MAWLANA BHASHANI SCIENCE AND TECHNOLOGY UNIVERSITY

Santosh,Tangail – 1902

Course Title : Computer Networks Lab

Lab Report Name : Introduction to Python

 Lab Report No : 01

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Theory

Python is an easy to learn, powerful programming language. It has efficient highlevel data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

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
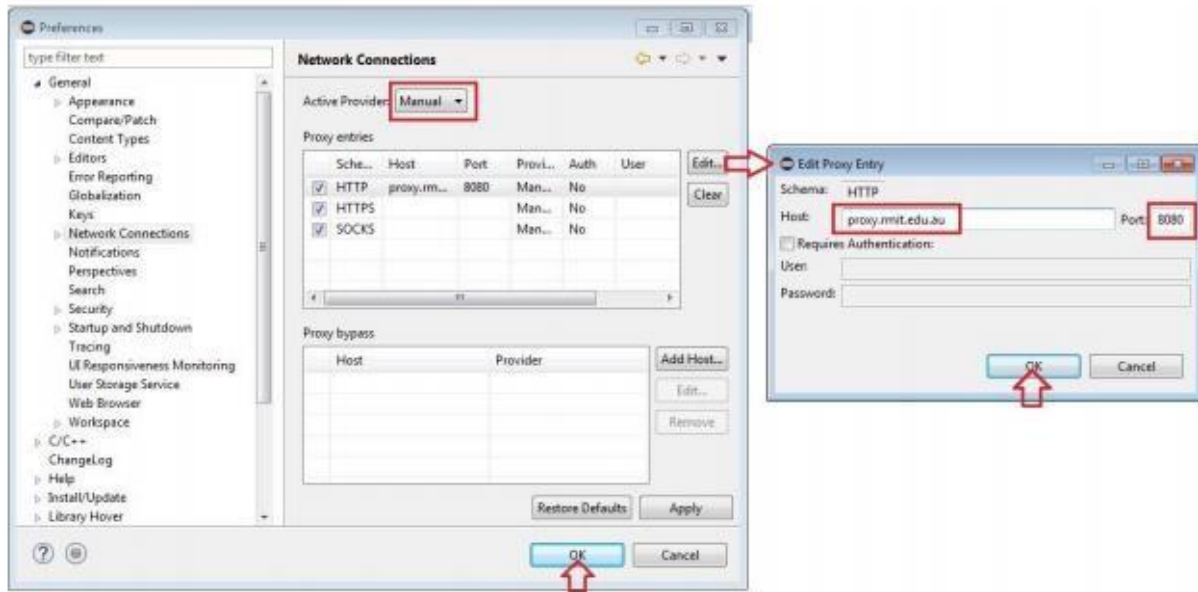
d. Clear SOCKS proxy.

e. Restart Eclipse.

Figure 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:
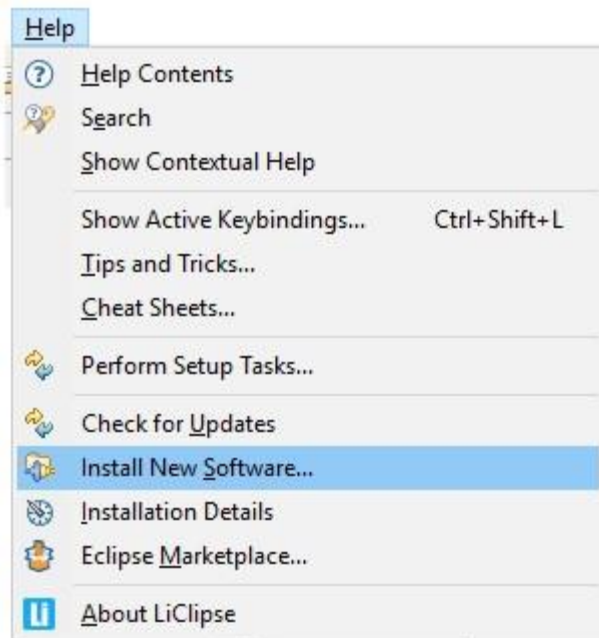
Figure 2: Setup

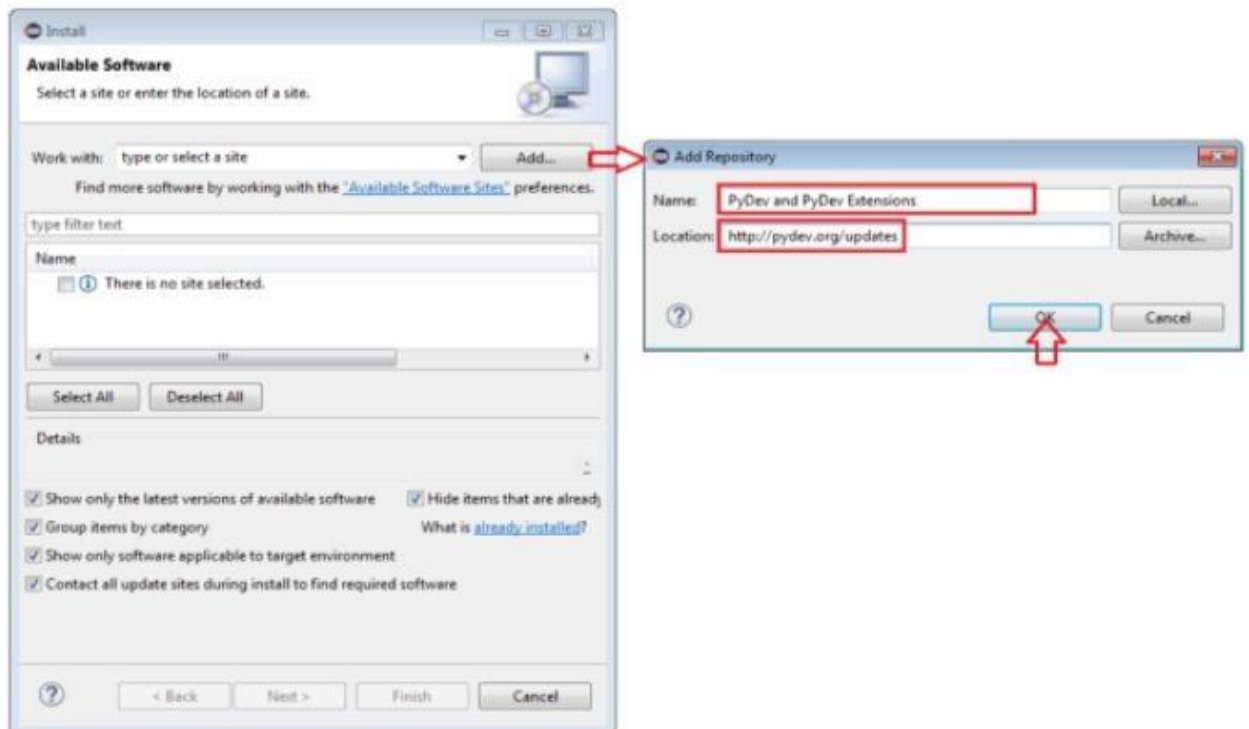b. In the next screen, add the update site(s) you want to work with (see the figure below). The available update sites are :

http://www.pydev.org/updates

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):
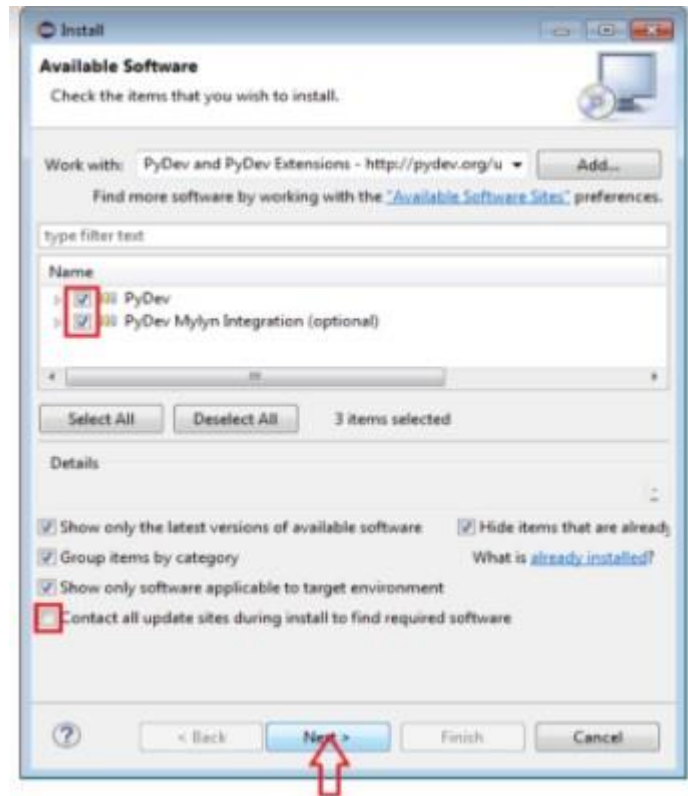
Figure 4: Setup Python on Eclipse

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):
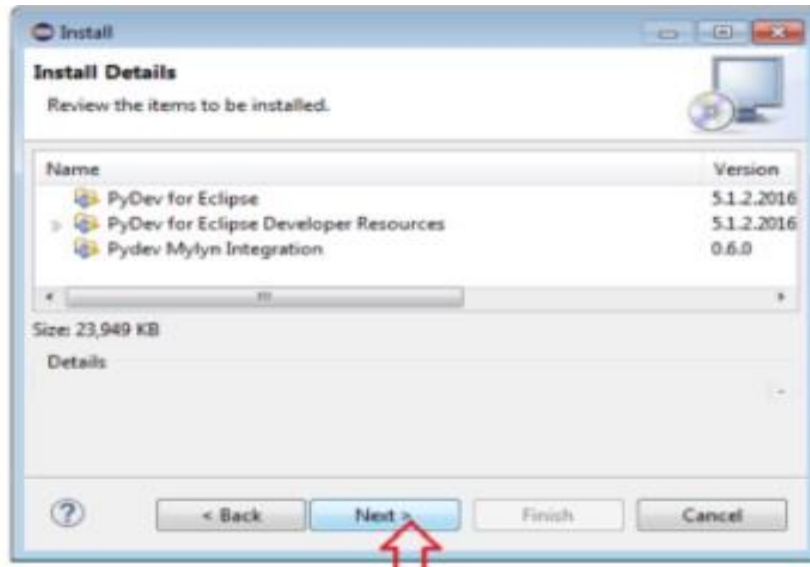
Figure 5: Setup Python on Eclipse

e. And finally, read the license agreement if you accept, select the accept radio button and click 'Finish'(see the figure below):
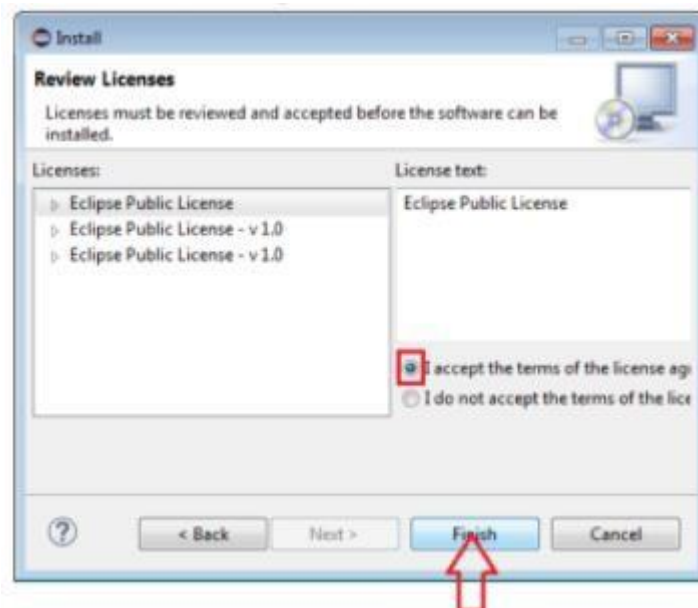
Figure 6: Setup Python on Eclipse

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 py
⯀ Project Editor is the section where python scripts can be edited,
⯀ Console allows the visualization of results father running a python script,
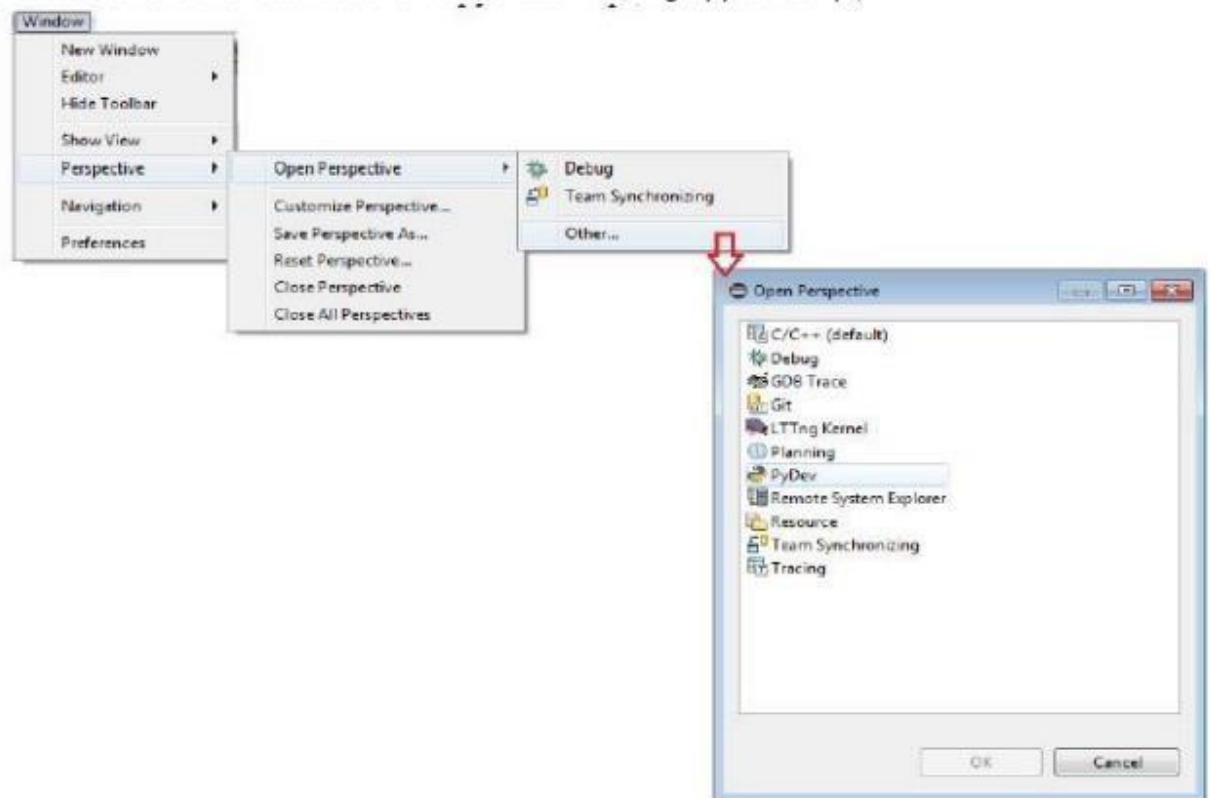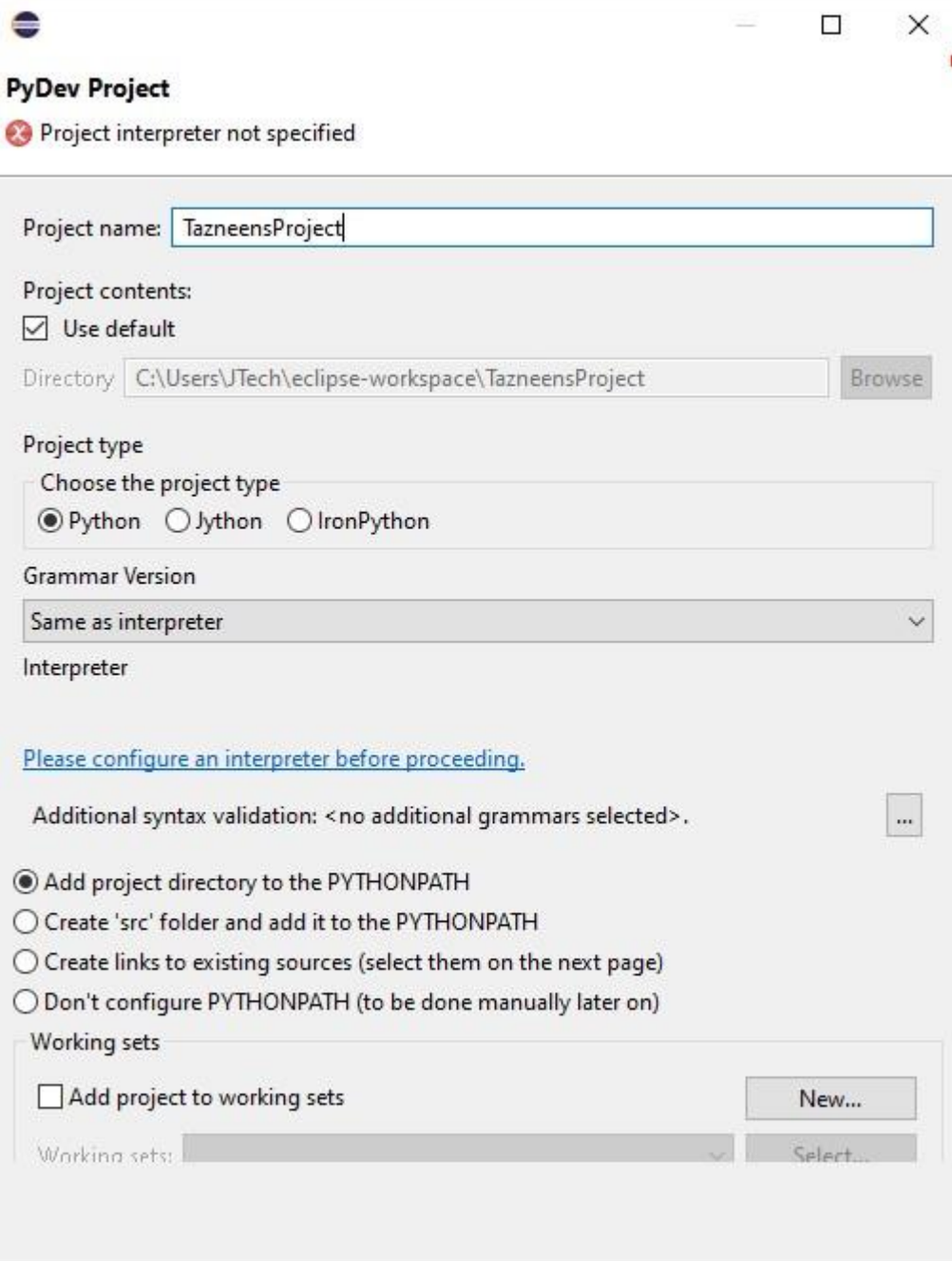
Then the project is visualized

Exercises

Section 4.1: Basics of python and programing

Exercise 4.1.1: Create a python project.

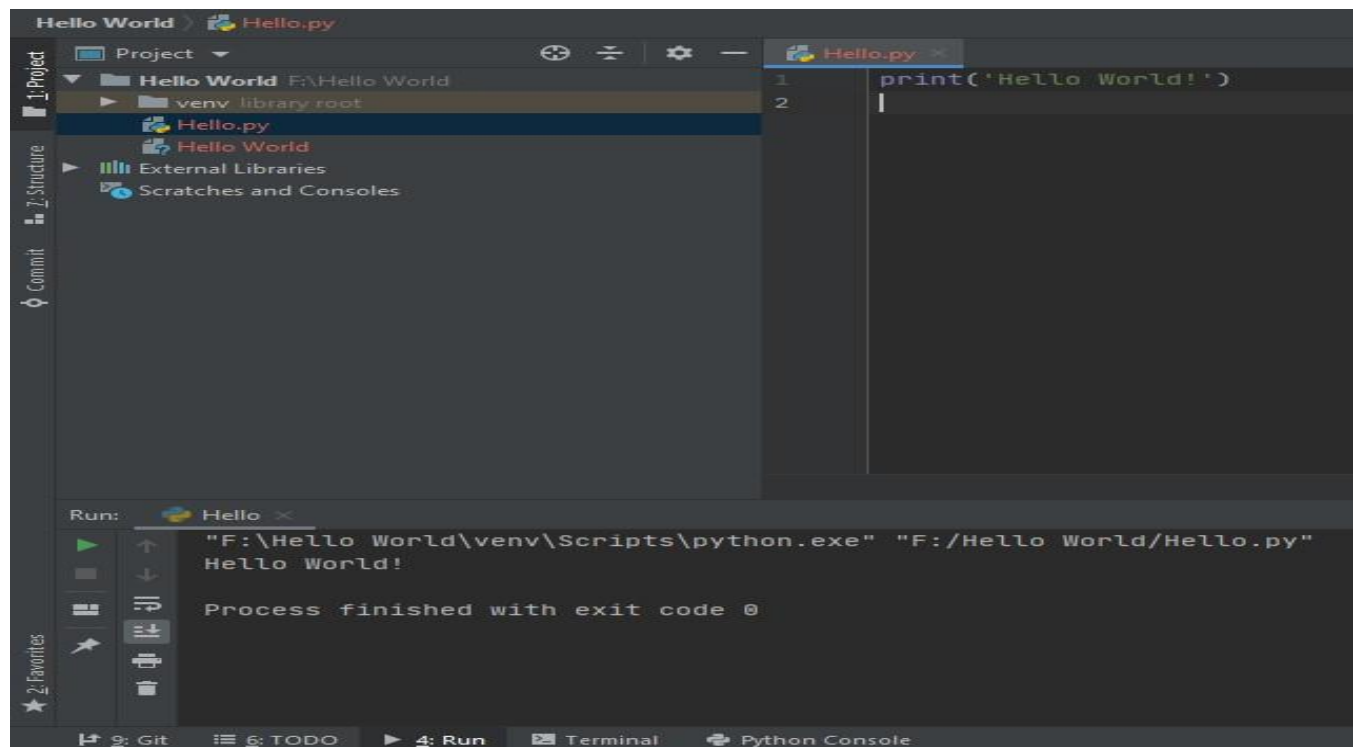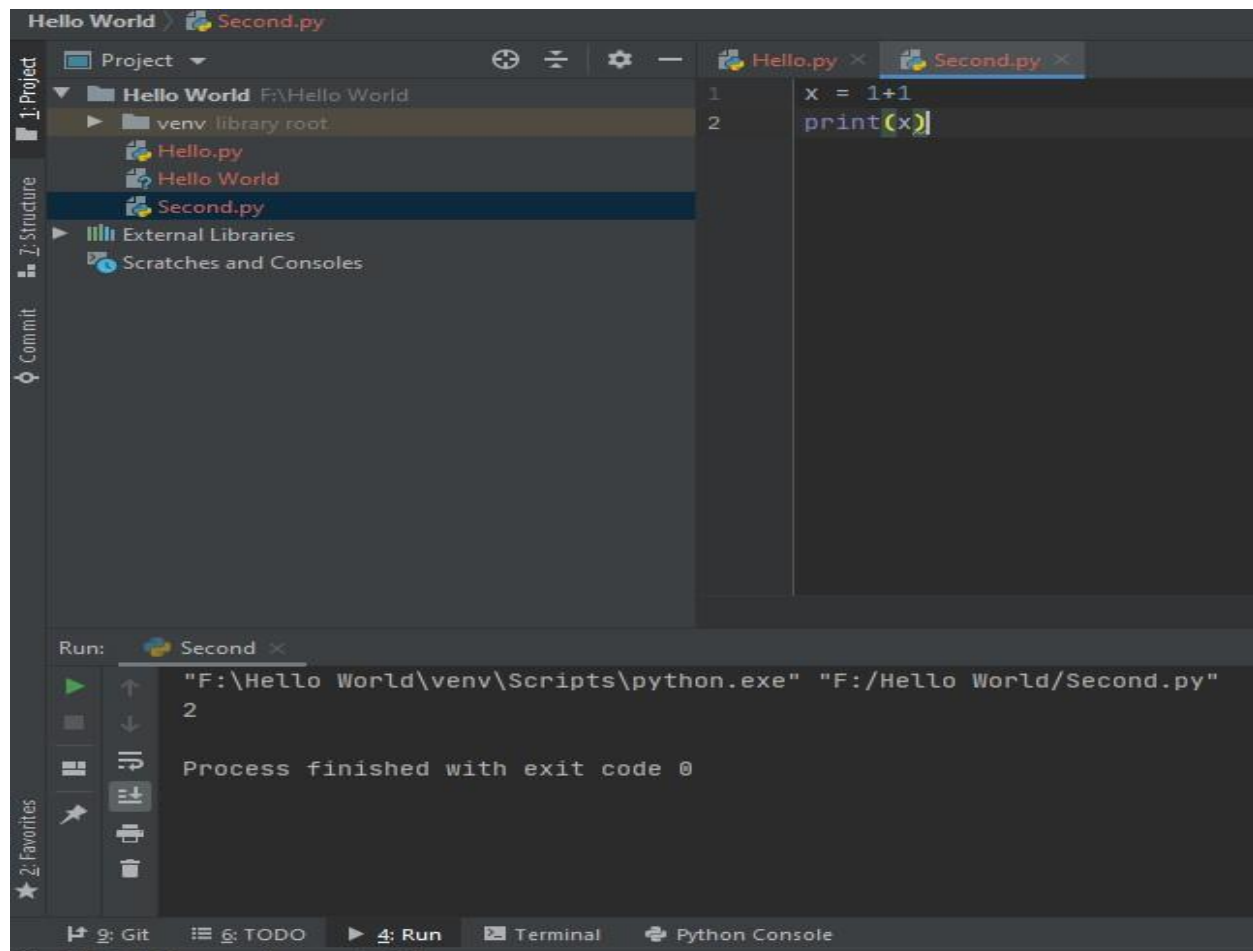## Answer:

Create a python script, click in File > New > PyDev Module. Select the folder source name. Then, provide a name for the project (Hello_world), then select empty module or main module as shown below:
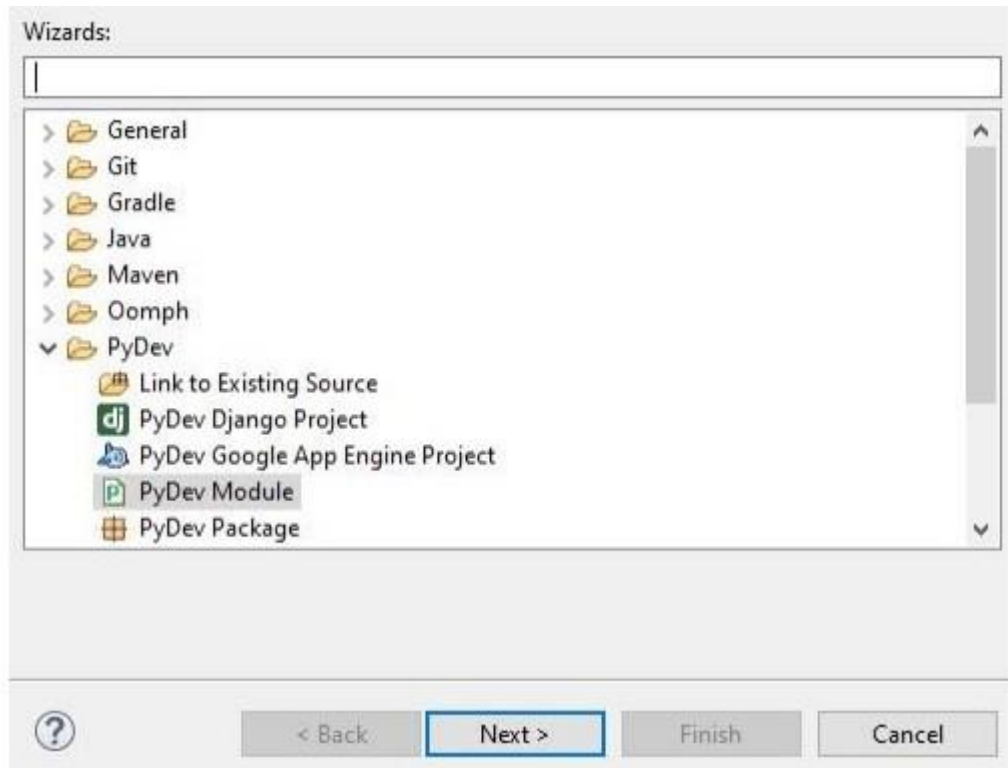
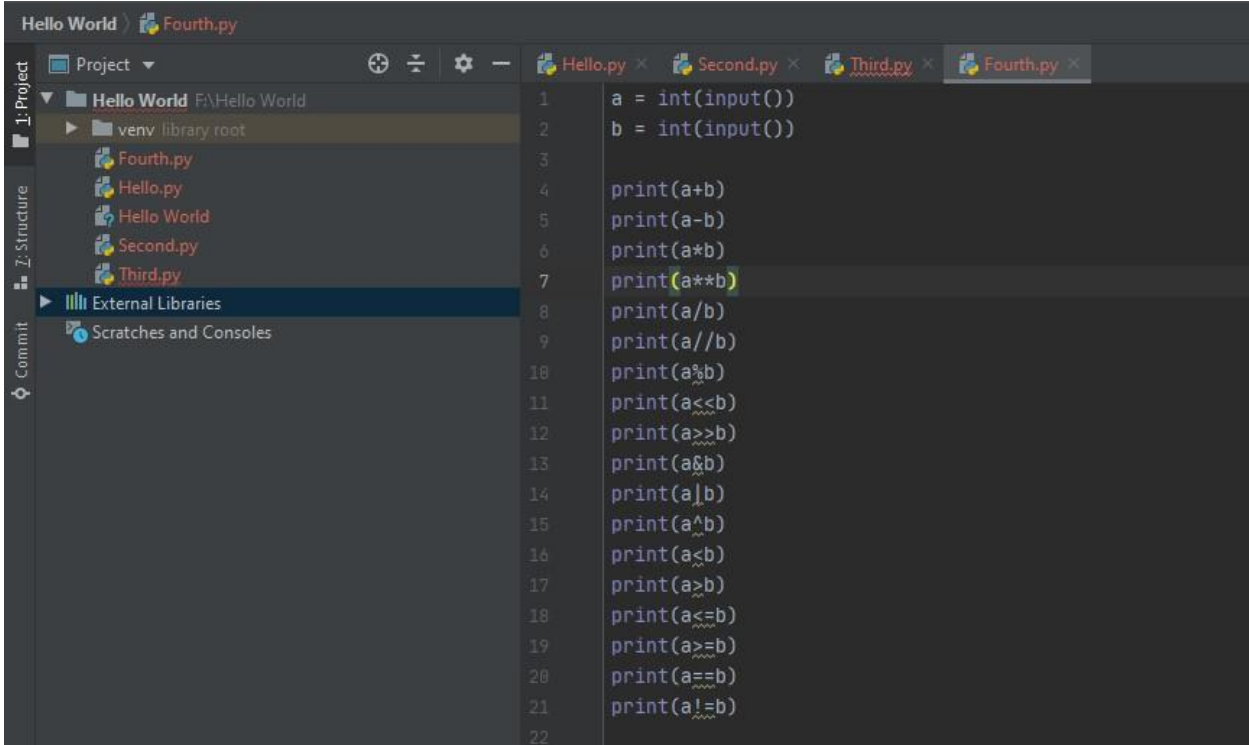**Exercise: 4.1.2 : Write a Hello World Program.**

Exercise 4.1.3: Compute 1+1

Exercise 4.1.4: Type in program text

```python
h = 5.0 # height
r = 1.5 # radius
pi = 3.1416
if __name__ == '__main__':
    area_parallelogram = h*r
    print ('The area of the parallelogram is %.3f' % area_parallelogram)
    area_square = h**2
    print ('The area of the square is %g' % area_square)
    area_circle = pi*r**2
    print ('The area of the circle is %.3f' % area_circle)
    volume_cone = 1.0/3*pi*r**2*h
    print ('The volume of the cone is %.3f' % volume_cone)
```

```
The area of the parallelogram is 7.500
The area of the square is 25
The area of the circle is 7.069
The volume of the cone is 11.781
```

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.

4)   Python is easy to read, even if you're not a skilled programmer. Anyone can begin working with the language, all it takes is a bit of patience and a lot of practice. Plus, this makes it an ideal candidate for use among multi-programmer and large development teams.

5)   Python powers Django, a complete and open source web application framework. Frameworks – like Ruby on Rails – can be used to simplify the development process.

6)   It has a massive support base thanks to the fact that it is open source and community developed. Millions of like-minded developers work with the language on a daily basis and continue to improve core functionality. The latest version of Python continues to receive enhancements and updates as time progresses. This is a great way to network with other developers.