CSE- 322
Software Engineering Lab

Lab : 03 (part-2)

Testing using Selenium

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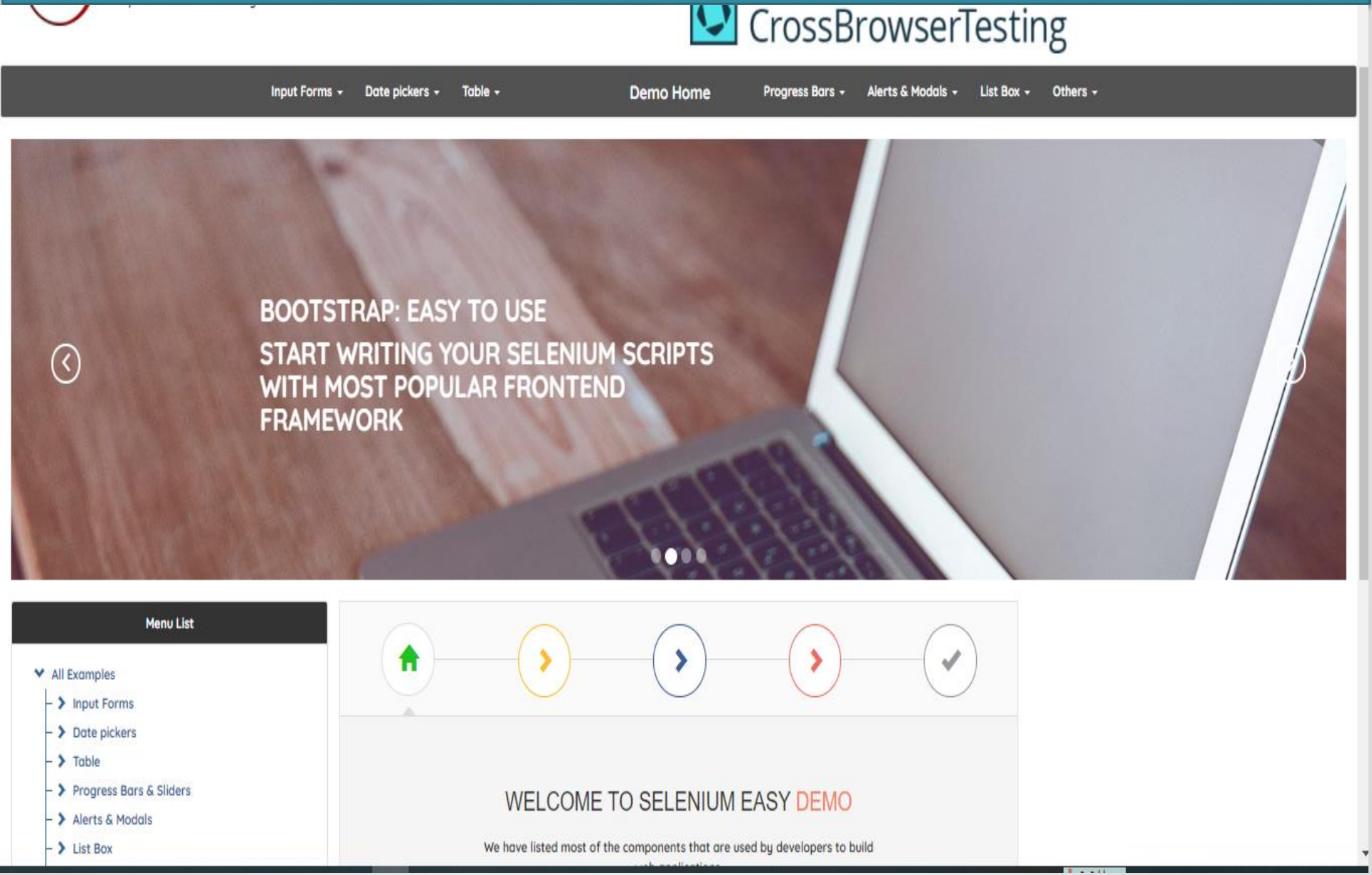
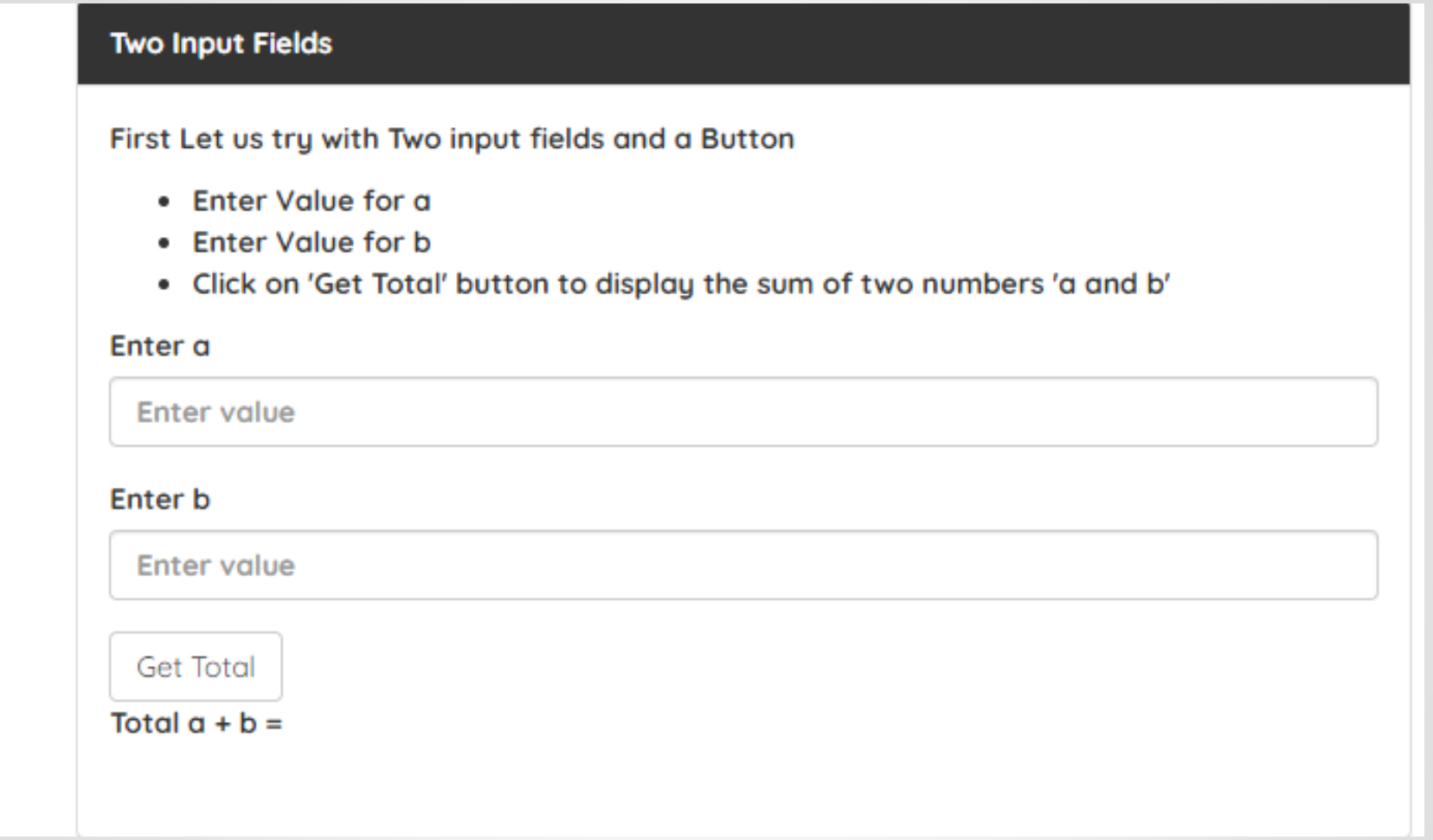
Selenium



https://www.seleniumeasy.com/test/

Selenium



https://www.seleniumeasy.com/test/

Selenium

Selenium is a powerful tool for controlling web browsers through programs and performing browser automation.

It is functional for all browsers, works on all major OS and its scripts are written in various languages i.e Python, Java, C#, etc, we will be working with Python.

We want to cover by using selenium

- Navigating web URL
- Click
- Type(Text)
- Read and Response
- Some basic functions … …

Limitations of Selenium

No support for desktop applications – Selenium does not support testing for desktop applications.

Open Source Forums – Since Selenium is open source software, one has to rely on community forums to get your technical issues resolved.

No support for REST and SOAP Platforms – We can't perform automation tests on web services like SOAP or REST using Selenium.

No Reporting capability – Selenium does not have any inbuilt reporting capability, one has to rely on plug-ins like JUnit and TestNG for test reports.

Image Testing – It is not possible to perform testing on images. One needs to integrate Selenium with Sikuli for image testing.

Check Selenium

```
C:\Users\Fahad Ahmed>pip list
Package    Version
---------- -------
pip        20.2.3
setuptools 49.2.1
WARNING: You are using pip version 20.2.3; however, version 21.0 is available.
You should consider upgrading via the 'c:\users\fahad ahmed\appdata\local\programs\python\python38\python.ex
-m pip install --upgrade pip' command.

C:\Users\Fahad Ahmed>
```

Install Selenium

Use pip to install the selenium package. Python 3.6 has pip available in the standard library. Using pip, you can install selenium like this:

pip install –U selenium

```
C:\Users\Fahad Ahmed>pip install -U selenium
Collecting selenium
  Downloading selenium-3.141.0-py2.py3-none-any.whl (904 kB)
     |████████████████████████████████| 904 kB 80 kB/s
Collecting urllib3
  Downloading urllib3-1.26.3-py2.py3-none-any.whl (137 kB)
     |████████████████████████████████| 137 kB 142 kB/s
Installing collected packages: urllib3, selenium
Successfully installed selenium-3.141.0 urllib3-1.26.3
WARNING: You are using pip version 20.2.3; however, version 21.0 is available.
You should consider upgrading via the 'c:\users\fahad ahmed\appdata\local\programs\python\python38\python.ex
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```
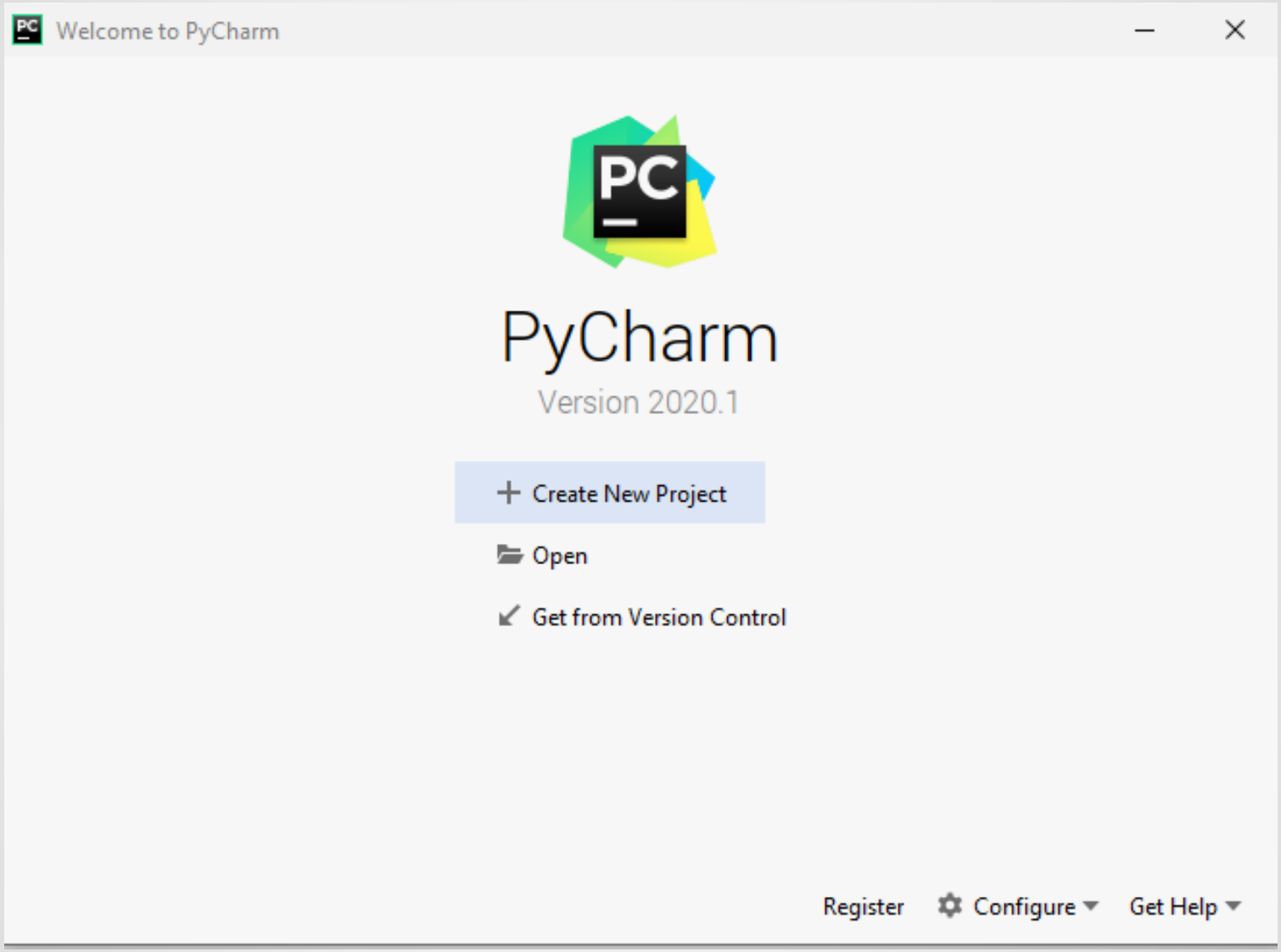

Check Selenium

```
C:\Users\Fahad Ahmed>pip list
Package    Version
---------- -------
pip        20.2.3
selenium   3.141.0
setuptools 49.2.1
urllib3    1.26.3
WARNING: You are using pip version 20.2.3;
```

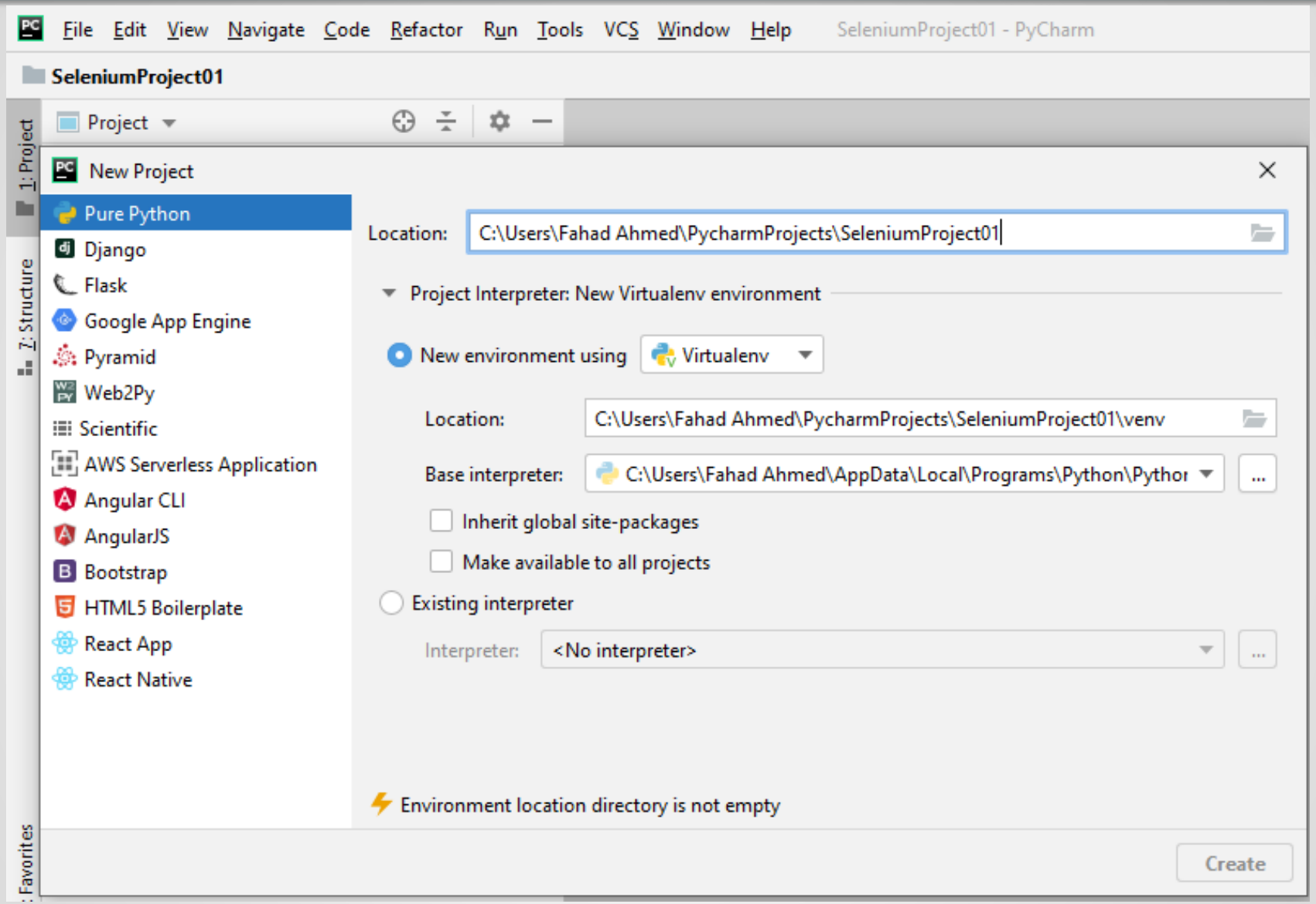
PyCharm

JetBrains PyCharm 2020.1 build 201.6668.115

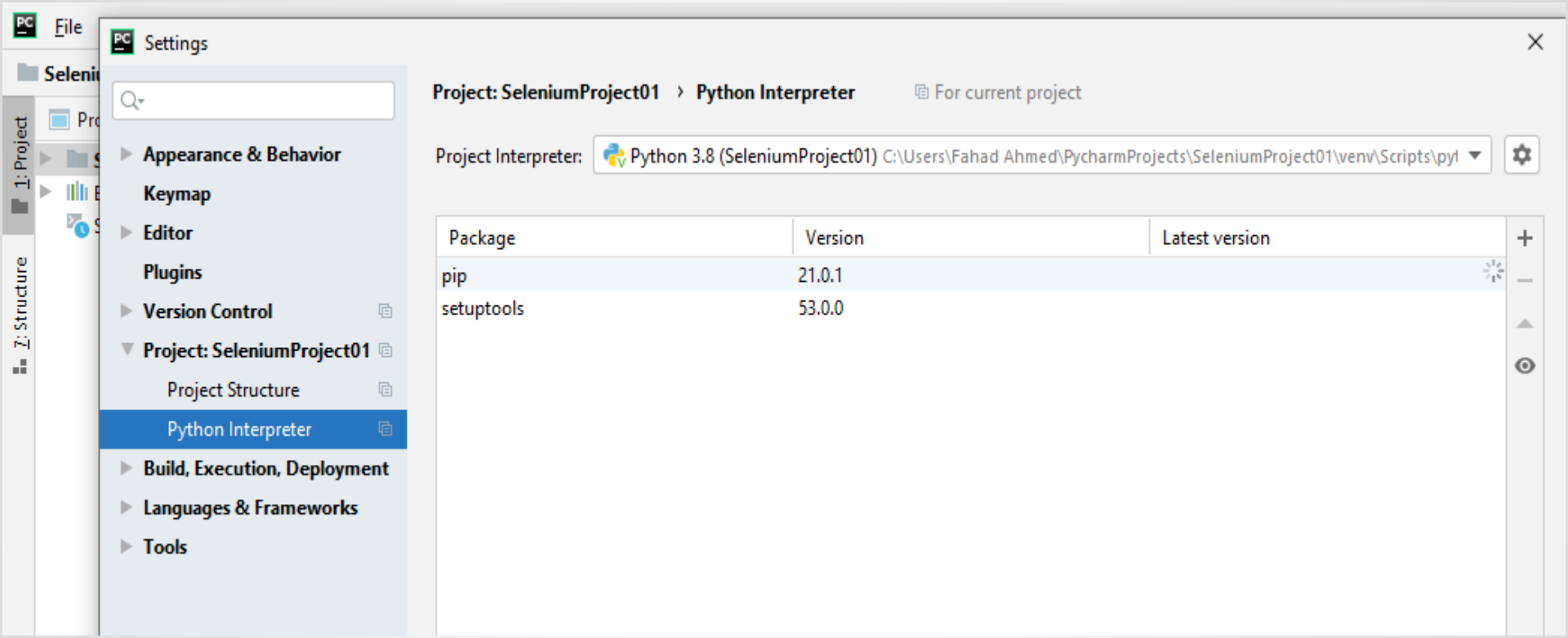
PyCharm: Create new project



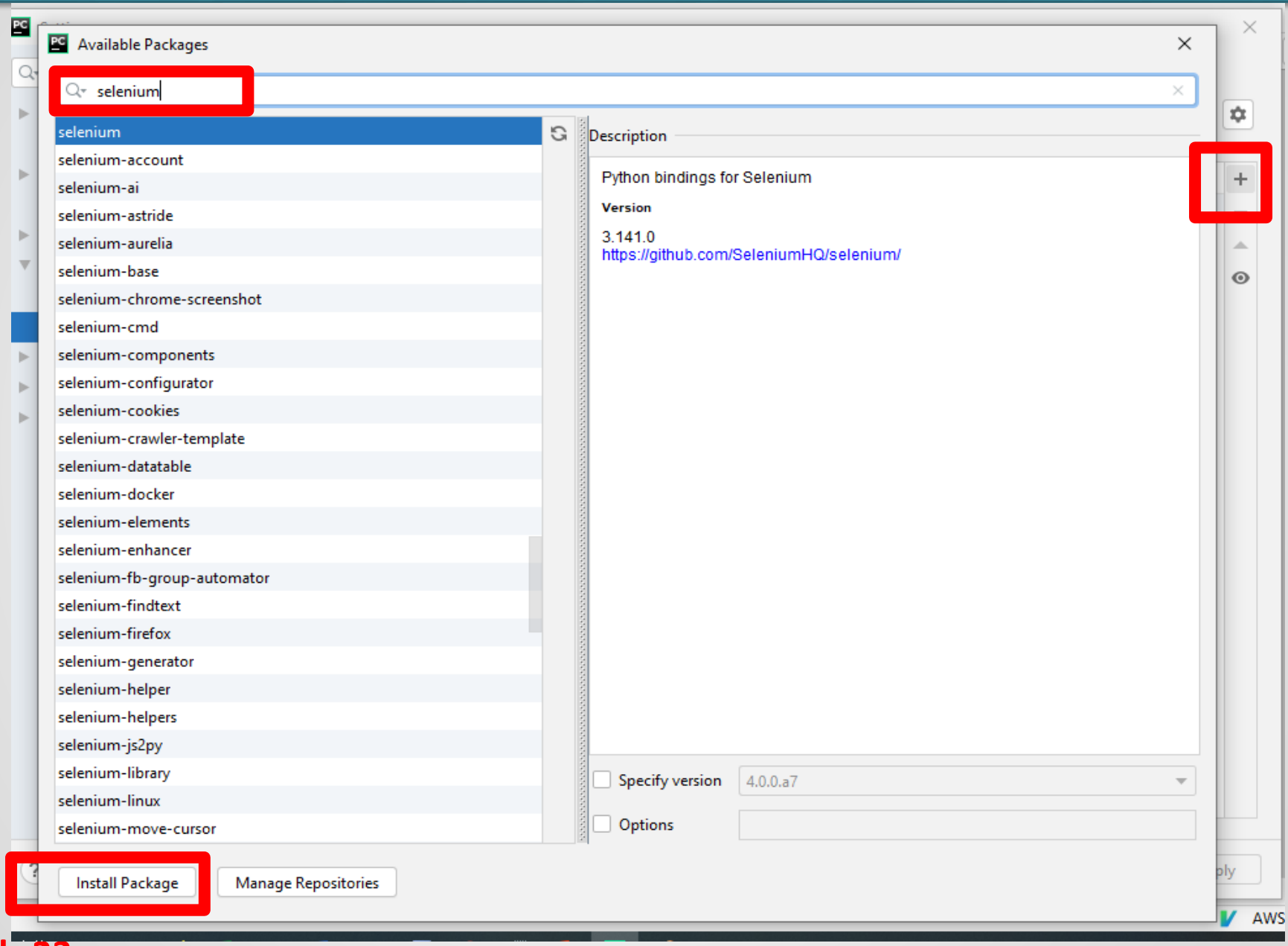
PyCharm: Create new project



PyCharm: Selenium configuration in your project



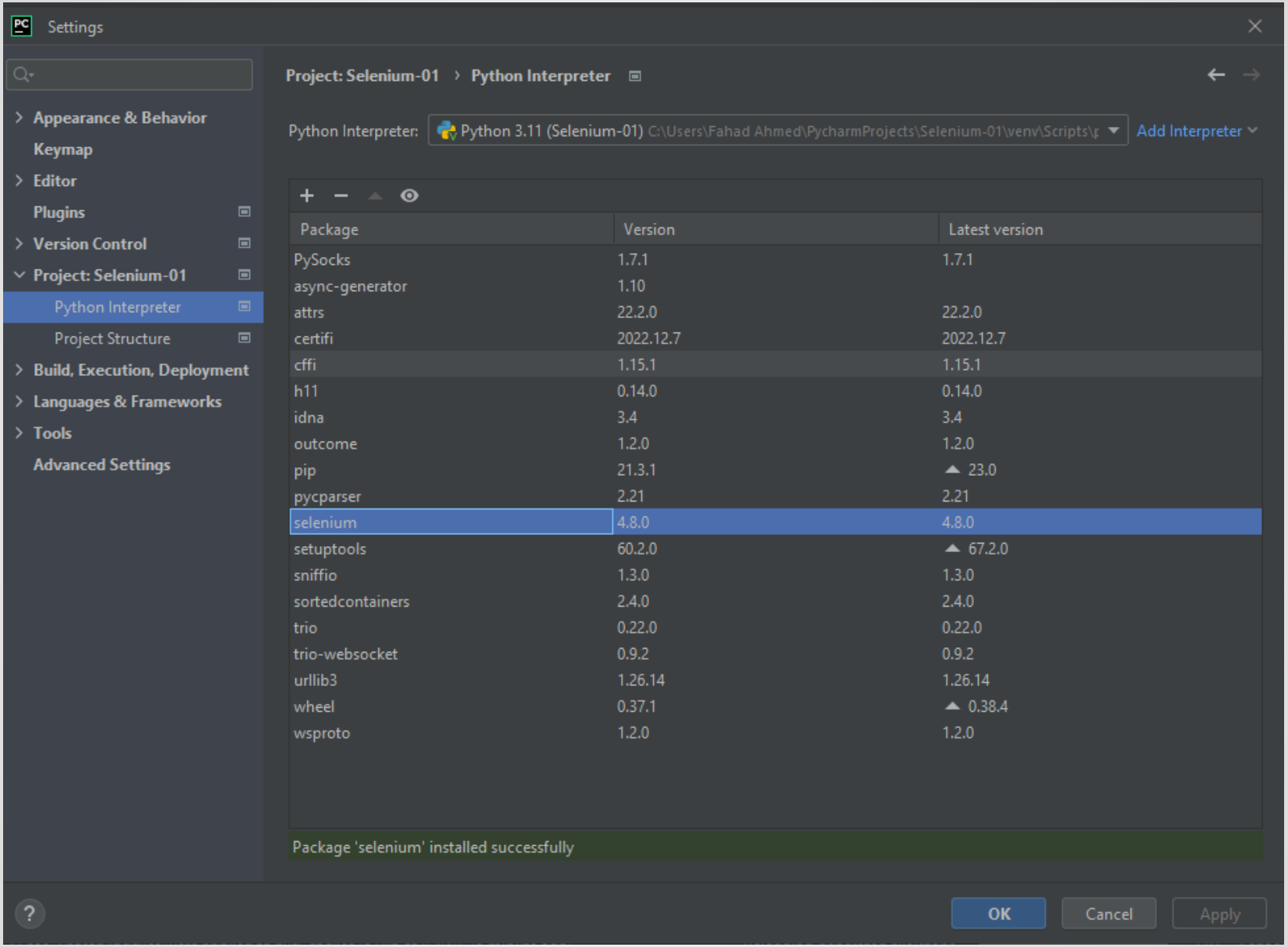
PyCharm: Selenium configuration in your project



PyCharm: Selenium configuration in your project

Package	Version	Latest version
pip	21.0.1	21.0.1
selenium	3.141.0	3.141.0
setuptools	53.0.0	53.0.0
urllib3	1.26.3	1.26.3

PyCharm: Selenium configuration in your project



Agenda: Run Test

Agenda:

Run testing on Browser
(Like Chrome, Firefox)

Pre-Requisite :

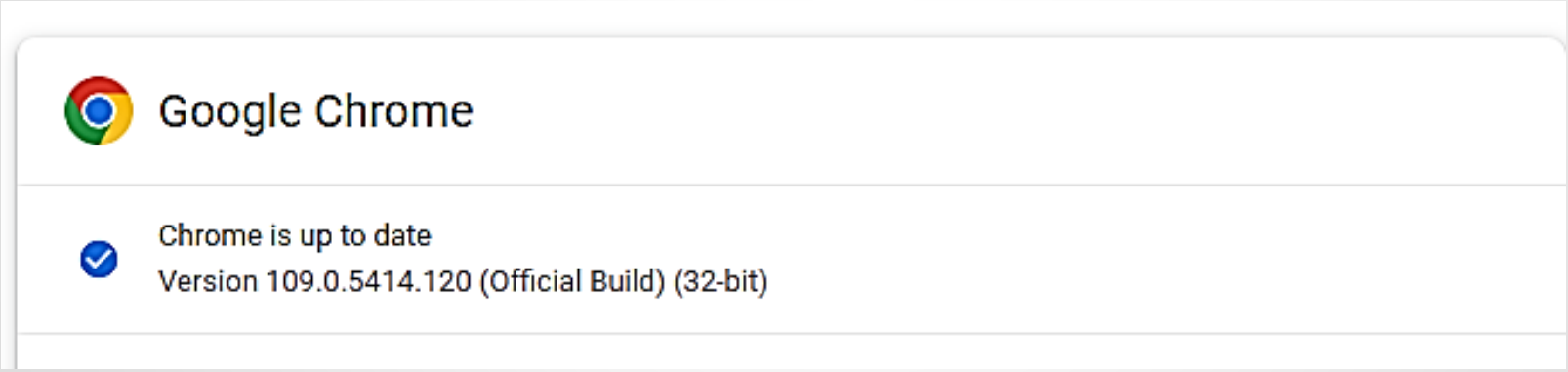
1. Download drivers
2. Some packages to import
   - Web-driver
   - Common-keys

Selenium: Drivers download

Drivers:
https://www.selenium.dev/downloads/

Selenium requires a driver to interface with the chosen browser. Firefox, for example, requires geckodriver, which needs to be installed before the below examples can be run.

Check version: chrome://settings/help



Selenium: Drivers download

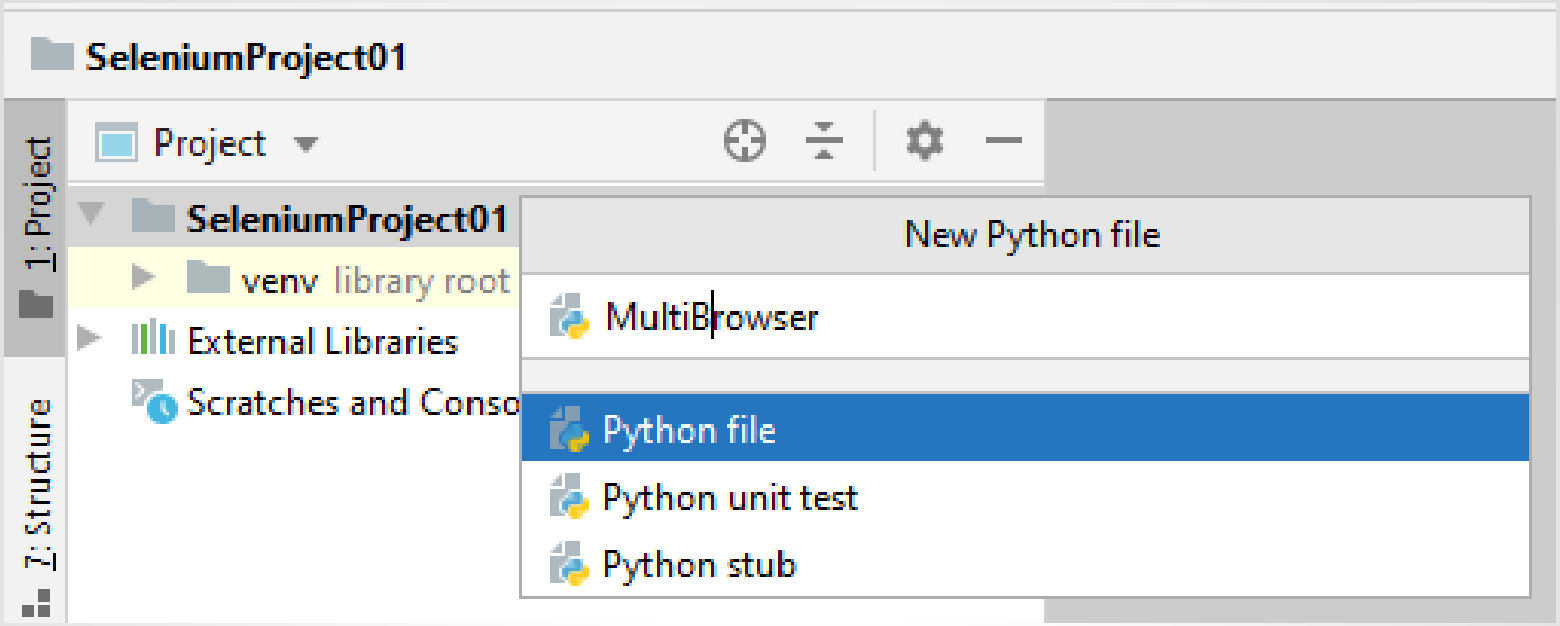
Drivers:
https://www.selenium.dev/downloads/

Selenium requires a driver to interface with the chosen browser. Firefox, for example, requires geckodriver, which needs to be installed before the below examples can be run.

Chrome:	https://sites.google.com/a/chromium.org/chromedriver/downloads
Firefox:	https://github.com/mozilla/geckodriver/releases/tag/v0.32.1

https://chromedriver.chromium.org/
https://github.com/mozilla/geckodriver/releases

Create new python file under project



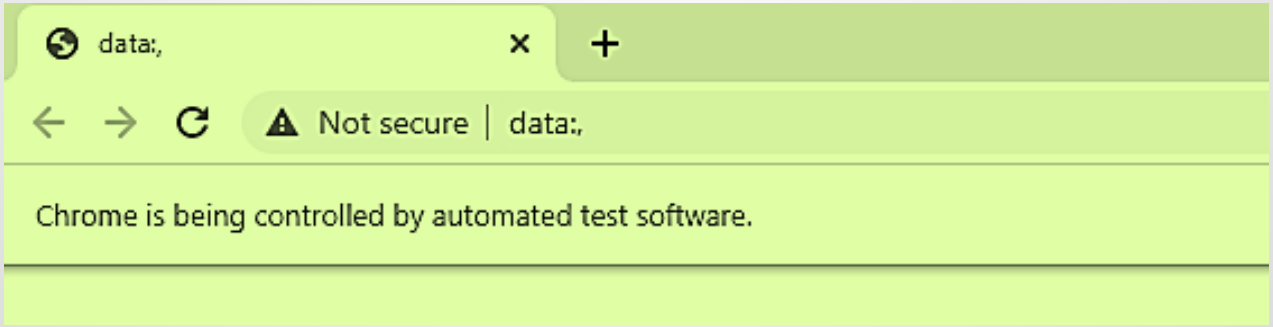
Selenium WebDriver refers to both the language bindings and the implementations of the individual browser controlling code. This is commonly referred to as just WebDriver. Selenium WebDriver is a W3C Recommendation. WebDriver is designed as a simple and more concise programming interface.

Selenium: web driver

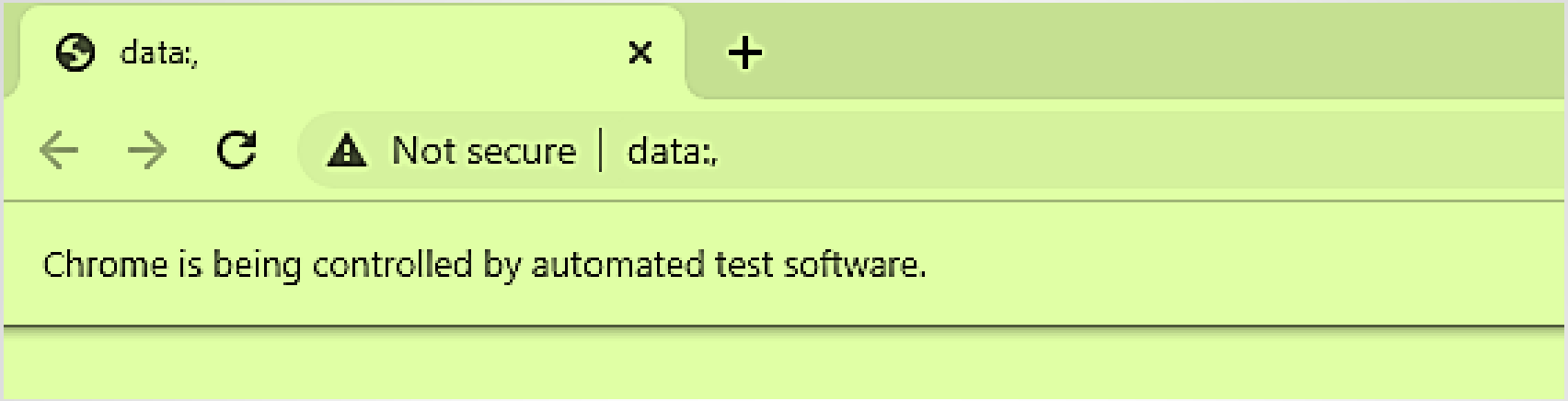
```
from selenium import webdriver

driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")
```

MultiBrowser.py

```
1  from selenium import webdriver
2
3  #the instance of browser WebDriver is created
4  #chrome
5  driver = webdriver.Chrome(
6      executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")
7
```



Selenium: web driver



Run Window:

"C:\Users\Fahad Ahmed\PycharmProjects\SeleniumProject01\venv\Scripts\python.exe"
"C:/Users/Fahad Ahmed/PycharmProjects/SeleniumProject01/MultiBrowser.py"

Process finished with exit code 0

Selenium: web driver

```
from selenium import webdriver

#firefox
driver = webdriver.Firefox(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\geckodriver.exe")
```

```
from selenium import webdriver


#the instance of browser WebDriver is created
#chrome
#driver = webdriver.Chrome(executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")


#firefox
driver = webdriver.Firefox(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\geckodriver.exe")
```

WebDriver Commands

```
from selenium import webdriver
#the instance of browser WebDriver is created
#chrome
driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")
driver.close() # if we want to auto close  browser after run
```

Report with example based on own project:
driver.close() vs driver.quit()

WebDriver Commands

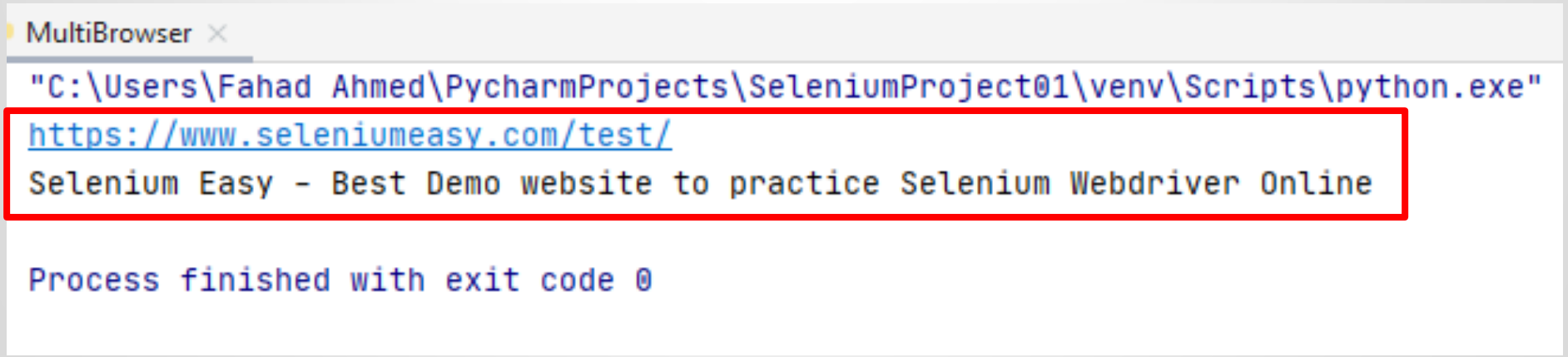
```
from selenium import webdriver
import time
#the instance of browser WebDriver is created
#chrome
driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")
time.sleep(5) # if we want to wait some time then close the browser
driver.close()# if we want to auto close  browser after run
```

Navigating web URL

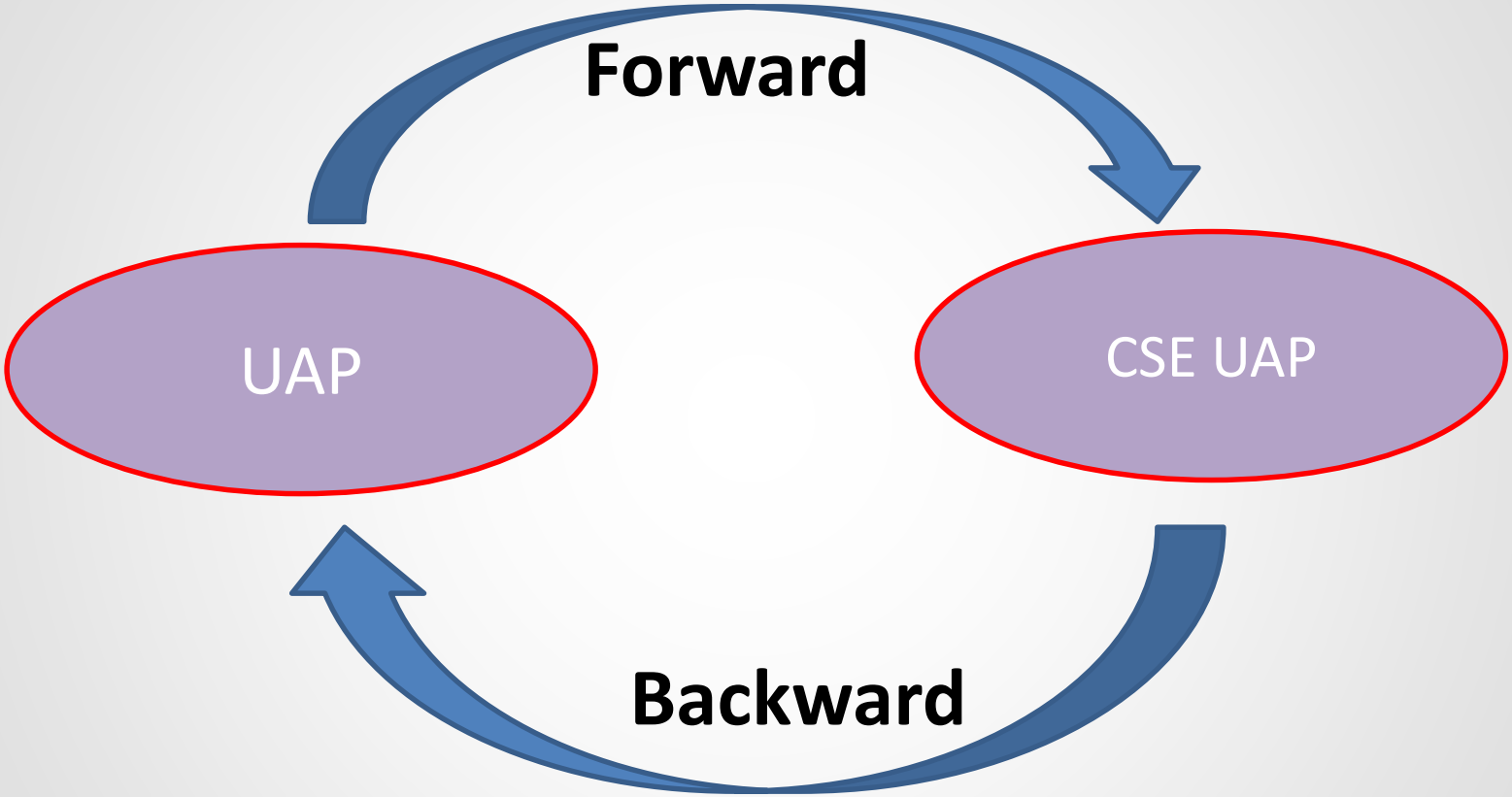
```
from selenium import webdriver
import time
#the instance of browser WebDriver is created
#chrome
driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad
Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")
driver.get("https://www.seleniumeasy.com/test/")
time.sleep(5)
driver.close()# if we want to auto close  browser after run
```

Retrieve data from web URL

```
from selenium import webdriver
import time
#the instance of browser WebDriver is created
#chrome
driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")
driver.get("https://www.seleniumeasy.com/test/")
print(driver.current_url)# print url
print(driver.title)# print title
time.sleep(5)
driver.close()# if we want to auto close  browser after run
```



WebDriver Navigational Commands



WebDriver Navigational Commands

```
from selenium import webdriver
import time

driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad
Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")

driver.get("https://www.google.com/")
print(driver.current_url)
time.sleep(2)

driver.get("https://www.youtube.com/")
print(driver.current_url)
time.sleep(2)

driver.back() # back to google
print("\nBack to : ")
print(driver.title)
time.sleep(2)

driver.forward() # forward to UAP
print("\nforward to :")
print(driver.title)
time.sleep(2)

driver.close()
```

WebDriver Navigational Commands

```
from selenium import webdriver
import time
driver = webdriver.Chrome(executable_path="C:\\Users\\Fahad
Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")

driver.get("https://www.python.org/")
print(driver.current_url)
time.sleep(2)

driver.get("https://www.uap-bd.edu/")
print(driver.current_url)
time.sleep(2)
driver.back() # back to google
print("\nBack to : ")
print(driver.title)
time.sleep(2)
driver.forward() # forward to youtube
print("\nforward to :")
print(driver.title)
time.sleep(2)
driver.close()
```

WebDriver Navigational Commands

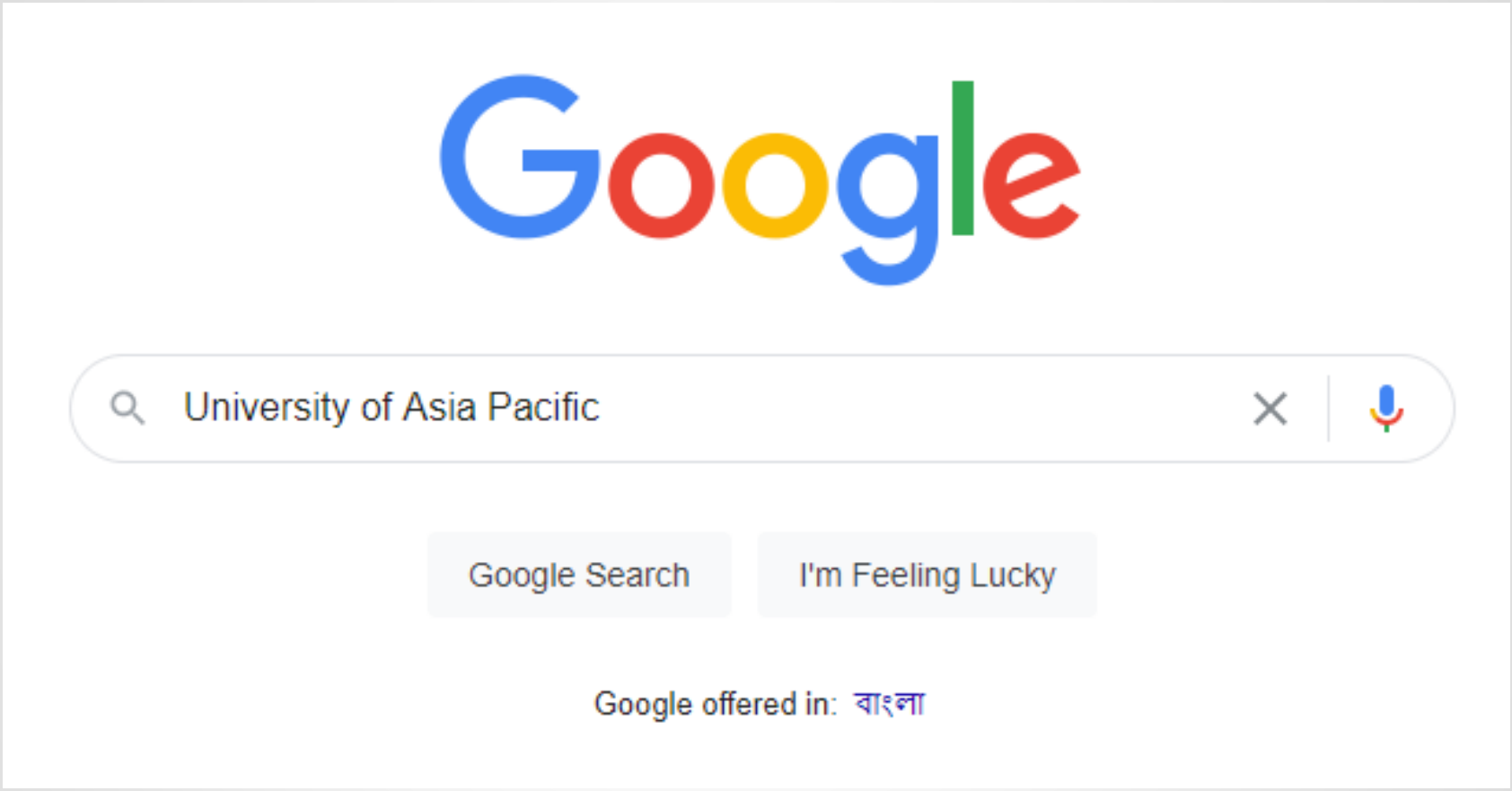
"C:\Users\Fahad Ahmed\PycharmProjects\SeleniumProject01\venv\Scripts\python.exe"
"C:/Users/Fahad Ahmed/PycharmProjects/SeleniumProject01/MultiBrowser.py"
https://www.google.com/
Google
https://www.youtube.com/
YouTube

Back to :
Google

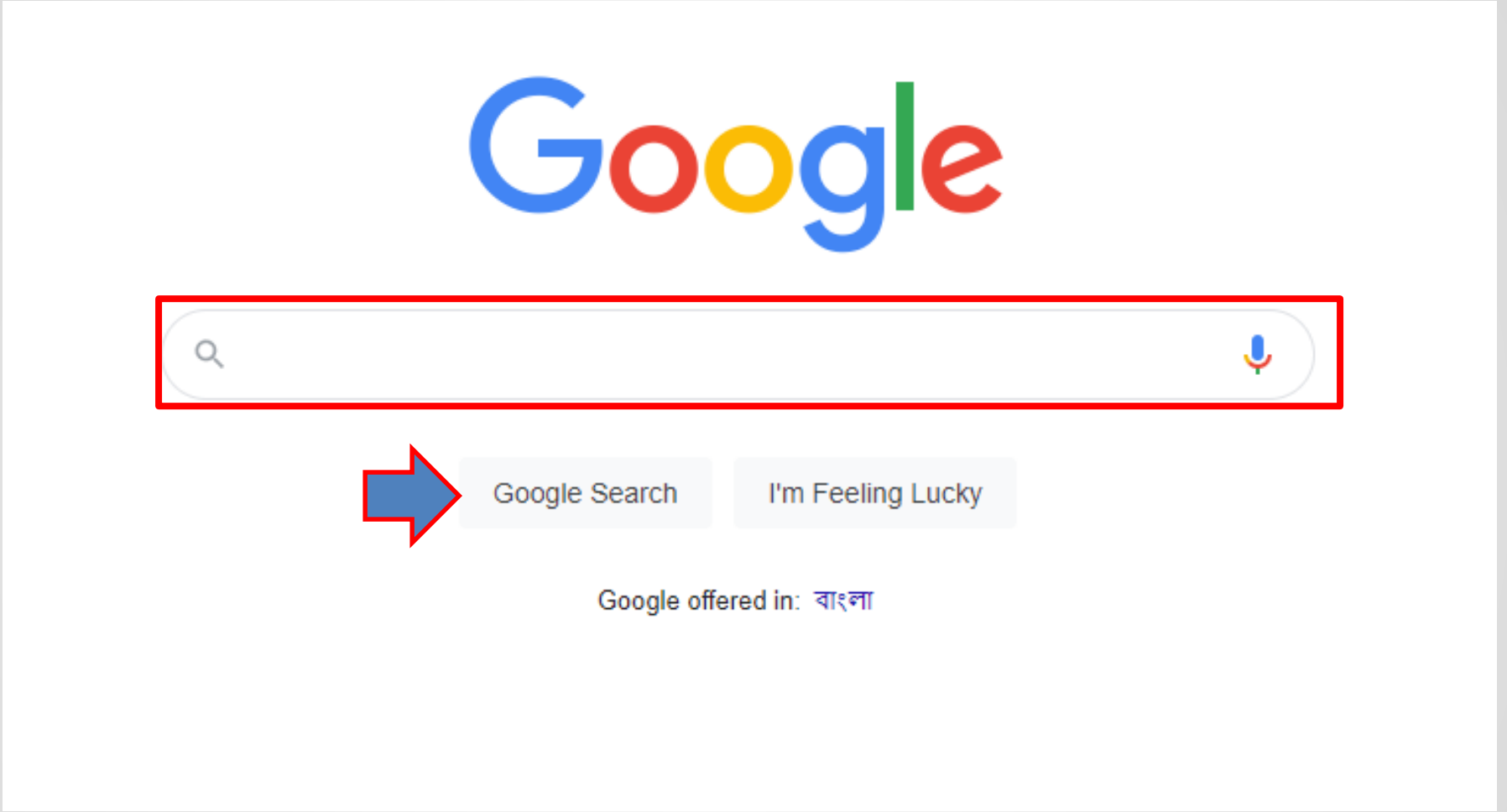
forward to :
YouTube

Process finished with exit code 0

WebDriver Navigational Commands



WebDriver Navigational Commands



WebDriver Navigational Commands

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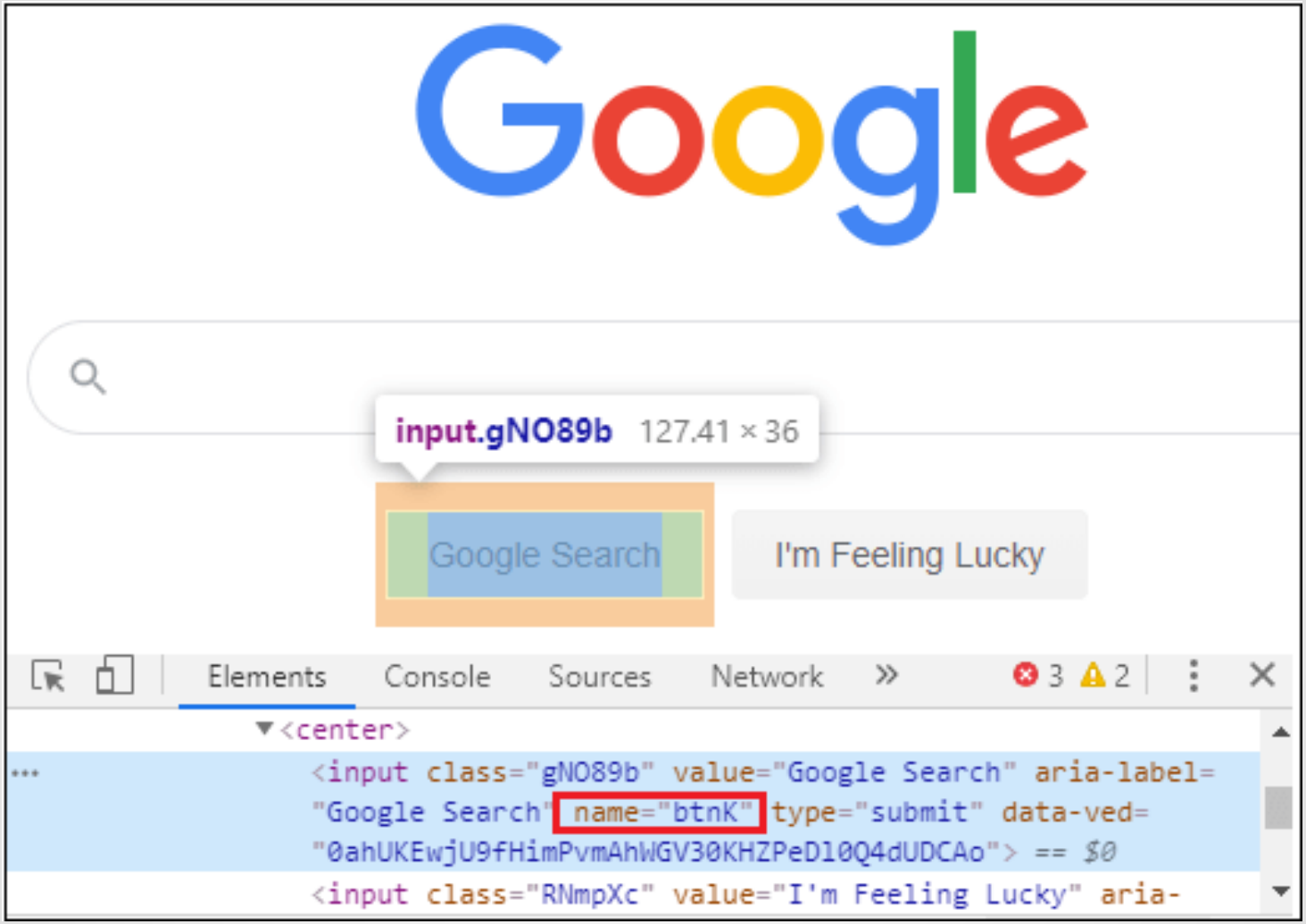


WebDriver Navigational Commands

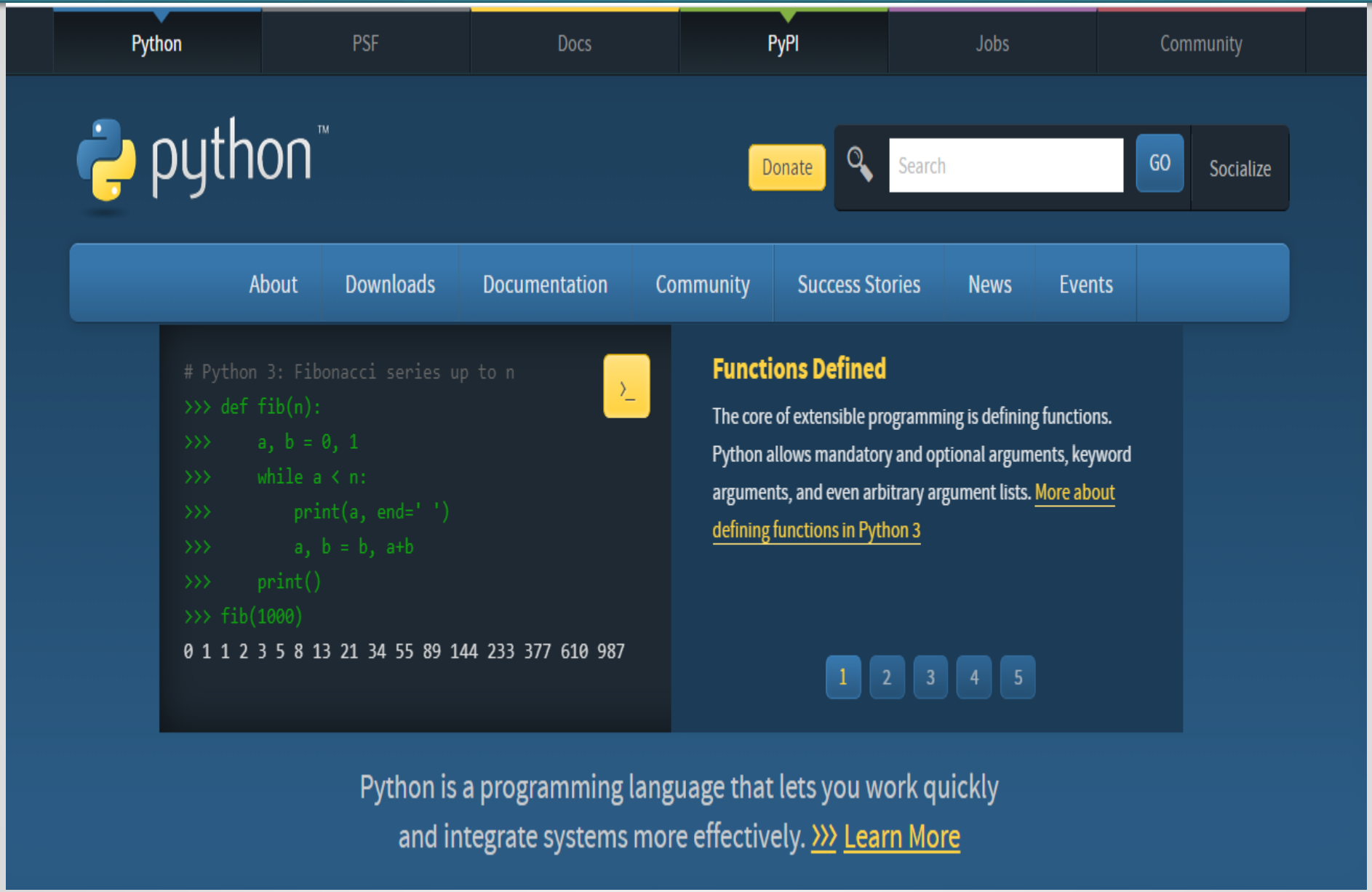
Some times may occur problem

```
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
import time
driver = webdriver.Chrome(
    executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")

driver.maximize_window()
driver.get("https://www.google.com/")
print(driver.current_url)

driver.find_element_by_name("q").send_keys("University of Asia Pacific")
time.sleep(3)
#click on the Google search button
driver.find_element_by_name("btnK").send_keys(Keys.ENTER)
time.sleep(3)
#close the browser
driver.close()
print("sample test case successfully completed")
```

WebDriver Navigational Commands



WebDriver Navigational Commands

```
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
import time
##driver = webdriver.Firefox(executable_path="C:\\Users\\Fahad
Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\geckodriver.exe")
driver = webdriver.Chrome(executable_path="C:\\Users\\Fahad
Ahmed\\PycharmProjects\\SeleniumProject01\\drivers\\chromedriver.exe")

driver.get("http://www.python.org")
assert "Python" in driver.title
elem = driver.find_element_by_name("q")
elem.clear()

elem.send_keys("pycon")
elem.send_keys(Keys.RETURN)
time.sleep(5)
assert "No results found." not in driver.page_source
driver.close()
print("sample test case successfully completed")
```

WebDriver Navigational Commands

```
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
import time
driver=webdriver.Chrome(executable_path="C:\\Users\\Fahad Ahmed\\PycharmProjects\\web-drivers\\chromedriver.exe")

print("Enter to google\n")
driver.get("https://www.youtube.com/")
print(driver.title)
time.sleep(2)

driver.find_element_by_name("search_query").send_keys("university of asia pacific notable alumni")
time.sleep(1)
driver.find_element_by_id("search-icon-legacy").send_keys(Keys.ENTER)
time.sleep(4)
driver.close()
```

Thanks to All