American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Subject: Software Quality and Testing

Sec: A

Instructor: MR. Abhijit Bhowmik

Associate Professor & Special Assistant [OSA], Computer Science

Title: SQT Final Assignment Fall 21-22

Assignment Submitted By:

Group Submission

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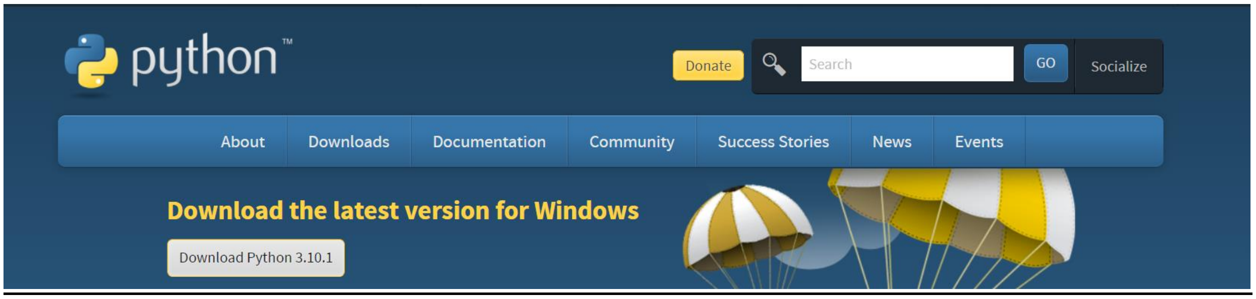
Assignment on Selenium

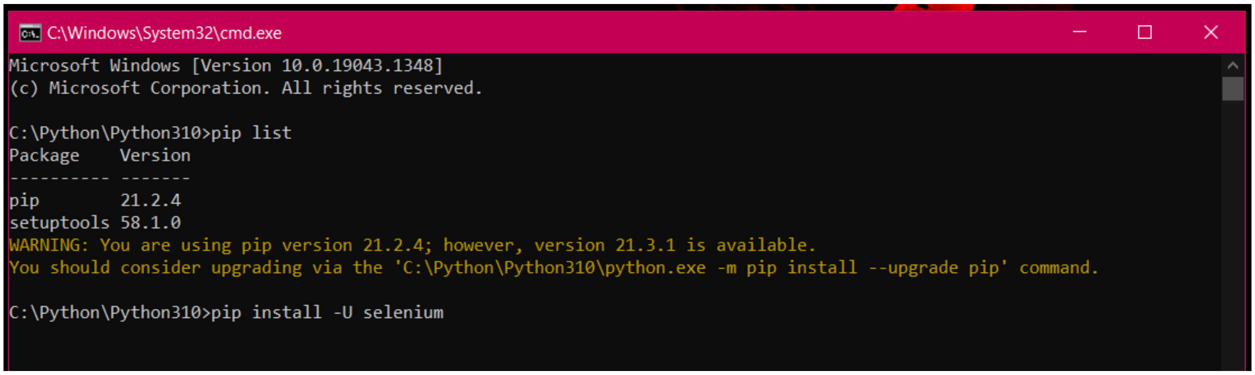
1. Put all screenshots of your computer during installing Selenium.

Got to this link: www.python.org/download

Download and install Python

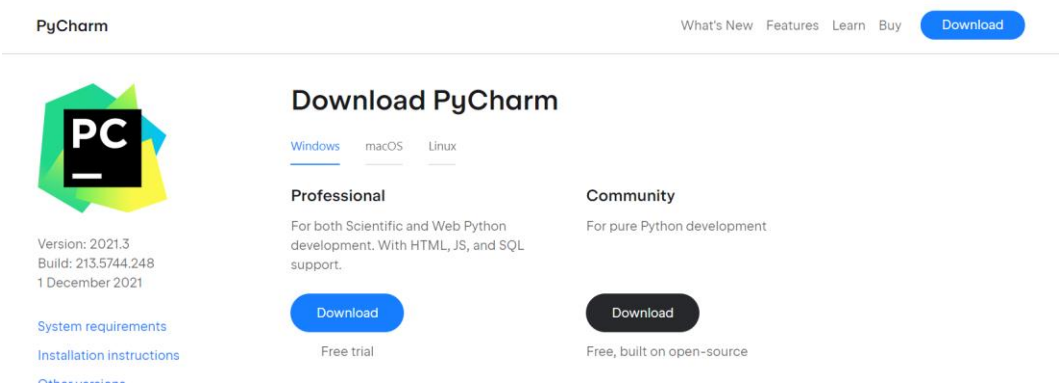


Next: Install Selenium by writing the command [pip install -U selenium] in CMD



```
Microsoft Windows [Version 10.0.19043.1348]
(c) Microsoft Corporation. All rights reserved.

C:\Python\Python310>pip list
Package    Version
---------- -------
pip        21.2.4
setuptools 58.1.0
WARNING: You are using pip version 21.2.4; however, version 21.3.1 is available.
You should consider upgrading via the 'C:\Python\Python310\python.exe -m pip install --upgrade pip' command.

C:\Python\Python310>pip install -U selenium
```

Next: Download and install PyCharm
Go to this link: https://www.jetbrains.com/pycharm/download/#section=windows



Download PyCharm

Professional

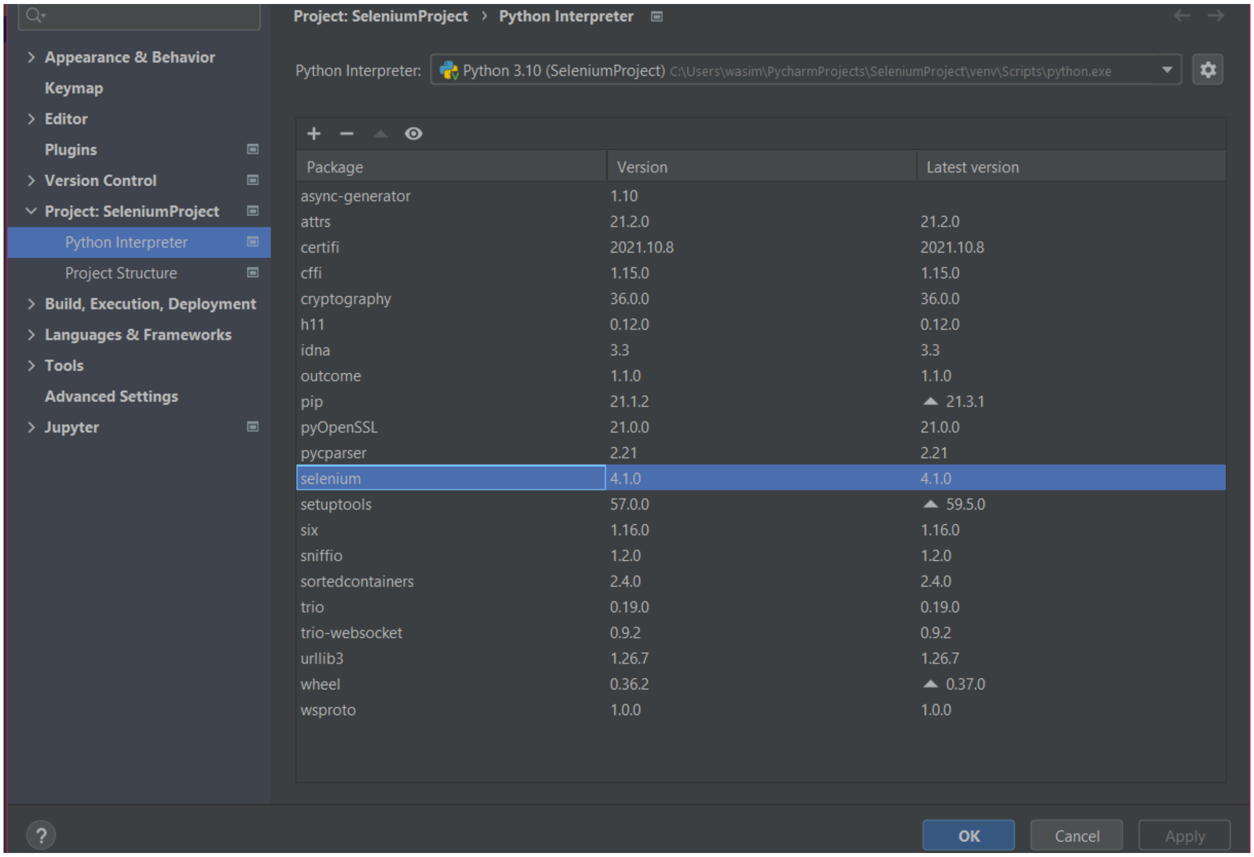
For both Scientific and Web Python development. With HTML, JS, and SQL support.

Community

For pure Python development

Version: 2021.3
Build: 213.5744.248
1 December 2021

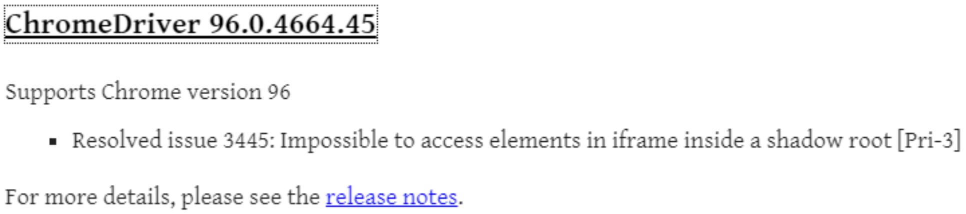
Next: Open PyCharm and install selenium package after opening a new project



Python Interpreter: Python 3.10 (SeleniumProject) C:\Users\wasim\PycharmProjects\SeleniumProject\venv\Scripts\python.exe

Package	Version	Latest version
async-generator	1.10	
attrs	21.2.0	21.2.0
certifi	2021.10.8	2021.10.8
cffi	1.15.0	1.15.0
cryptography	36.0.0	36.0.0
h11	0.12.0	0.12.0
idna	3.3	3.3
outcome	1.1.0	1.1.0
pip	21.1.2	▲ 21.3.1
pyOpenSSL	21.0.0	21.0.0
pycparser	2.21	2.21
selenium	4.1.0	4.1.0
setuptools	57.0.0	▲ 59.5.0
six	1.16.0	1.16.0
sniffio	1.2.0	1.2.0
sortedcontainers	2.4.0	2.4.0
trio	0.19.0	0.19.0
trio-websocket	0.9.2	0.9.2
urllib3	1.26.7	1.26.7
wheel	0.36.2	▲ 0.37.0
wsproto	1.0.0	1.0.0

Next: Download chrome driver



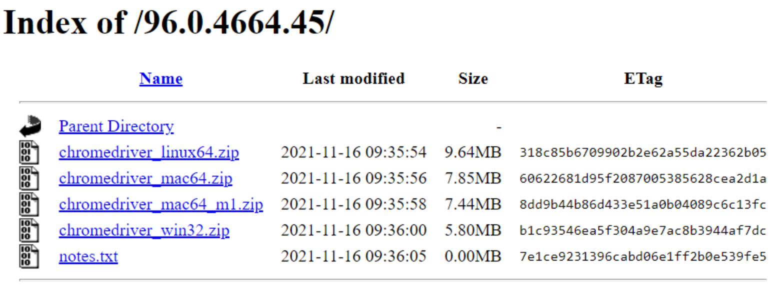
ChromeDriver 96.0.4664.45

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.

Next: Select version with matched chrome application version



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	60622681d95f2087005385628cea2d1a
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

2. Describe the benefit of automated testing and specialty of Selenium

Specialty of Selenium:

Support Across Various Operating Systems: Selenium is a highly portable tool that supports and can work across different operating systems like Windows, Linux, Mac OS, UNIX, etc.

Ease of Implementation: Selenium has a user-friendly interface that makes it simple to build and execute test scripts. we can also keep an eye on the tests as they run. we can review detailed Selenium test reports and act based on them.

Parallel Test Execution and Faster Go-to-Market: We may run numerous tests in parallel using Selenium Grid, which cuts down on test execution time. With the support of cloud-grids for cross-browser testing, you can use Selenium to test across hundreds of browsers in parallel, saving us hundreds of hours of time.

Less Hardware Usage: When comparing Selenium to other vendor-specific automation tools like QTP, UFT, and SilkTest, we'll notice that Selenium uses less hardware than the others.

Multi-Browser Support: Every day, the Selenium community has been working on and improving a single Selenium script for all browsers. According to StatCounter, the most popular browsers in the world are Chrome, Firefox, Safari, Internet Explorer, Opera, and Edge, and the Selenium script is compatible with all of them.

Open Source Availability: Selenium is a free, open-source automation framework that can be used by anyone. The Selenium community is always willing to assist developers and software engineers with automating web browser capabilities and functions. Because Selenium is open source, we can modify the code for better code management and to improve the functionality of predefined methods and classes.

Language and Framework Support: Selenium is a software test automation framework that supports all major programming languages, including Java, Python, JavaScript, C#, Ruby, and Perl.

CLI & CI support: With a single command, we can create a test suite with hundreds of tests and run them. Jenkins is the best continuous integration tool. It comes with a Selenium plugin that allows us to set up tests for nightly execution.

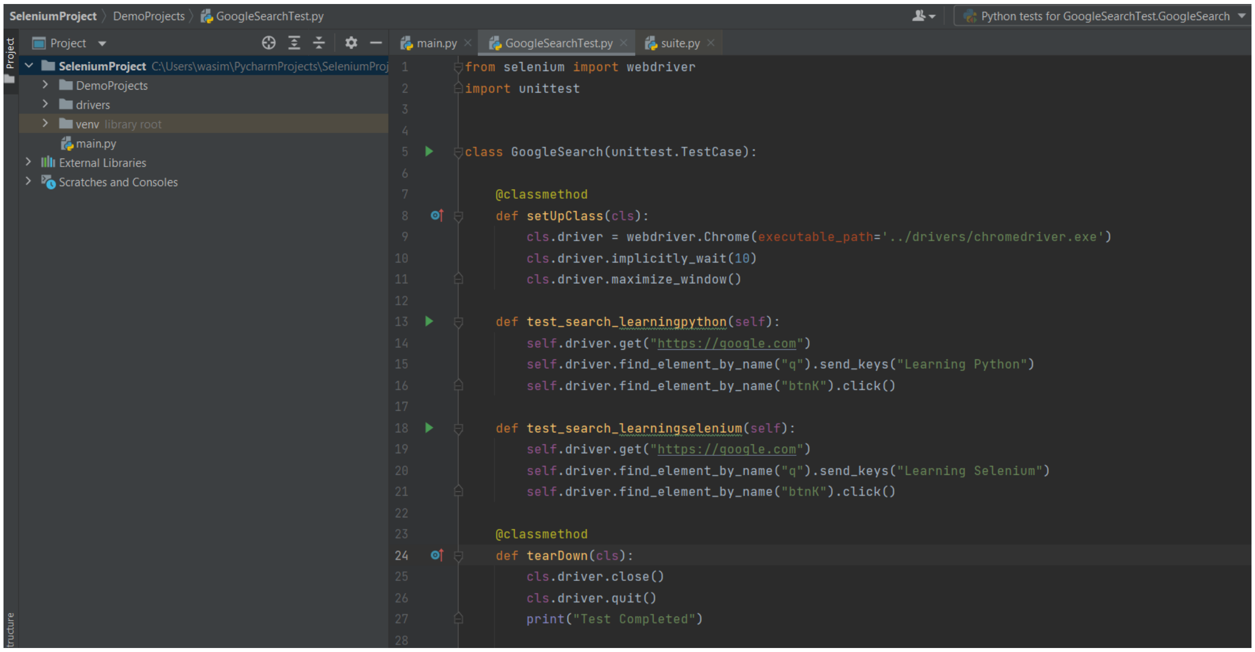
Reusability and Integrations: Selenium automation test suites can be reused and tested on a variety of browsers and operating systems. Selenium is not an all-inclusive web automation testing tool, to increase the scope of testing, it requires third-party frameworks and add-ons.

Benefits of Automation testing are:

- Increase the Quality of Manual Tests.
- Earlier detection of defects.
- Faster time-to-market.
- Testing efficiency improvement.
- There is a guaranteed focus on all areas of testing, thereby assuring best possible quality.
- Allows for the execution of multiple test scenarios.
- It assists in the testing of a big test matrix.
- Allows for parallel execution.
- Encourages the use of an unattended execution.
- Reduces human-caused errors by increasing accuracy.

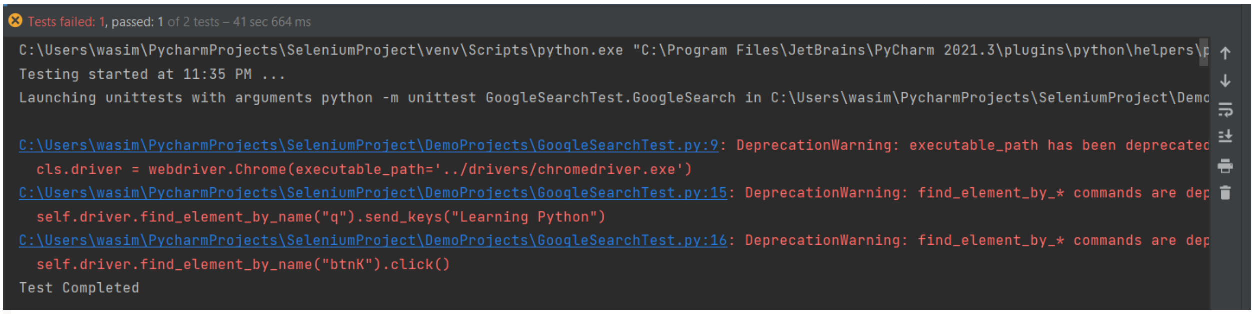
3. Practice a dummy project testing in Selenium and put all screenshots from your computer during practicing it.

Dummy Project: GoogleSearchTest.py


SeleniumProject 〉 DemoProjects 〉 GoogleSearchTest.py
Python tests for GoogleSearchTest.GoogleSearch
Project
SeleniumProject C:\Users\wasim\PycharmProjects\SeleniumProj
DemoProjects
drivers
venv library root
main.py
External Libraries
Scratches and Consoles
main.py
GoogleSearchTest.py
suite.py
Structure

```python
from selenium import webdriver
import unittest


class GoogleSearch(unittest.TestCase):

    @classmethod
    def setUpClass(cls):
        cls.driver = webdriver.Chrome(executable_path='../drivers/chromedriver.exe')
        cls.driver.implicitly_wait(10)
        cls.driver.maximize_window()

    def test_search_learningpython(self):
        self.driver.get("https://google.com")
        self.driver.find_element_by_name("q").send_keys("Learning Python")
        self.driver.find_element_by_name("btnK").click()

    def test_search_learningselenium(self):
        self.driver.get("https://google.com")
        self.driver.find_element_by_name("q").send_keys("Learning Selenium")
        self.driver.find_element_by_name("btnK").click()

    @classmethod
    def tearDown(cls):
        cls.driver.close()
        cls.driver.quit()
        print("Test Completed")

```

Running Test:

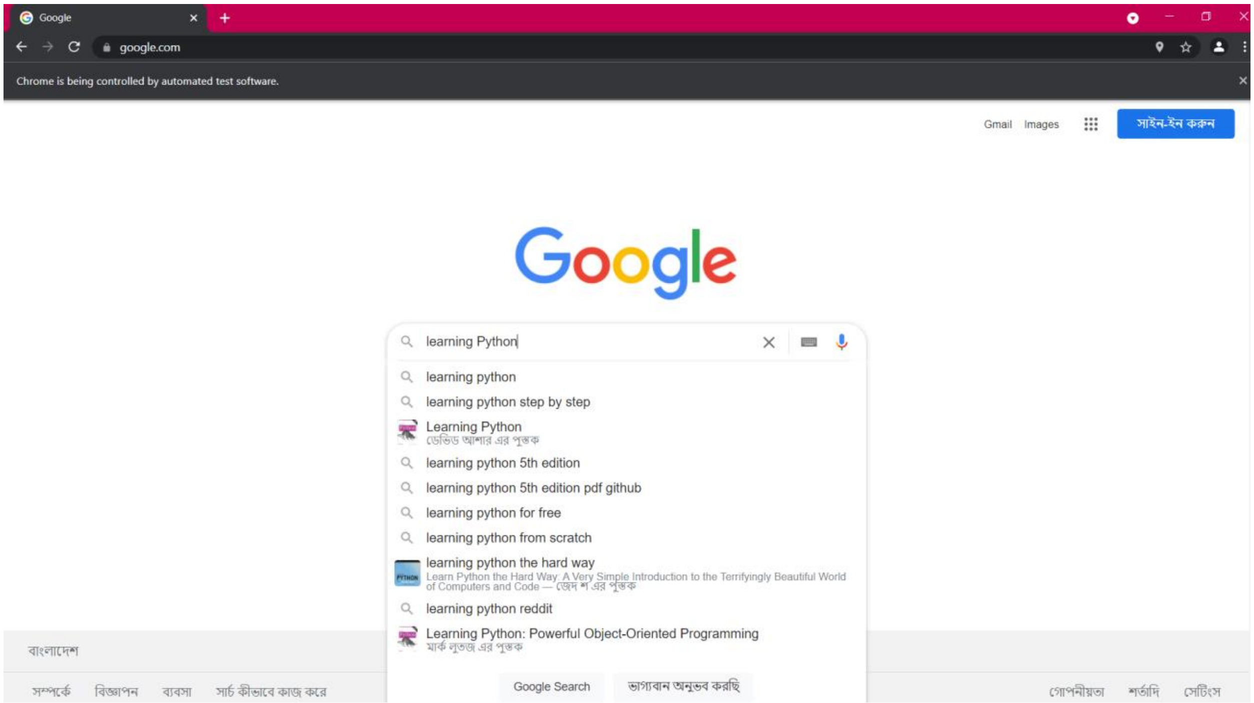


Tests failed: 1, passed: 1 of 2 tests – 41 sec 664 ms

```
C:\Users\wasim\PycharmProjects\SeleniumProject\venv\Scripts\python.exe "C:\Program Files\JetBrains\PyCharm 2021.3\plugins\python\helpers\p
Testing started at 11:35 PM ...
Launching unittests with arguments python -m unittest GoogleSearchTest.GoogleSearch in C:\Users\wasim\PycharmProjects\SeleniumProject\Demo

C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\GoogleSearchTest.py:9: DeprecationWarning: executable_path has been deprecated
  cls.driver = webdriver.Chrome(executable_path='../drivers/chromedriver.exe')
C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\GoogleSearchTest.py:15: DeprecationWarning: find_element_by_* commands are dep
  self.driver.find_element_by_name("q").send_keys("Learning Python")
C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\GoogleSearchTest.py:16: DeprecationWarning: find_element_by_* commands are dep
  self.driver.find_element_by_name("btnK").click()
Test Completed
```

4. Show all the test results of your practice in the report.

Result 1:



Chrome is being controlled by automated test software.

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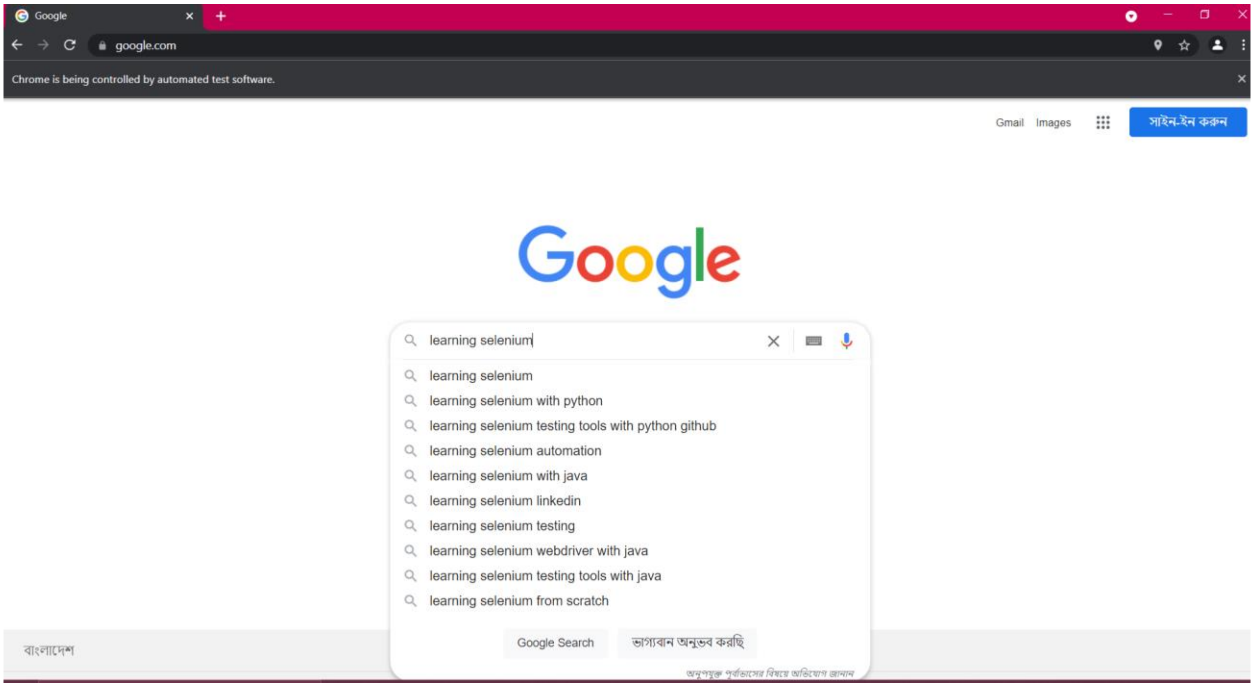
Learning Python: Powerful Object-Oriented Programming
মার্ক লুতজ এর পুস্তক

Result 2:

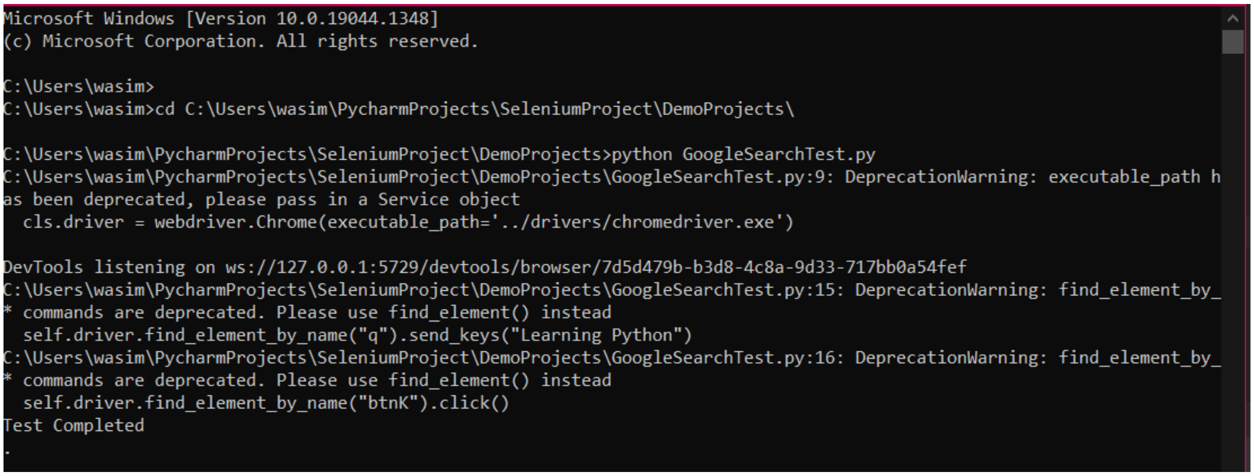


Chrome is being controlled by automated test software.

learning selenium

- learning selenium
- learning selenium with python
- learning selenium testing tools with python github
- learning selenium automation
- learning selenium with java
- learning selenium linkedin
- learning selenium testing
- learning selenium webdriver with java
- learning selenium testing tools with java
- learning selenium from scratch

Running Test on CMD:



```
Microsoft Windows [Version 10.0.19044.1348]
(c) Microsoft Corporation. All rights reserved.

C:\Users\wasim>
C:\Users\wasim>cd C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\

C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects>python GoogleSearchTest.py
C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\GoogleSearchTest.py:9: DeprecationWarning: executable_path h
as been deprecated, please pass in a Service object
  cls.driver = webdriver.Chrome(executable_path='../drivers/chromedriver.exe')

DevTools listening on ws://127.0.0.1:5729/devtools/browser/7d5d479b-b3d8-4c8a-9d33-717bb0a54fef
C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\GoogleSearchTest.py:15: DeprecationWarning: find_element_by_
* commands are deprecated. Please use find_element() instead
  self.driver.find_element_by_name("q").send_keys("Learning Python")
C:\Users\wasim\PycharmProjects\SeleniumProject\DemoProjects\GoogleSearchTest.py:16: DeprecationWarning: find_element_by_
* commands are deprecated. Please use find_element() instead
  self.driver.find_element_by_name("btnK").click()
Test Completed
```