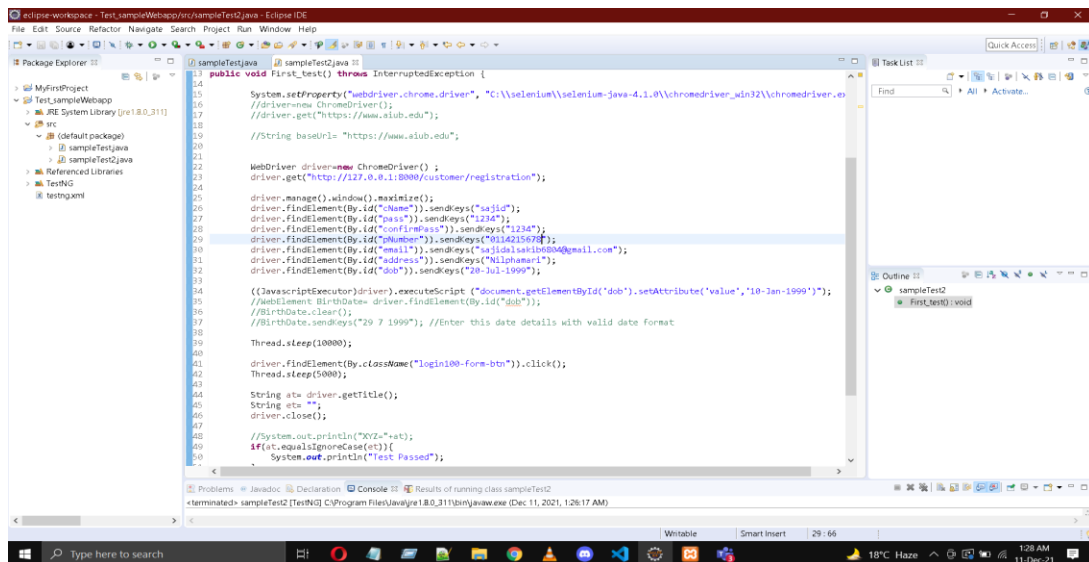
NB: The result of the “Login” Module will be elaborated at “Test Results”, Section 4.



```
1 import org.openqa.selenium.By;
2
3 public class sampleTest {
4     @Test
5
6     public void First_test() throws InterruptedException {
7
8         System.setProperty("webdriver.chrome.driver", "C:\\selenium\\selenium-java-4.1.0\\chromedriver_win32\\chromedriver.exe");
9         //driver=new ChromeDriver();
10        //driver.get("https://www.situb.edu");
11        //String baseUrl= "https://www.situb.edu";
12
13        WebDriver driver=new ChromeDriver() ;
14        driver.get("http://127.0.0.1:8080/login");
15        driver.manage().window().maximize();
16        driver.findElement(By.id("username")).sendKeys("0124");
17
18        Thread.sleep(2000);
19        driver.findElement(By.id("password")).sendKeys("1234");
20        Thread.sleep(2000);
21        driver.findElement(By.className("login100-form-btn")).click();
22        Thread.sleep(2000);
23
24        String atw= driver.getTitle();
25        String etw= "Document";
26        driver.close();
27
28        if(atw.equalsIgnoreCase(etw)){
29            System.out.println("Test Passed");
30        }
31        else {
32            System.out.println("Test Failed");
33        }
34    }
35}
```

- VII. After the Login Module, we tried to test the “Registration Module” as well.

NB: The result of the “Registration” Module will be elaborated at “Test Results”, Section 4.

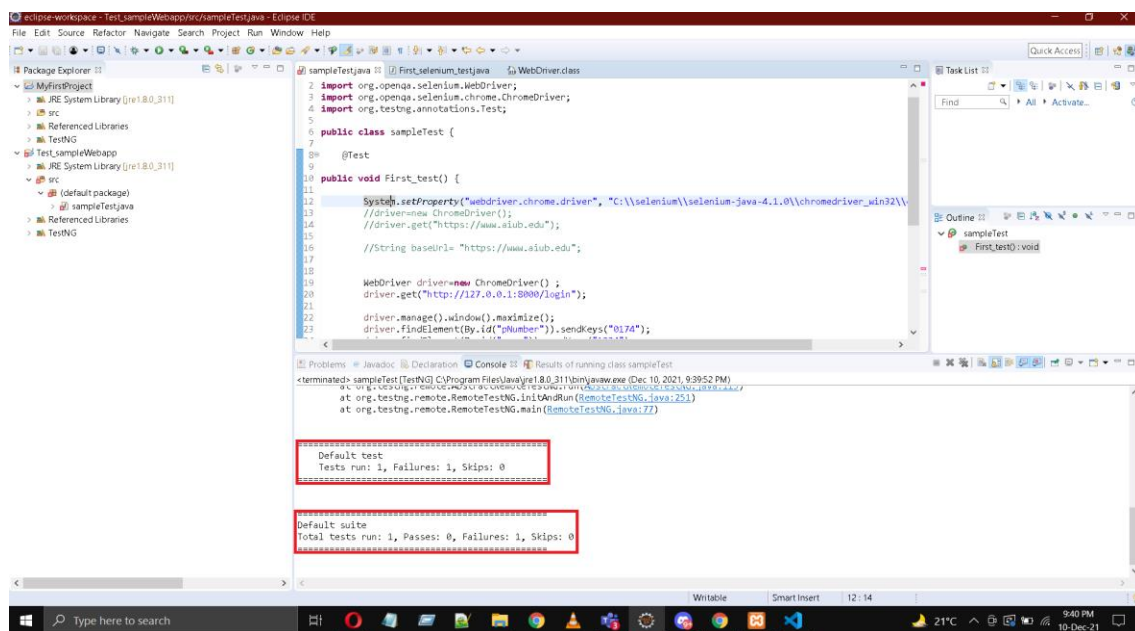


```
1 public void First_test() throws InterruptedException {
2
3     System.setProperty("webdriver.chrome.driver", "C:\\selenium\\selenium-java-4.1.0\\chromedriver_win32\\chromedriver.exe");
4     //driver=new ChromeDriver();
5     //driver.get("https://www.situb.edu");
6     //String baseUrl= "https://www.situb.edu";
7
8     WebDriver driver=new ChromeDriver() ;
9     driver.get("http://127.0.0.1:8080/customer/registration");
10
11     driver.manage().window().maximize();
12     driver.findElement(By.id("Name")).sendKeys("sa1id");
13     driver.findElement(By.id("pass")).sendKeys("1234");
14     driver.findElement(By.id("confirmPass")).sendKeys("1234");
15     driver.findElement(By.id("password")).sendKeys("01245678");
16     driver.findElement(By.id("email")).sendKeys("s1daisitub@gmail.com");
17     driver.findElement(By.id("address")).sendKeys("Nilohamari");
18     driver.findElement(By.id("dob")).sendKeys("28-Jul-1999");
19
20     ((JavaScriptExecutor)driver).executeScript("document.getElementById('dob').setAttribute('value','10-Jan-1999')");
21     //WebElement birthDate= driver.findElement(By.id("dob"));
22     //birthDate.clear();
23     //birthDate.sendKeys("29 7 1999"); //Enter this date details with valid date format
24
25     Thread.sleep(10000);
26
27     driver.findElement(By.className("login100-form-btn")).click();
28     Thread.sleep(5000);
29
30     String atw= driver.getTitle();
31     String etw= "";
32     driver.close();
33
34     //System.out.println("XYZ="+atw);
35     if(atw.equalsIgnoreCase(etw)){
36         System.out.println("Test Passed");
37     }
38 }
```

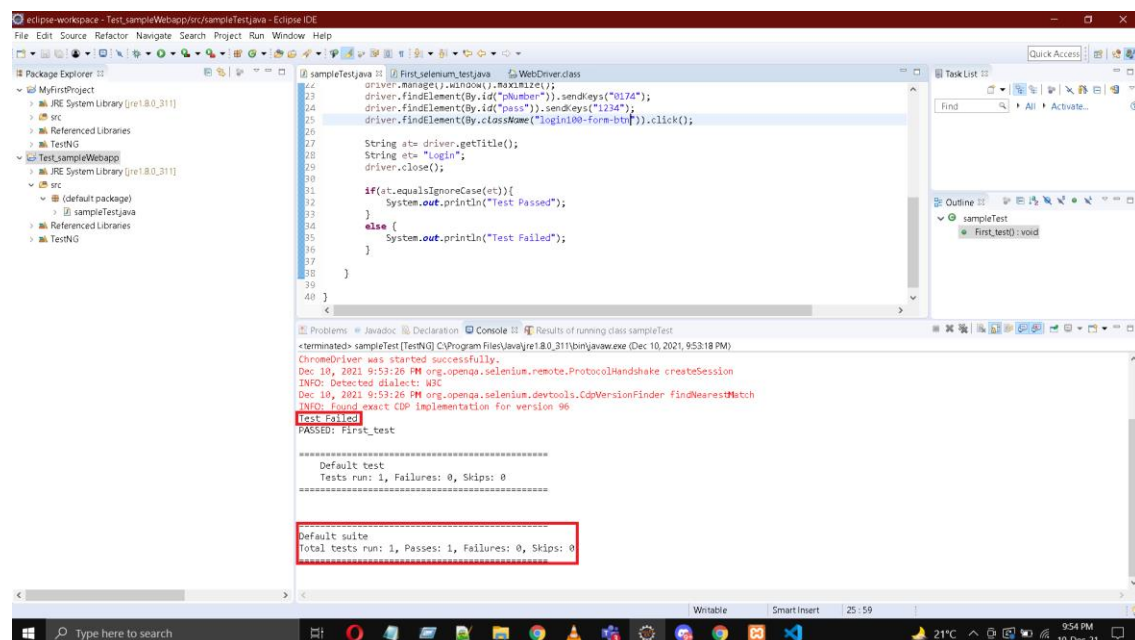
4 TEST RESULTS

4.1 Login Module

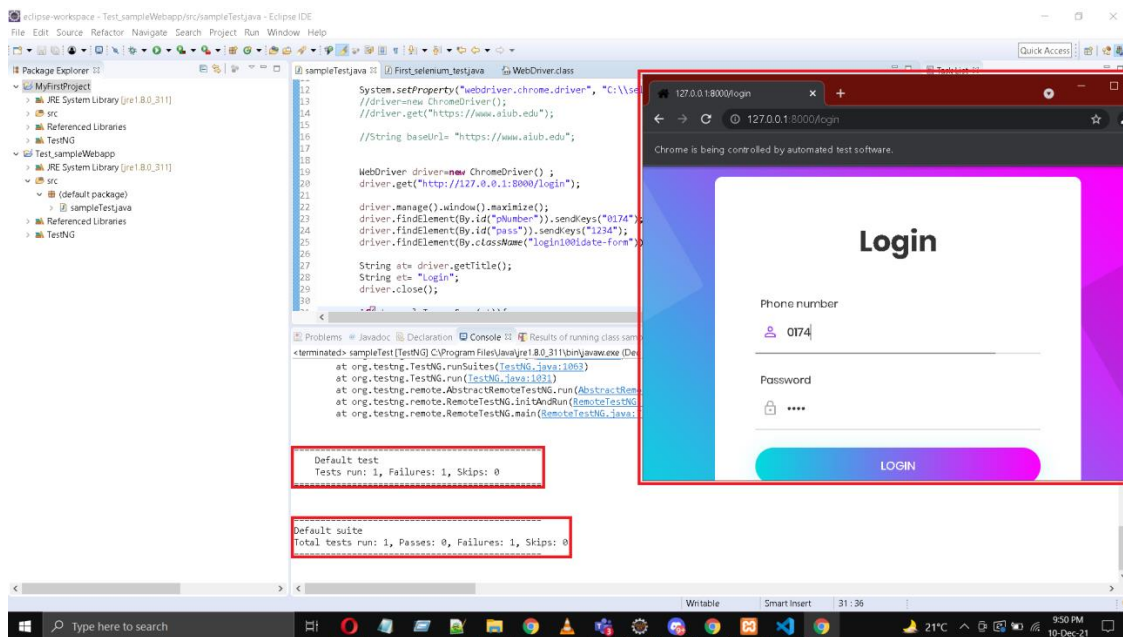
- I. At the very first attempt there were some errors in the execution of the code. After solving the problems, finally after running the project the test failed.



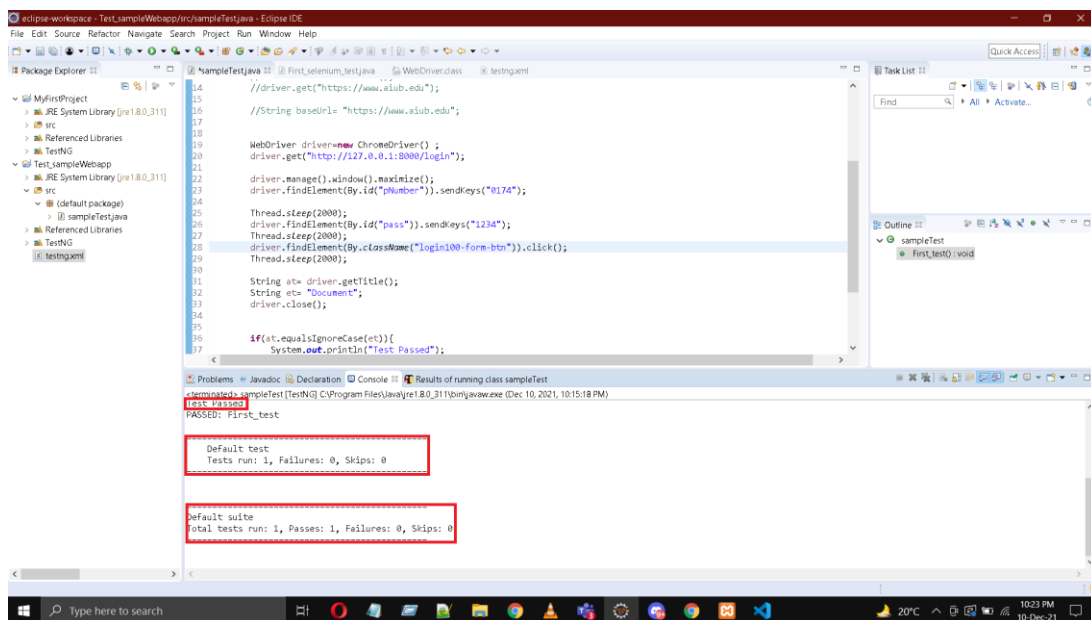
- II. At the 2nd attempt, The test runs successfully, but there were some problem in the execution of the code.



III. At the 3rd attempt the code execution was successful. Google Chrome opened automatically and the Login page was shown perfectly, but still the test didn't go as expected. The test was failed.

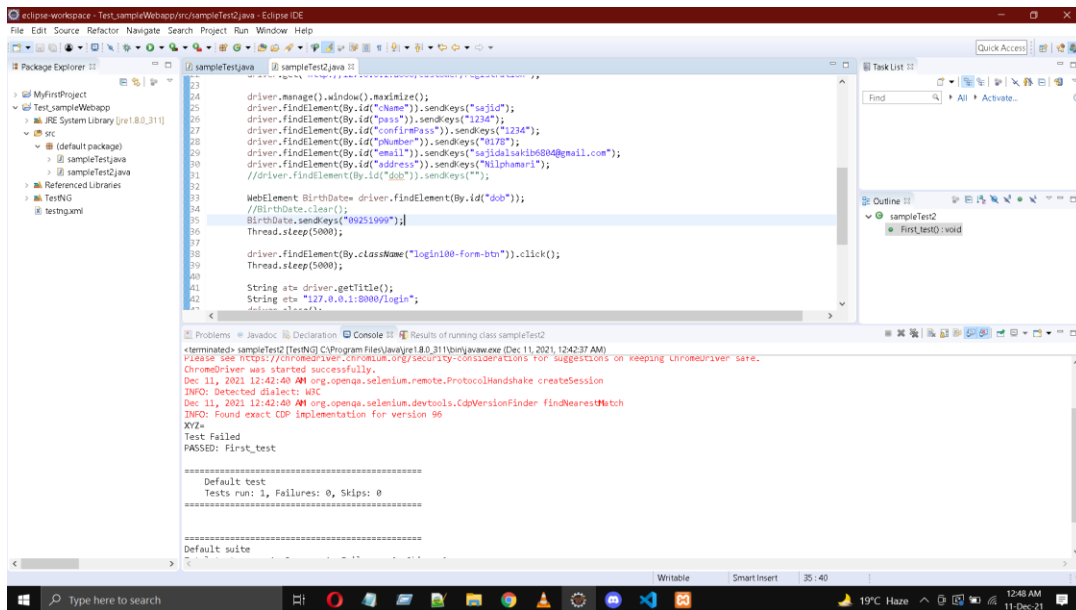


IV. At the final attempt, The execution of the code and the test both were successful. As the Google Chrome opened automatically again and show us the Login page and the test result was showing Test Passed.

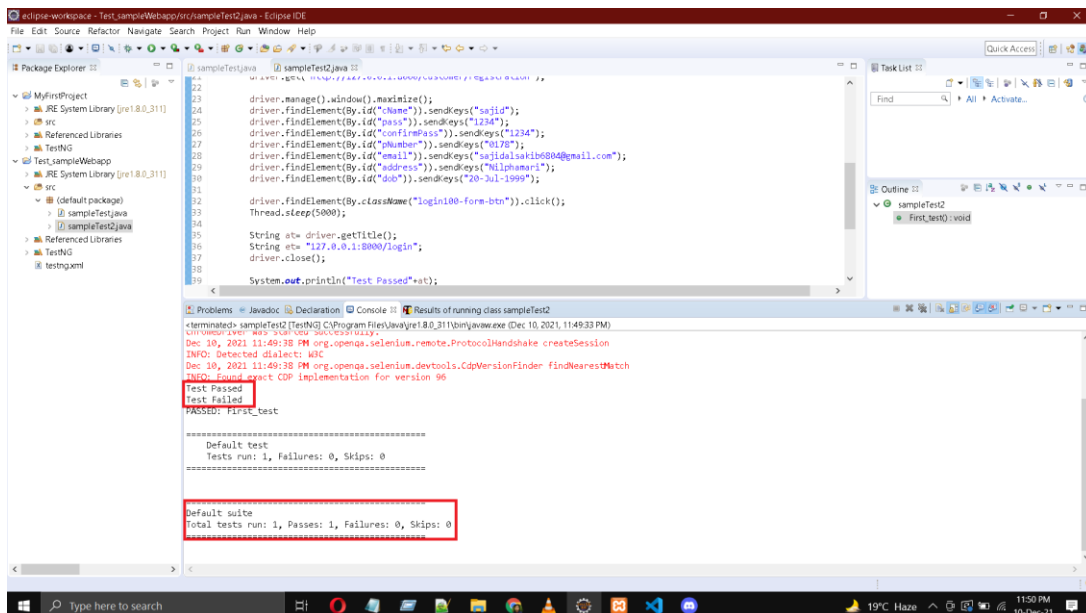


4.2 Registration Module

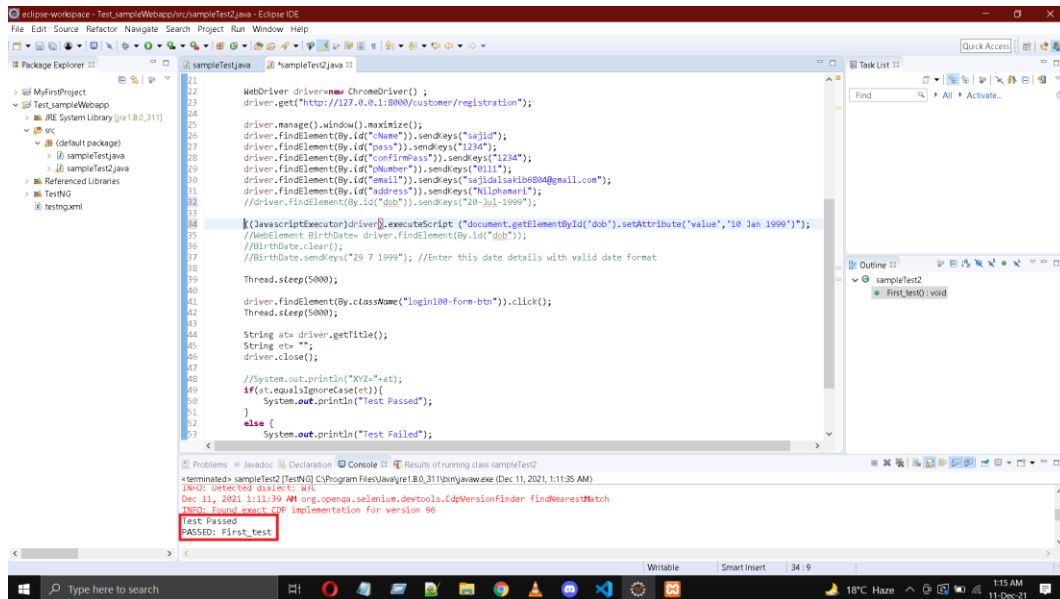
VIII. Like Login Module the very first attempt in our Registration Module was also a failed. The test ran successfully, but there was an error in the execution of the code.



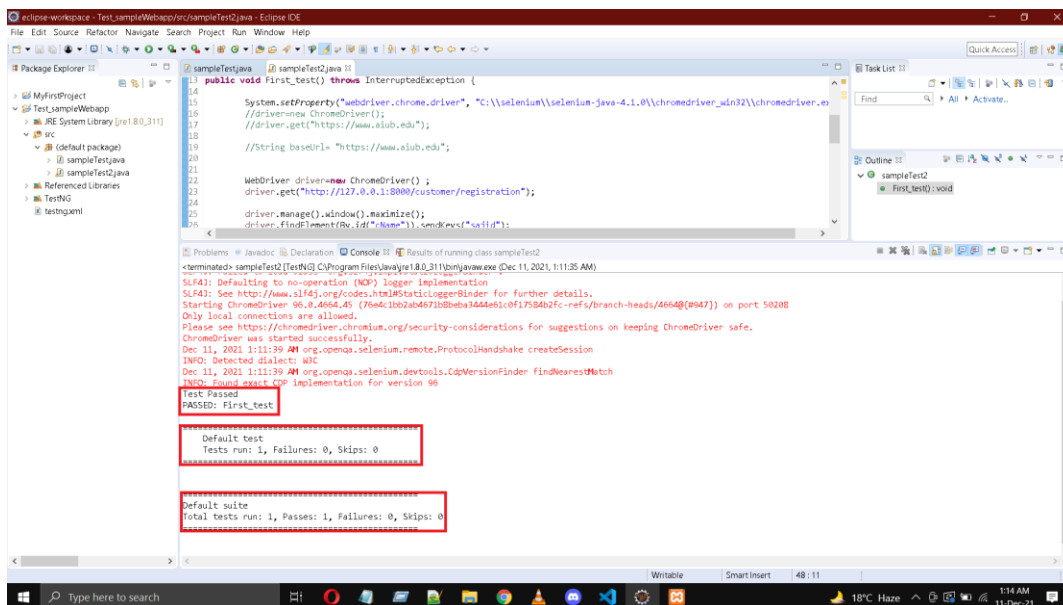
IX. At the 2nd attempt there were some problem that has been fixed. It was showing both Test Passed and Failed at the same time for different input fields.

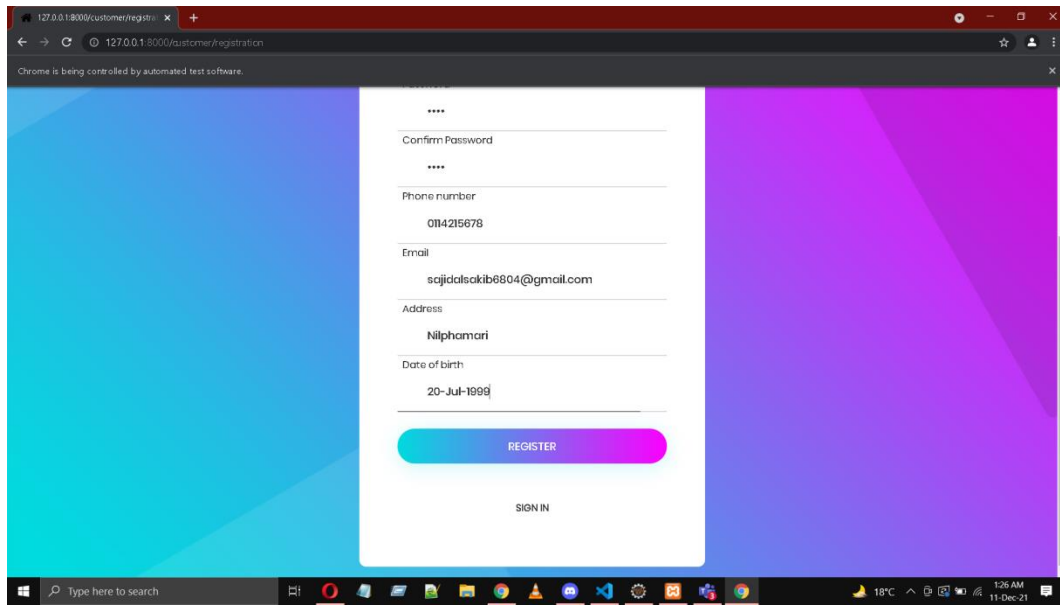


- X. Solving the problem from the 2nd attempt the code was finally error-free. And like “Login” module the google chrome automatically opened showing the “Registration” page. But there were still some warning messages.



- XI. After removing the warning messages. The Test has finally passed at the both aspect (Code Execution, Module Testing).





That was the end of Login and Registration Module Testing. After several trial and error, both testing was successful.