Mawlana Bhashani Science and Technology University

Lab Report

Lab Report No: 01

Lab Report Name : Introduction to Python

Course code: ICT-3208

Course title: Computer Network

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Submitted by

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Theory:

Python is a general-purpose, versatile and popular programming language. It's great as a first language because it is concise and easy to read, and it is also a good language to have in any programmer's stack as it can be used for everything from web development to software development and scientific applications .

Setup of Python Environment :

STEP 1:

Open Eclipse and setup a correct access to Internet (This is required only in RMIT network). In order to set up Manual Proxy follow the instructions (see also figure 1):

a. Go to Windows > Preferences > General > Network Connections.

b. Change Active Provider to Manual.

c. Input proxy details, including username/password if required.

- Host: proxy.rmit.edu.au
- Port: 8080
- Username/password: No required

d. Clear SOCKS proxy.

e. Restart Eclipse.

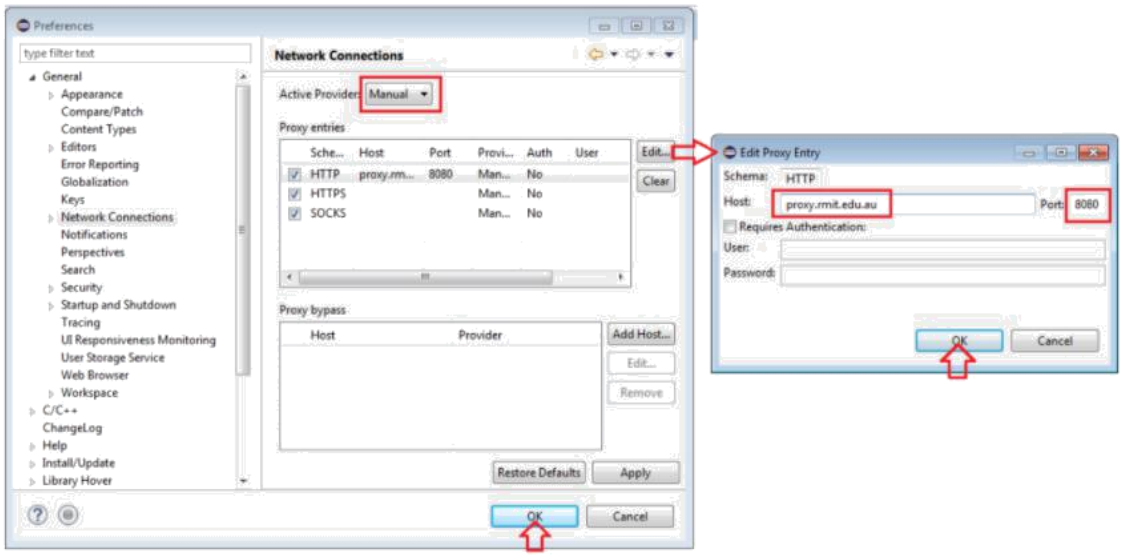


Figure 3-1. Eclipse setup for Internet.

STEP 2:

Installing python environment using Eclipse Graphical Interface1.

a. To install PyDev and PyDev Extensions using the Eclipse Update Manager, you need to use the Help > Install New Software... menu (note that in older versions, this would be the 'Find and Install' menu) as shown in the following figure:

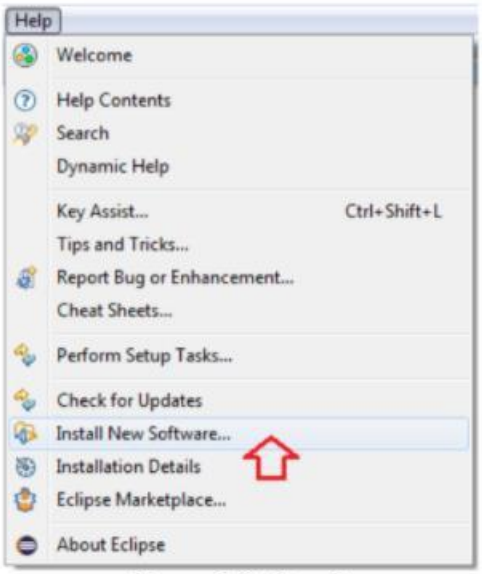


Figure 3-2. Step 2.

b. . In the next screen, add the update site(s) you want to work with (see the figure below). The available update sites are :

http://www.pydev.org/updates

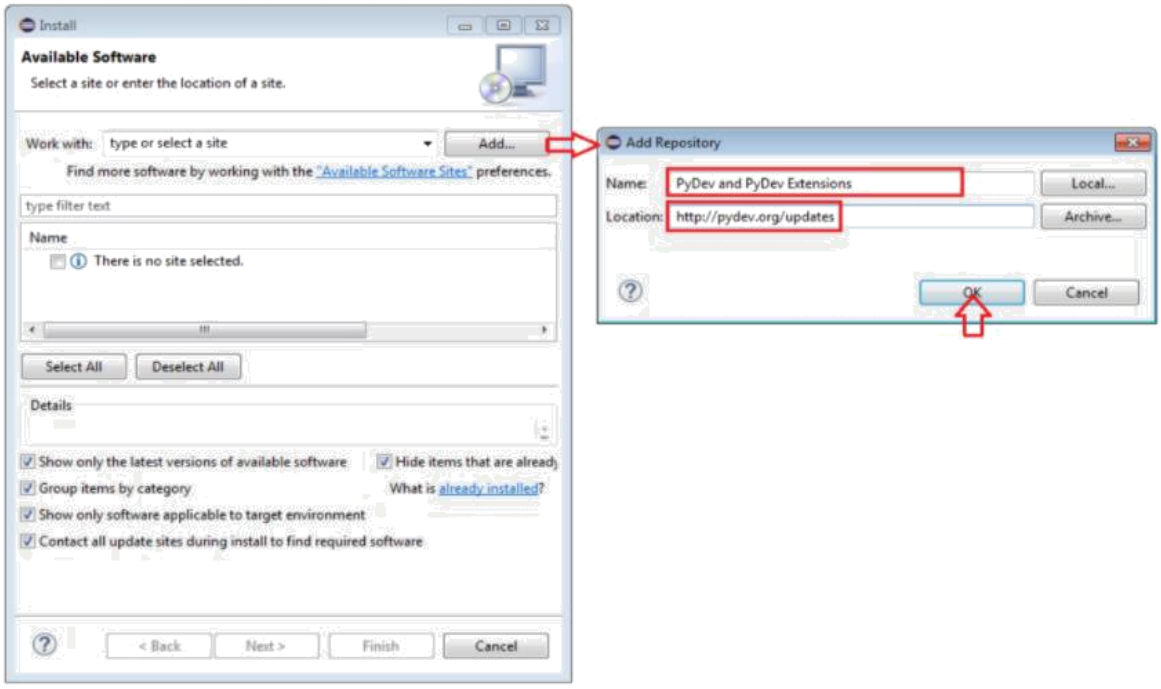


Figure 3-3. Set up Python on Eclipse.

c. After entering the update sites, select the update site you entered or select "All available sites" and add a filter for PyDev, so that it shows the contents of all the update sites that have PyDev, then select what you want to install and click 'Next' (See the figure below):

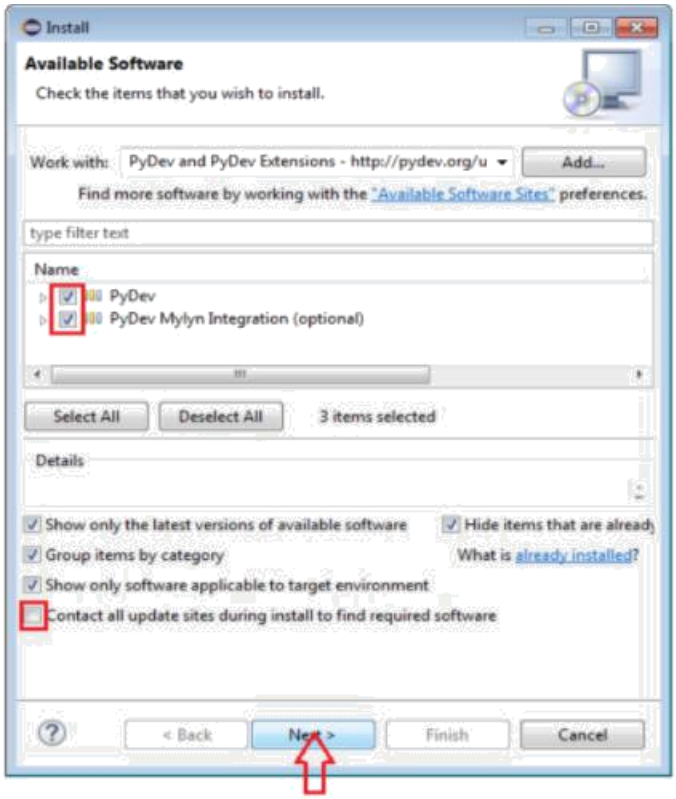


Figure 3-4. Set up Python on Eclipse.

d. Then, UNCHECK the 'Contact all update sites during install to find required software' and press 'NEXT' again to confirm your selection(see the figure below):

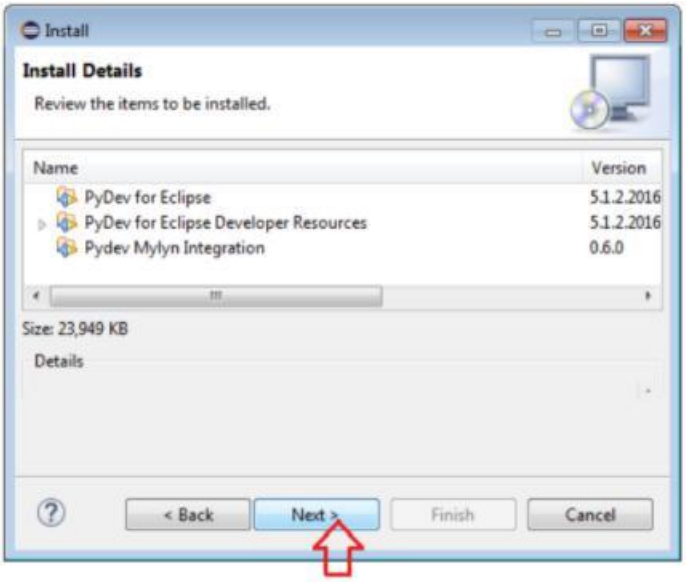


Figure 3-5. Set up Python on Eclipse.

e. And finally, read the license agreement if you accept, select the accept radio button and click 'Finish'(see the figure below):

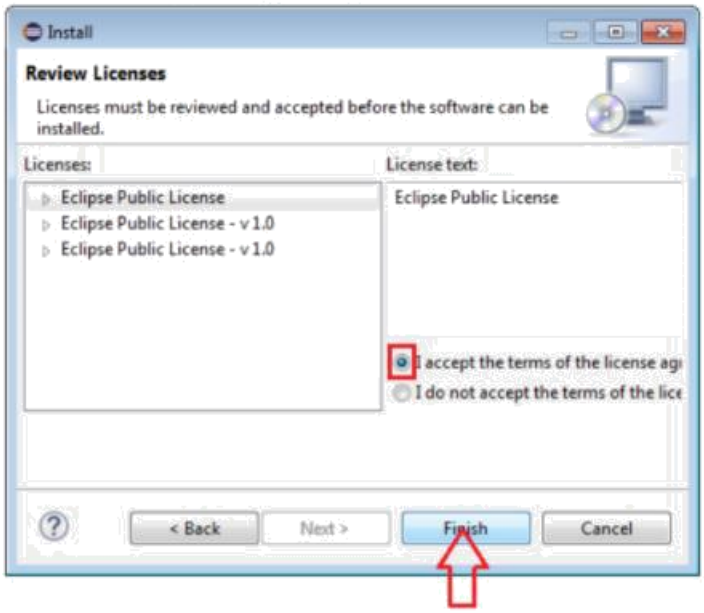


Figure 3-6. Set up Python on Eclipse.

f. At the point, Eclipse should automatically download the plugin contents and present you to a dialog asking if you want to restart (to which you should say yes).

STEP 2: Checking the installation: You can verify if it is correctly installed going to the menu 'window> preferences' and checking if there is a PyDev item under that (see Figure 7). After that eclipse will display the graphical interface for python perspective, the main components are (see Figure 8):

- Project space is the section where all your python projects are visualized,
- Project Editor is the section where python scripts can be edited,
- Console allows the visualization of results father running a python script,
- Run bottom allows to run a python script,

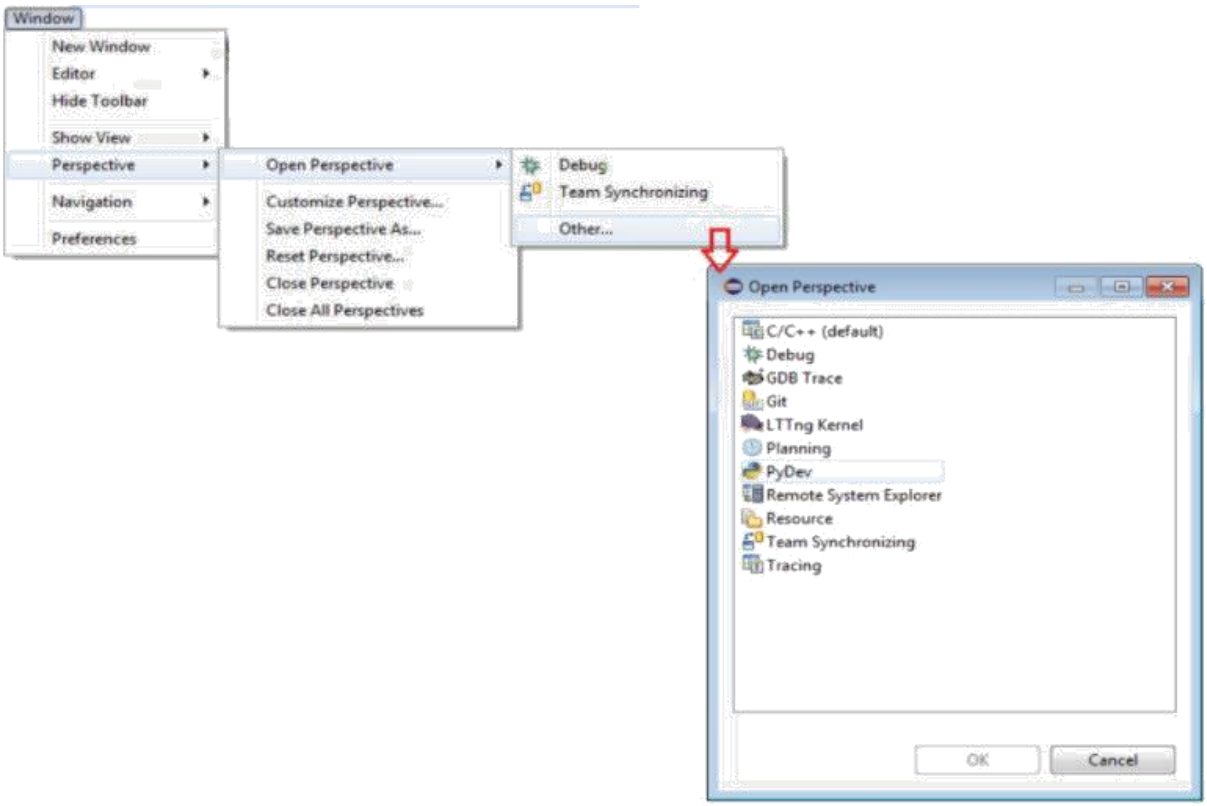


Figure 3-7. Python perspective in Eclipse.

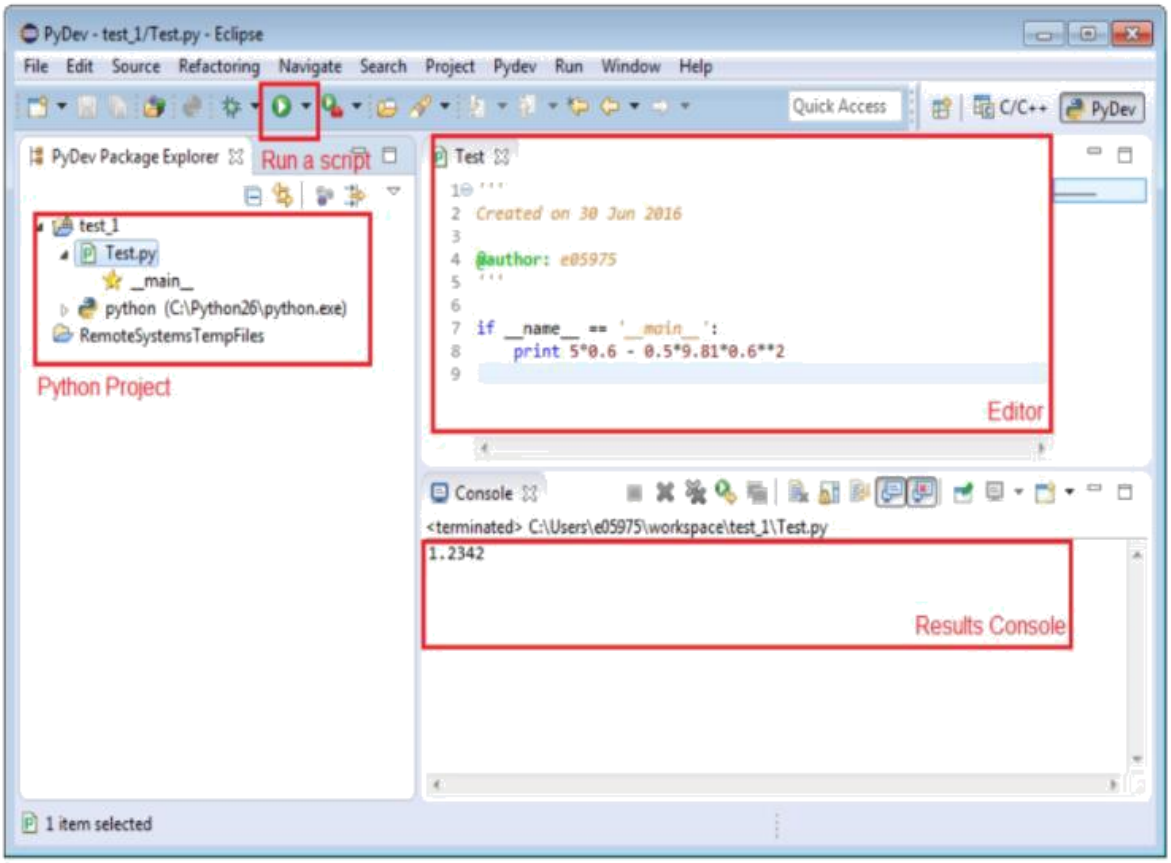
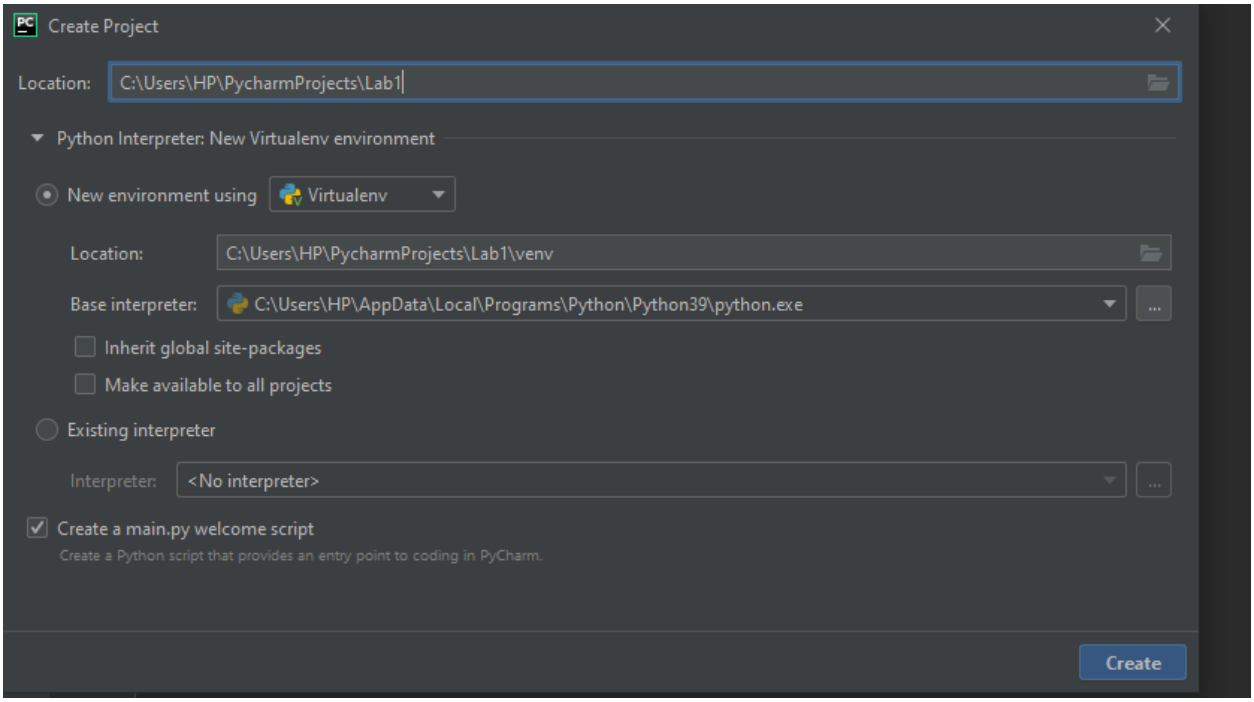


Figure 3-8. Python perspective environment.

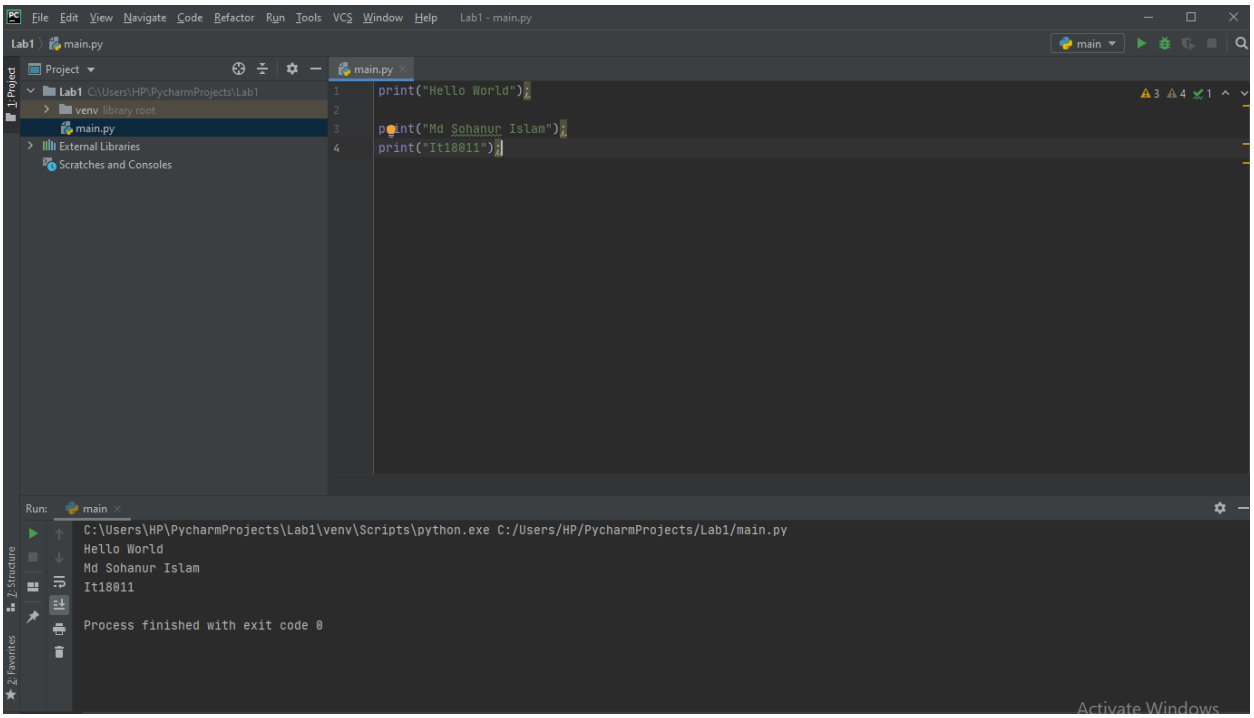
Exercises Section 4.1:

Basics of python and programing Exercise 4.1.1: Create a python project.

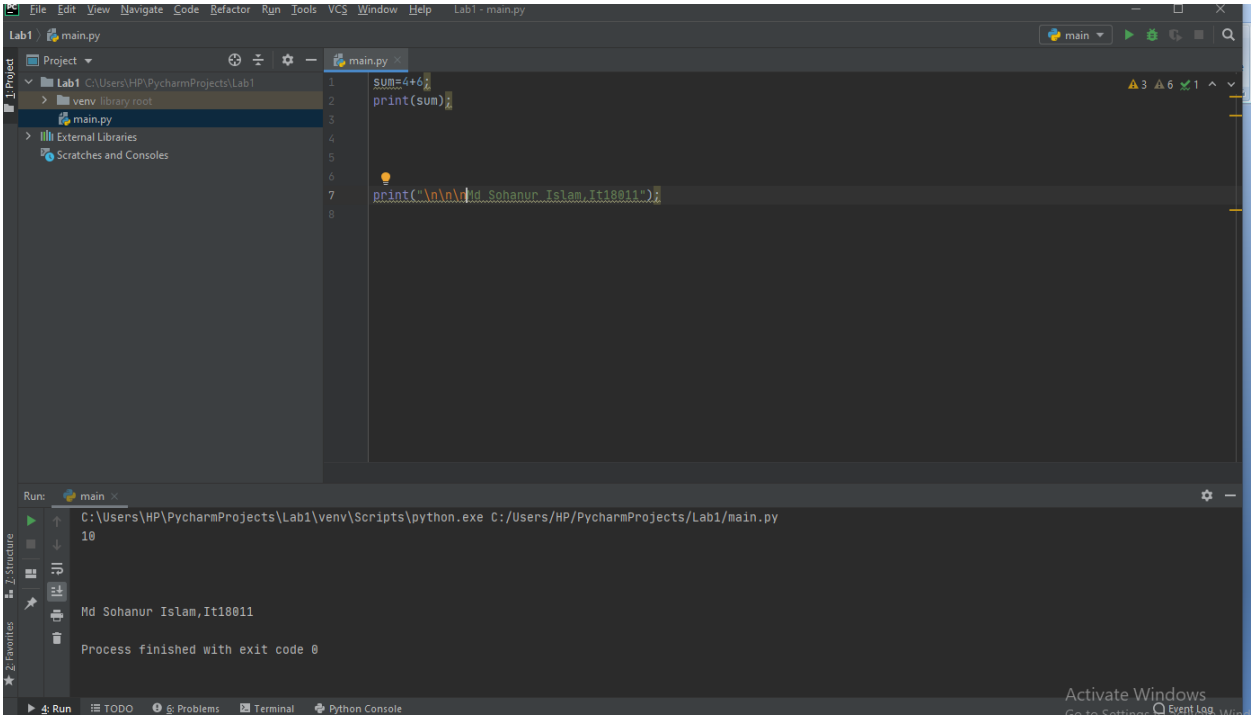
Answer:


Create Project
Location:
C:\Users\HP\PycharmProjects\Lab1
Python Interpreter: New Virtualenv environment
New environment using
Virtualenv
Location:
C:\Users\HP\PycharmProjects\Lab1\venv
Base interpreter:
C:\Users\HP\AppData\Local\Programs\Python\Python39\python.exe
Inherit global site-packages
Make available to all projects
Existing interpreter
Interpreter:
<No interpreter>
Create a main.py welcome script
Create a Python script that provides an entry point to coding in PyCharm.
Create

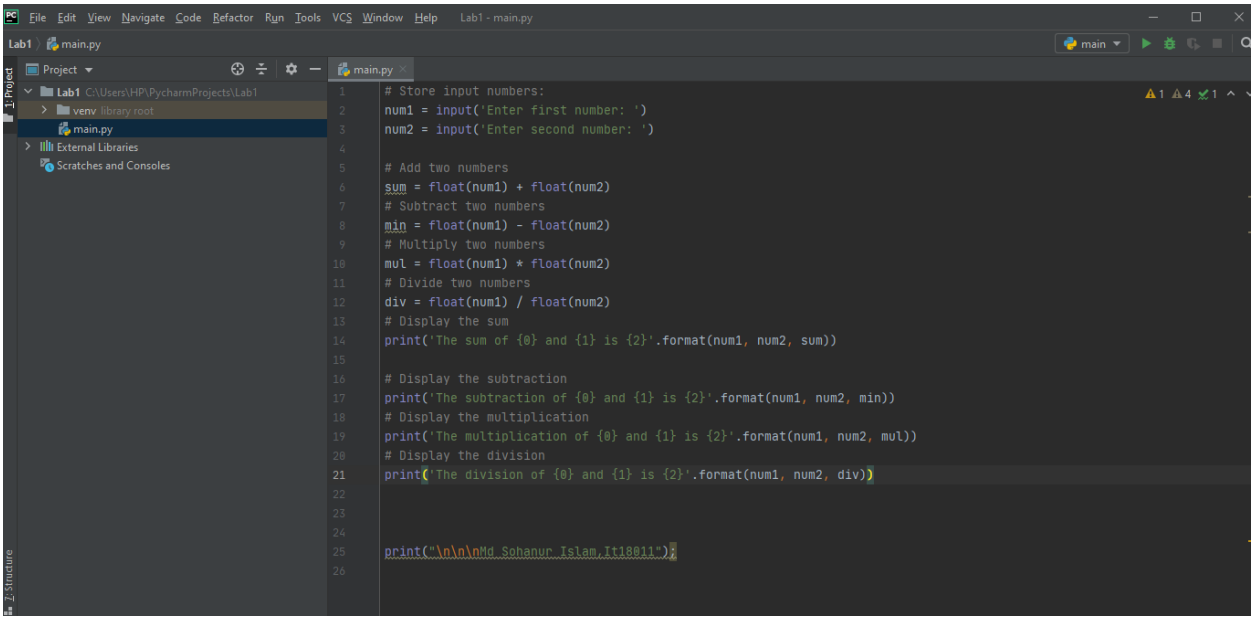
Exercise: 4.1.2 : Write a Hello World Program.



Exercise 4.1.3: Compute 4+6



Exercise 4.1.4: Type in program text.



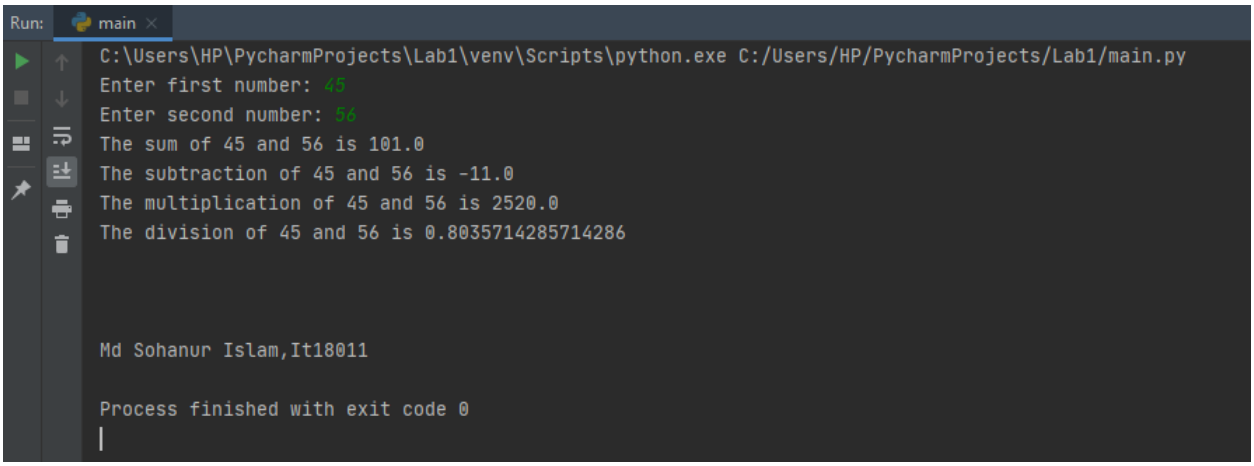
```
# Store input numbers:
num1 = input('Enter first number: ')
num2 = input('Enter second number: ')

# Add two numbers
sum = float(num1) + float(num2)
# Subtract two numbers
min = float(num1) - float(num2)
# Multiply two numbers
mul = float(num1) * float(num2)
# Divide two numbers
div = float(num1) / float(num2)
# Display the sum
print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))

# Display the subtraction
print('The subtraction of {0} and {1} is {2}'.format(num1, num2, min))
# Display the multiplication
print('The multiplication of {0} and {1} is {2}'.format(num1, num2, mul))
# Display the division
print('The division of {0} and {1} is {2}'.format(num1, num2, div))



print("\n\n\nMd Sohanur Islam,It18011");
```



```
C:\Users\HP\PycharmProjects\Lab1\venv\Scripts\python.exe C:/Users/HP/PycharmProjects/Lab1/main.py
Enter first number: 45
Enter second number: 56
The sum of 45 and 56 is 101.0
The subtraction of 45 and 56 is -11.0
The multiplication of 45 and 56 is 2520.0
The division of 45 and 56 is 0.8035714285714286



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Process finished with exit code 0
```
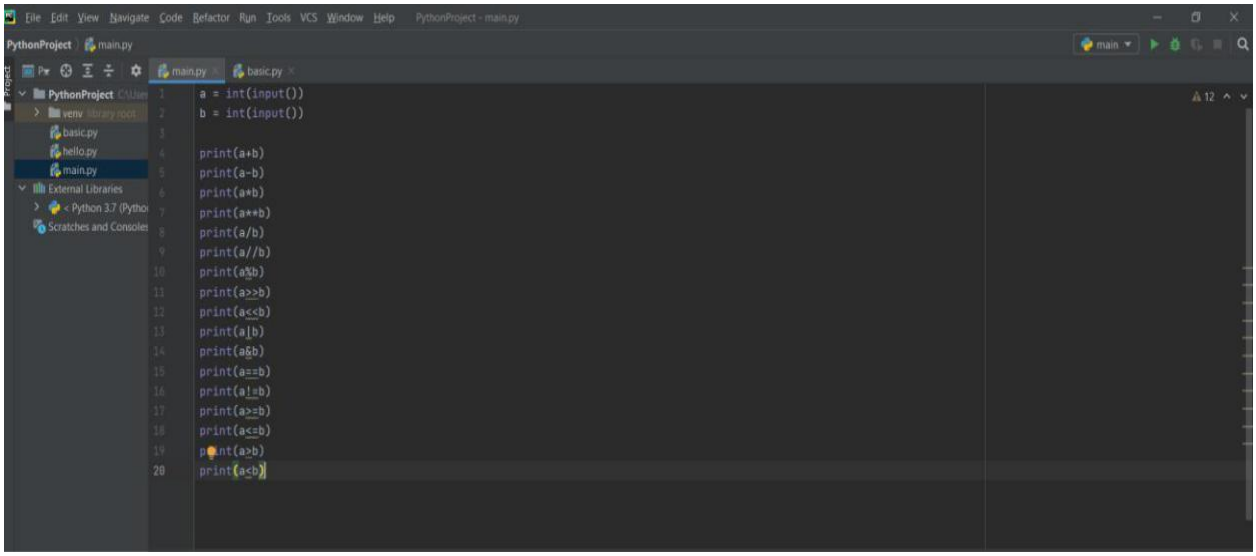
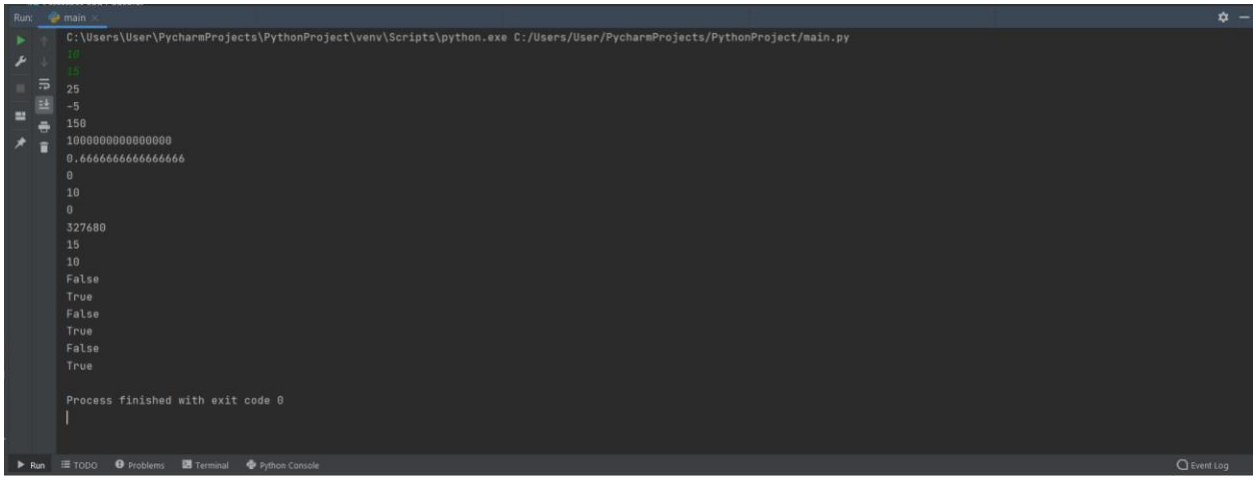
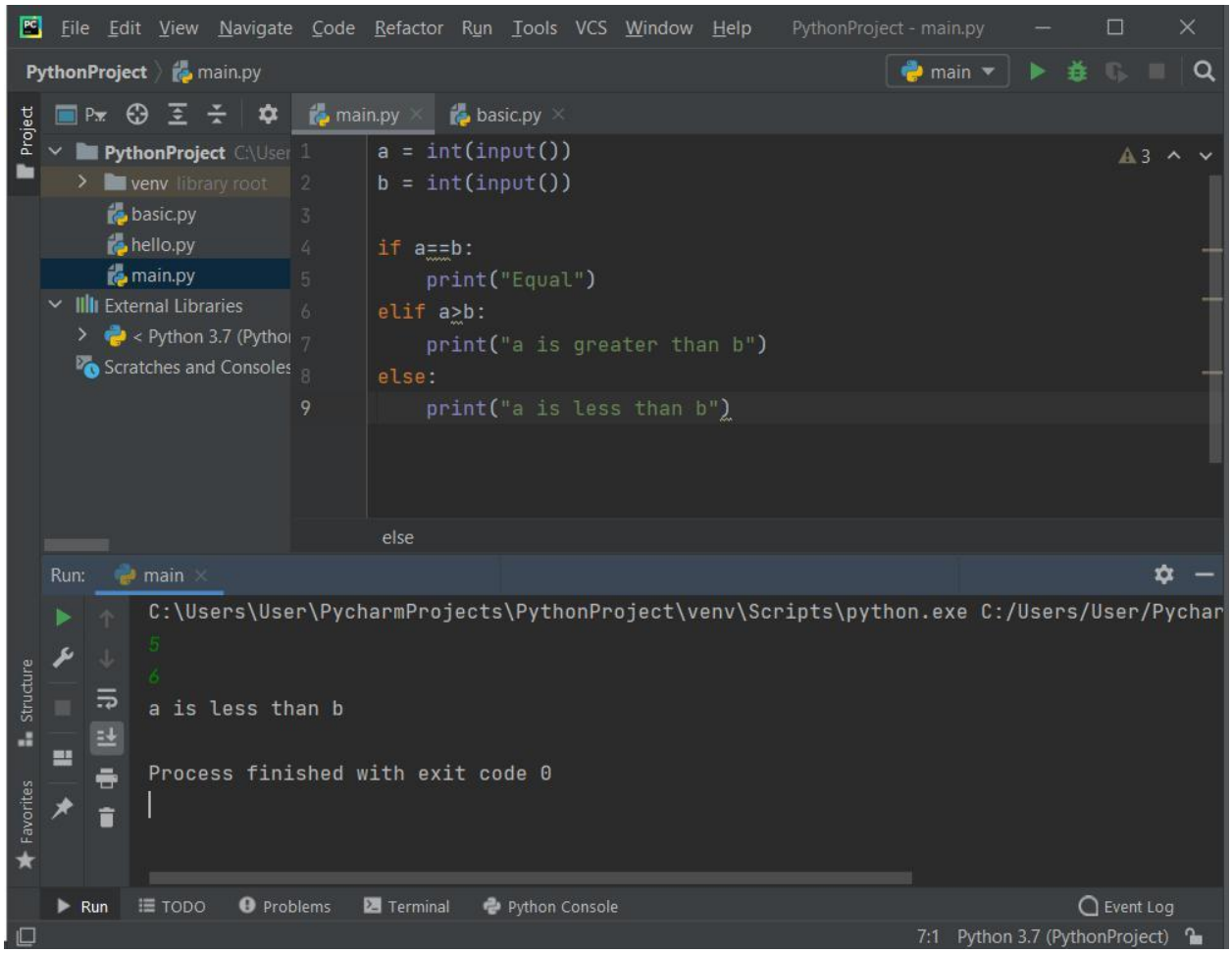

Section 4.1: Create and run basic example.

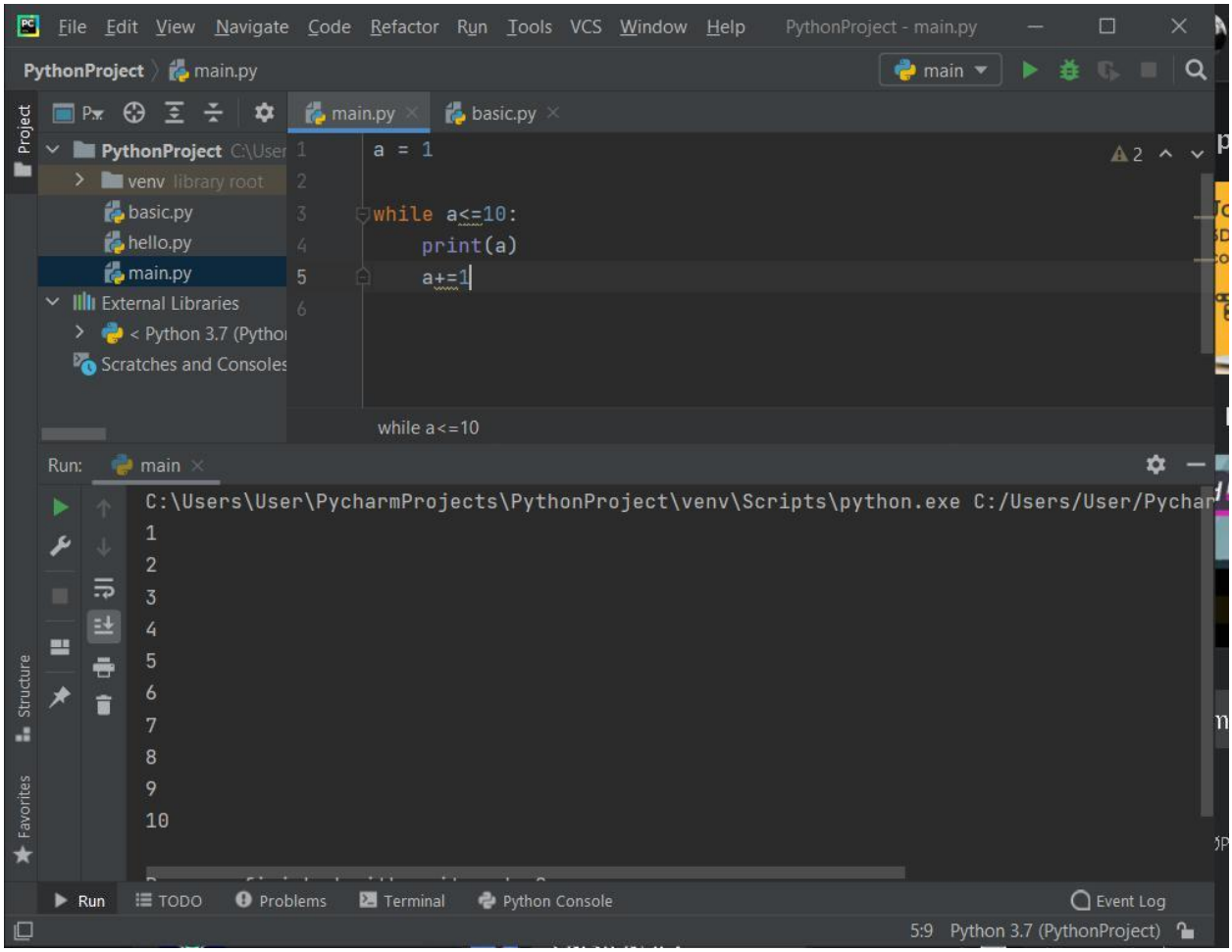




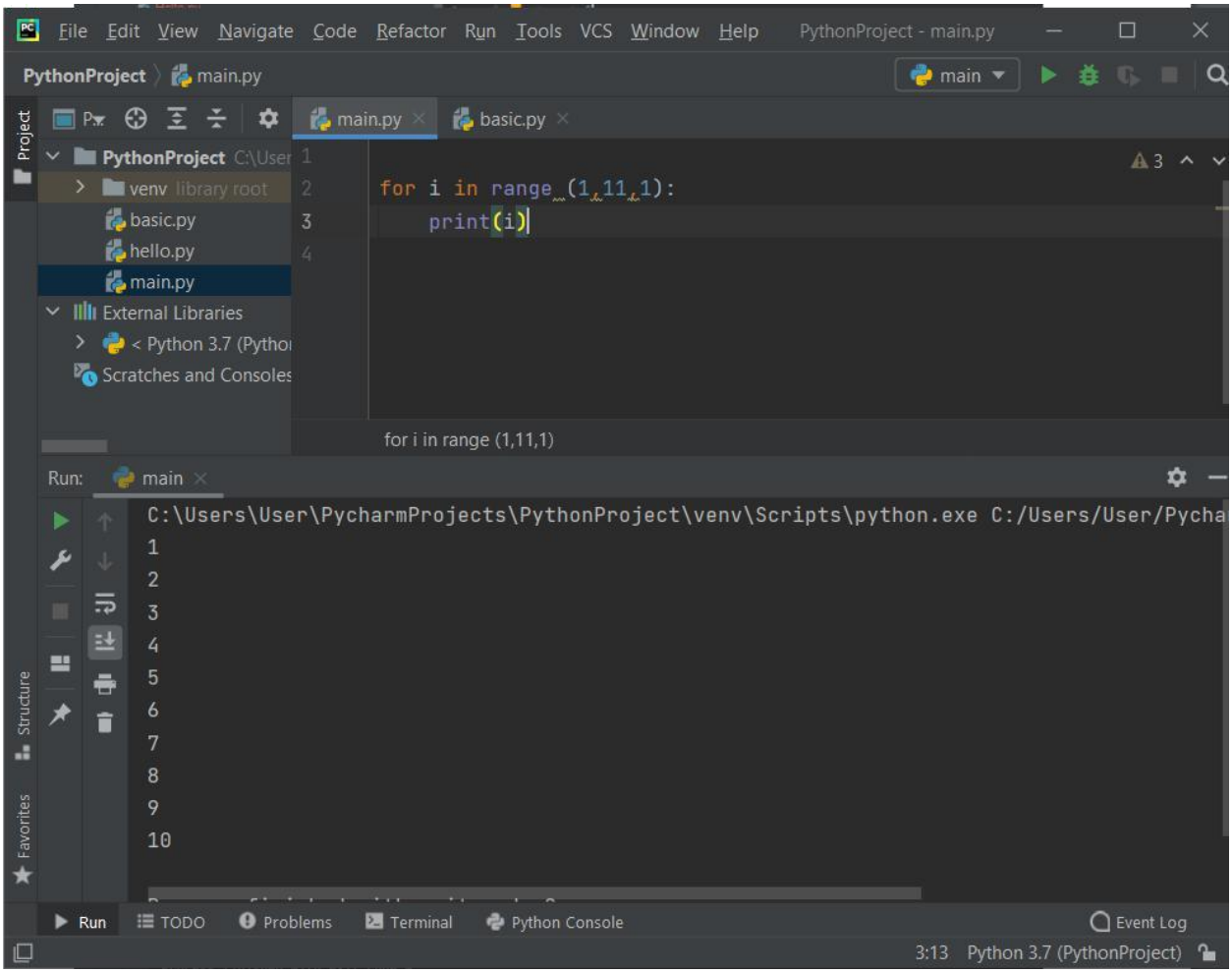
Exercise 4.2.2: The if statement:



Exercise 4.2.3: The while Statement



Exercise 4.2.4: The for Statement



Conclusion:

Python is a language that is remarkably easy to learn, and it can be used as a stepping stone into other programming languages and frameworks. If you're an absolute beginner and this is your first time working with any type of coding language, that's something you definitely want. Python is widely used, including by a number of big companies like Google, Pinterest, Instagram, Disney, Yahoo!, Nokia, IBM, and many others. The Raspberry Pi – which is a mini computer and DIY lover's dream – relies on Python as it's main programming language too. You're probably wondering why either of these things matter, and that's because once you learn Python, you'll never have a shortage of ways to utilize the skill. Not to mention, since a lot of big companies rely on the language, you can make good money as a Python developer.

1) Python can be used to develop prototypes, and quickly because it is so easy to work with and read.
2) Most automation, data mining, and big data platforms rely on Python. This is because it is the ideal language to work with for general purpose tasks.
3) Python allows for a more productive coding environment than massive languages like C# and Java. Experienced coders tend to stay more organized and productive when working with Python, as well.