Mawlana Bhashani Science and Technology University

Lab-Report

Report No: 01

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Course title: Computer Network Lab

Report Name: Introduction to Python

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Experiment No: 01

Experiment Name: Introduction to Python

Theory:

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to objectoriented 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.

Methodology:

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.

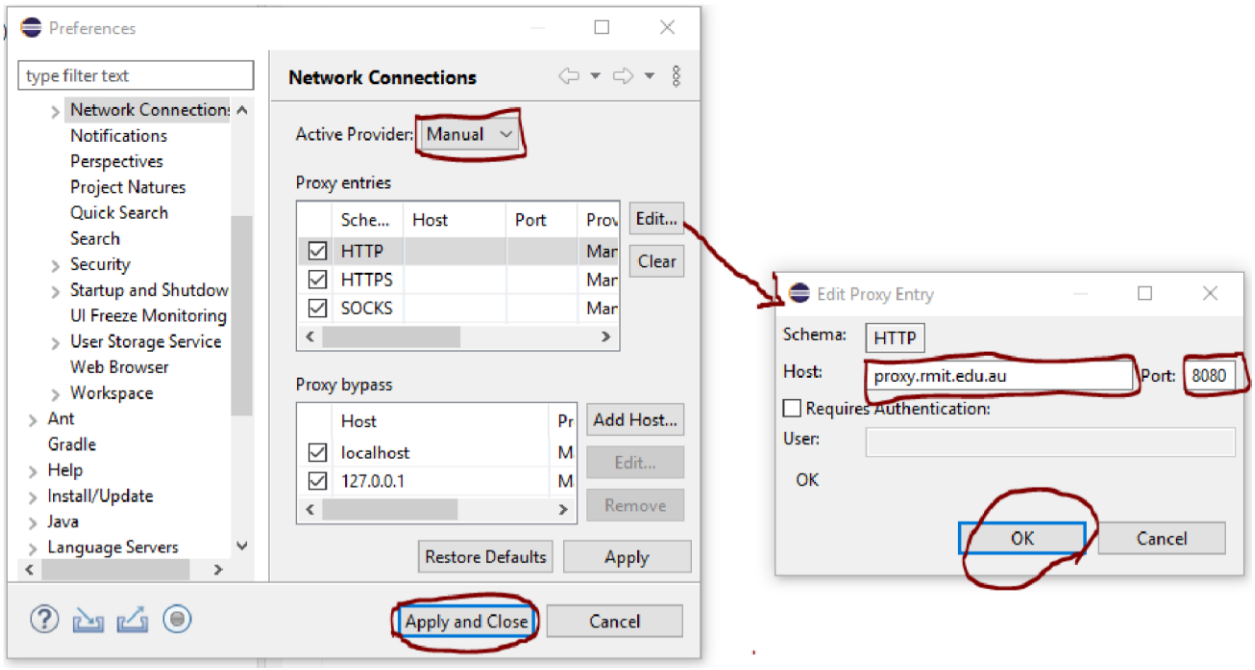


Figure 1. Eclipse setup for Internet

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:

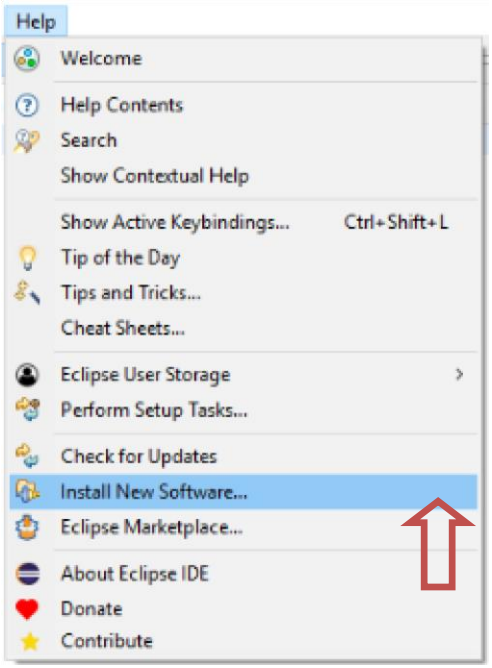


Figure 2 . Step 2.

b.

In the next screen, add the update site(s) you want to work with (see the figure below). The available update sites are (see Figure 3):

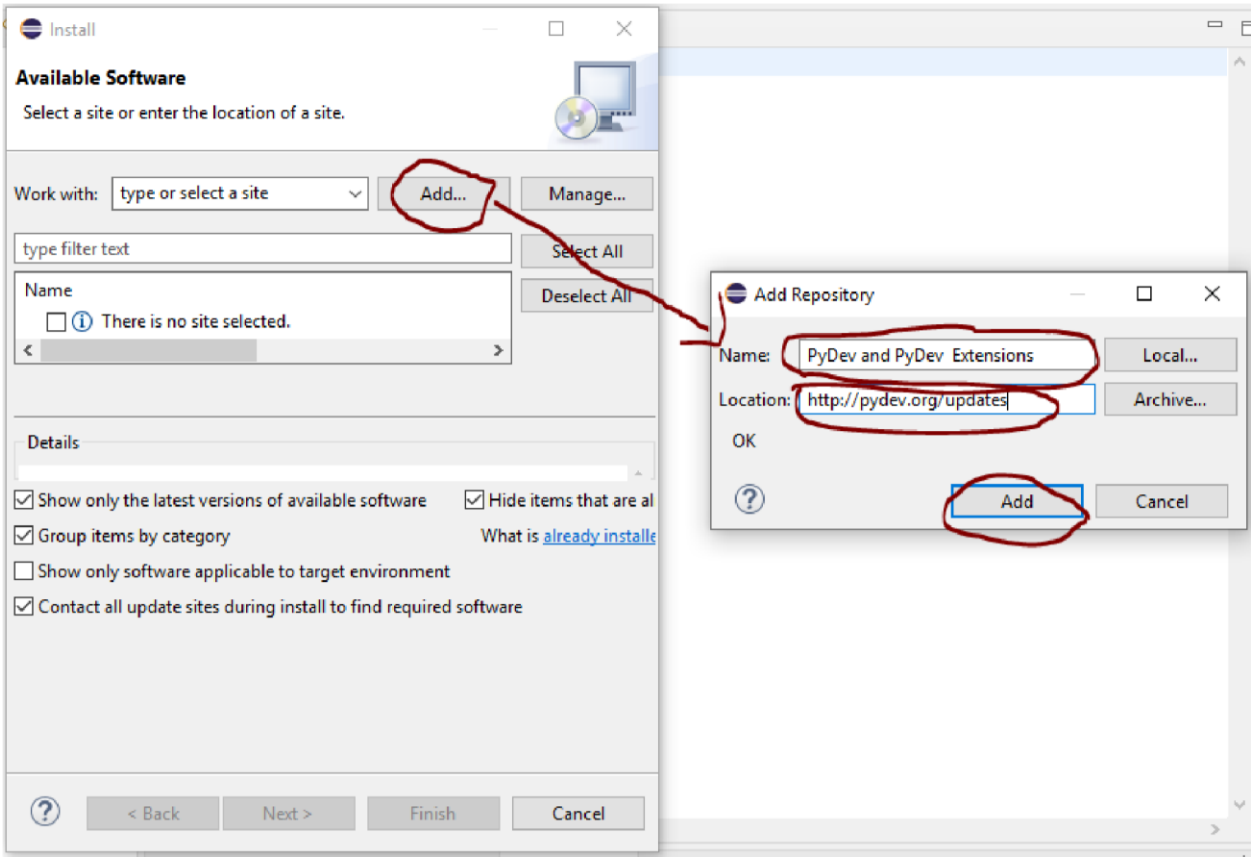


Figure 3. Set up Python on Eclipse **c.**

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 Figure 4).

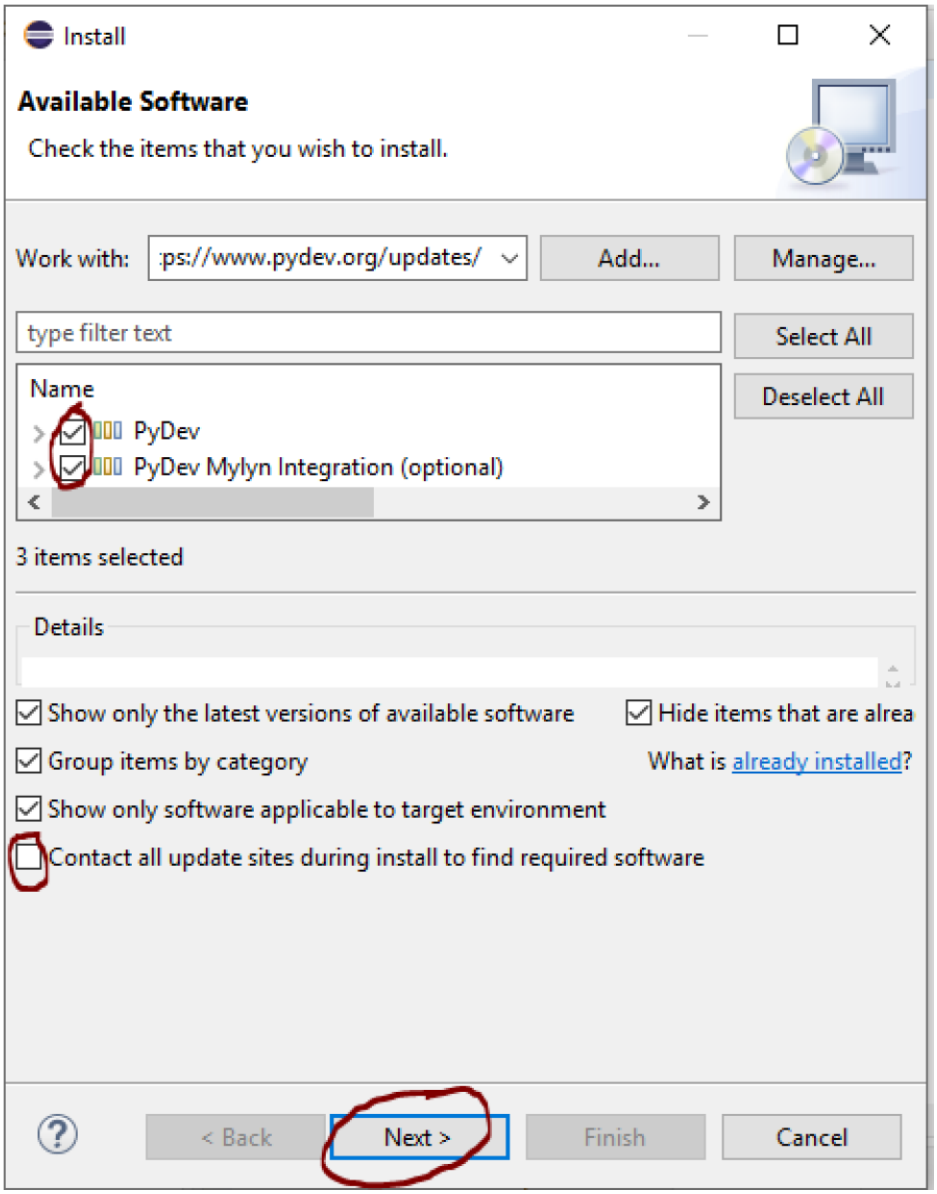


Figure 4. Set up Python on Eclipse. **d.**

Then, UNCHECK the 'Contact all update sites during install to find required software' and press 'Next' again to confirm your selection (see Figure 5).

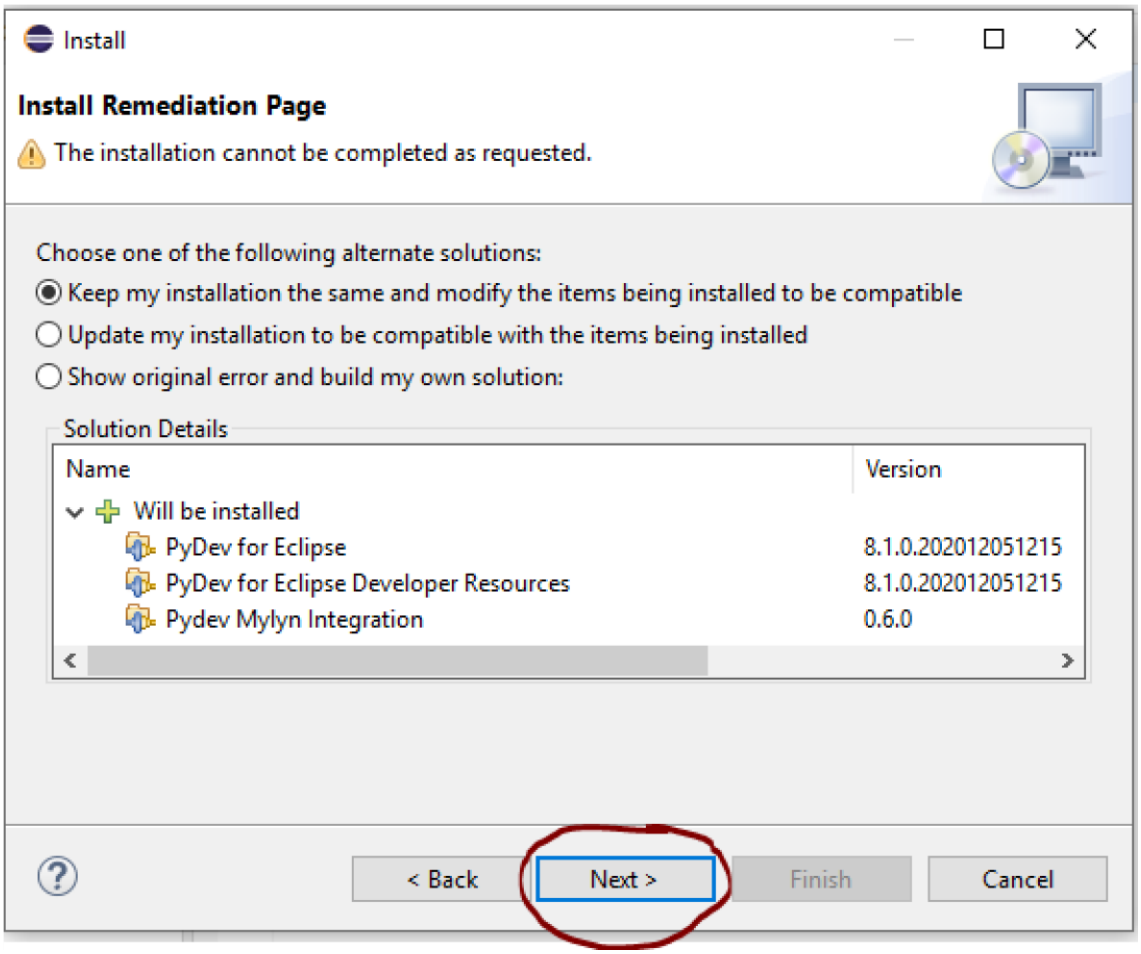


Figure 5. Set up Python on Eclipse. **e.**

And finally, read the license agreement and if you accept, select the accept radio button and click 'Finish' (see Figure 6).

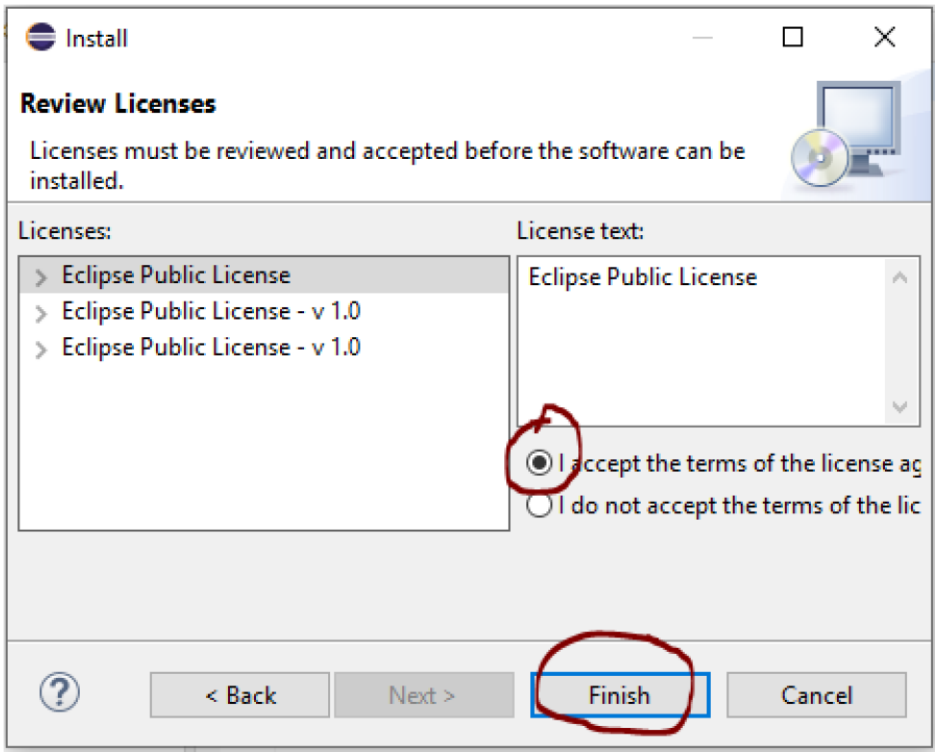


Figure 6. Set up Python on Eclipse

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, Page | 9 SDN-Labs
- Run bottom allows to run a python script,

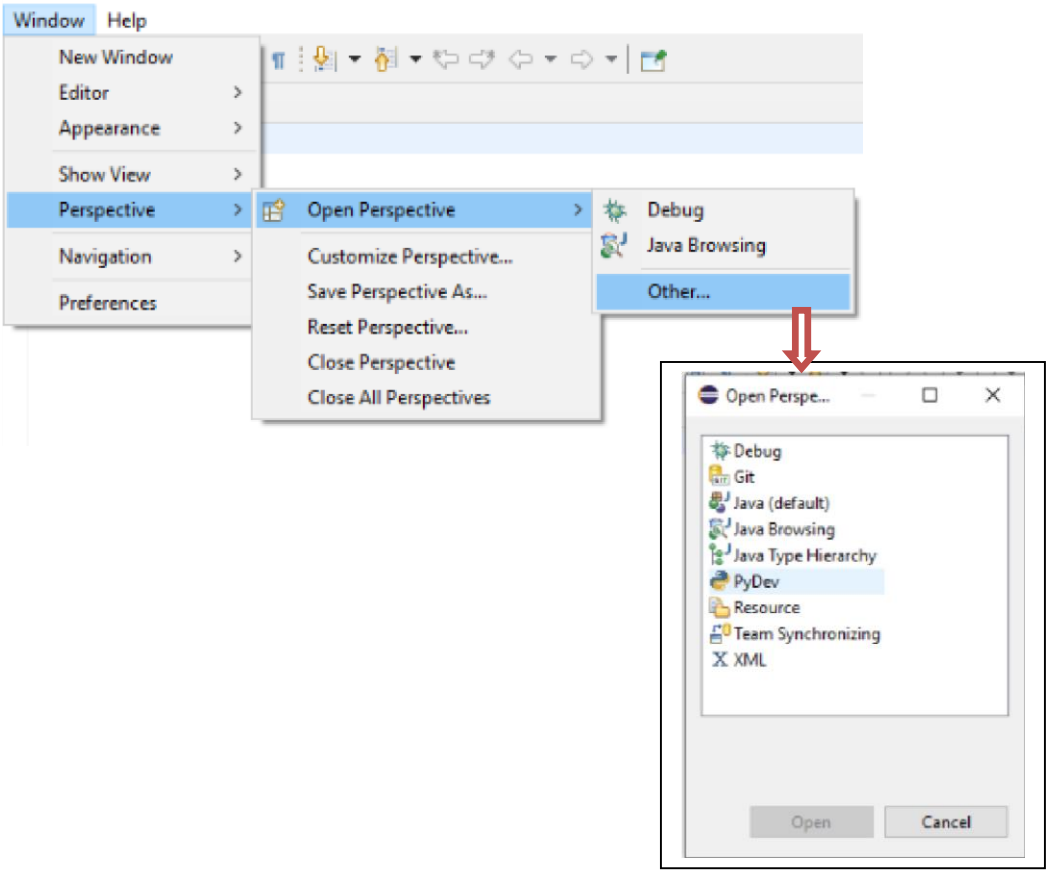
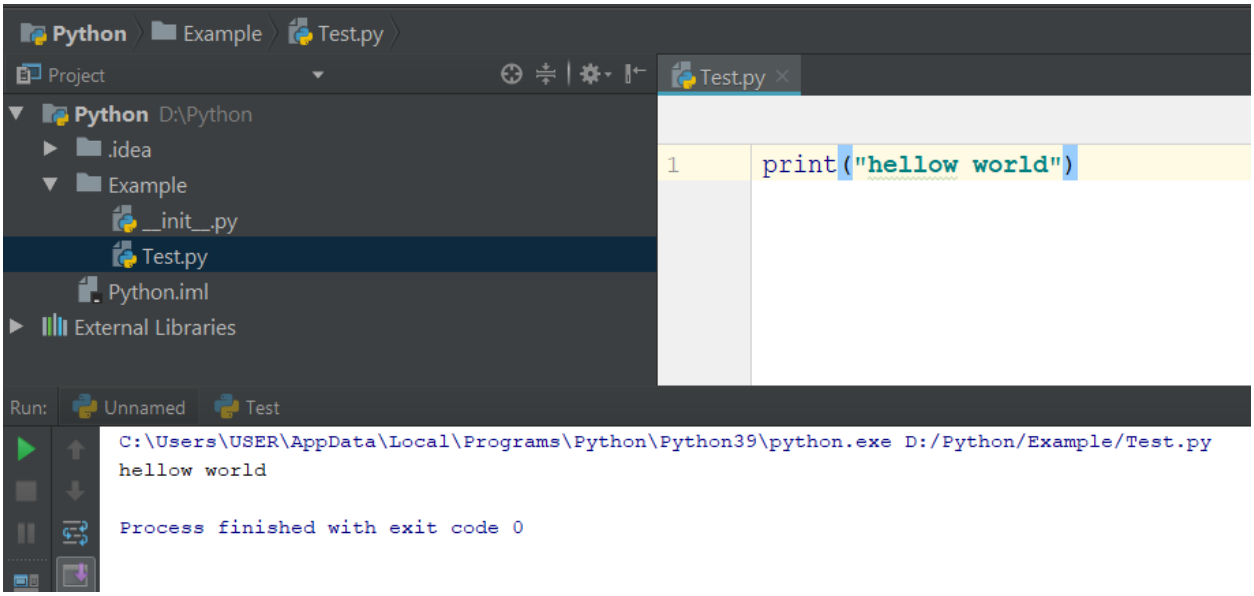


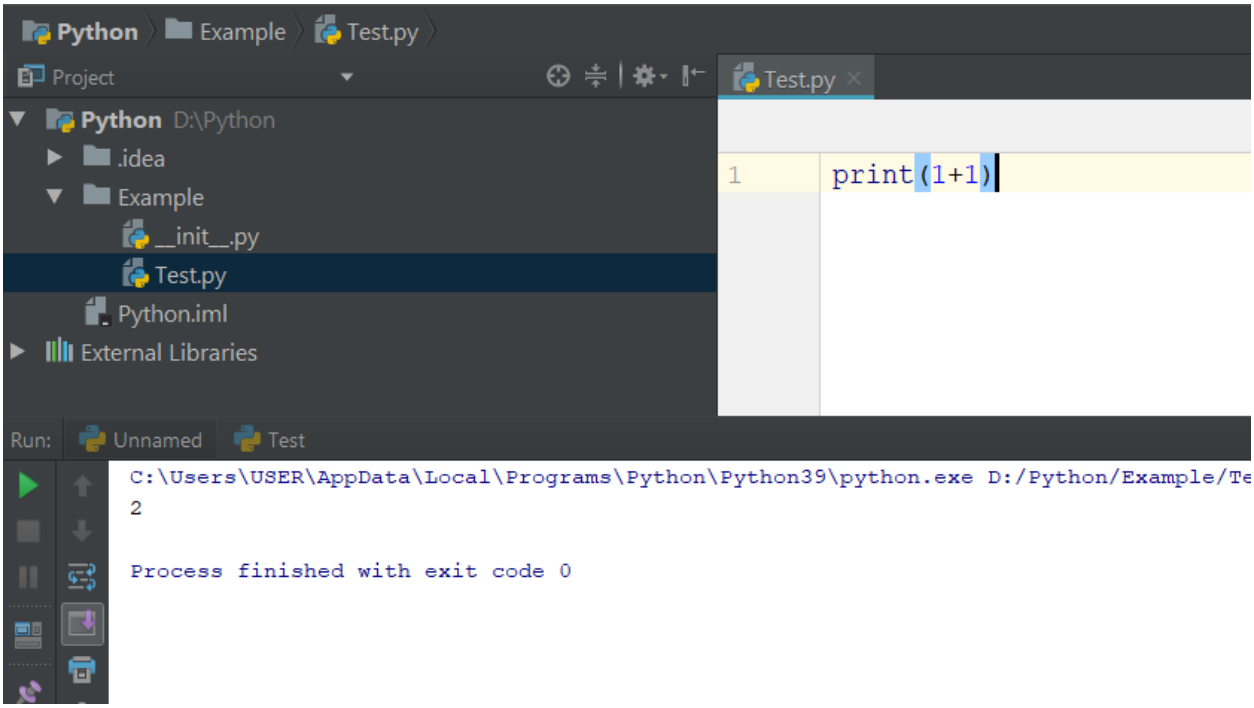
Figure 7. Python perspective in Eclipse.

Exercises:

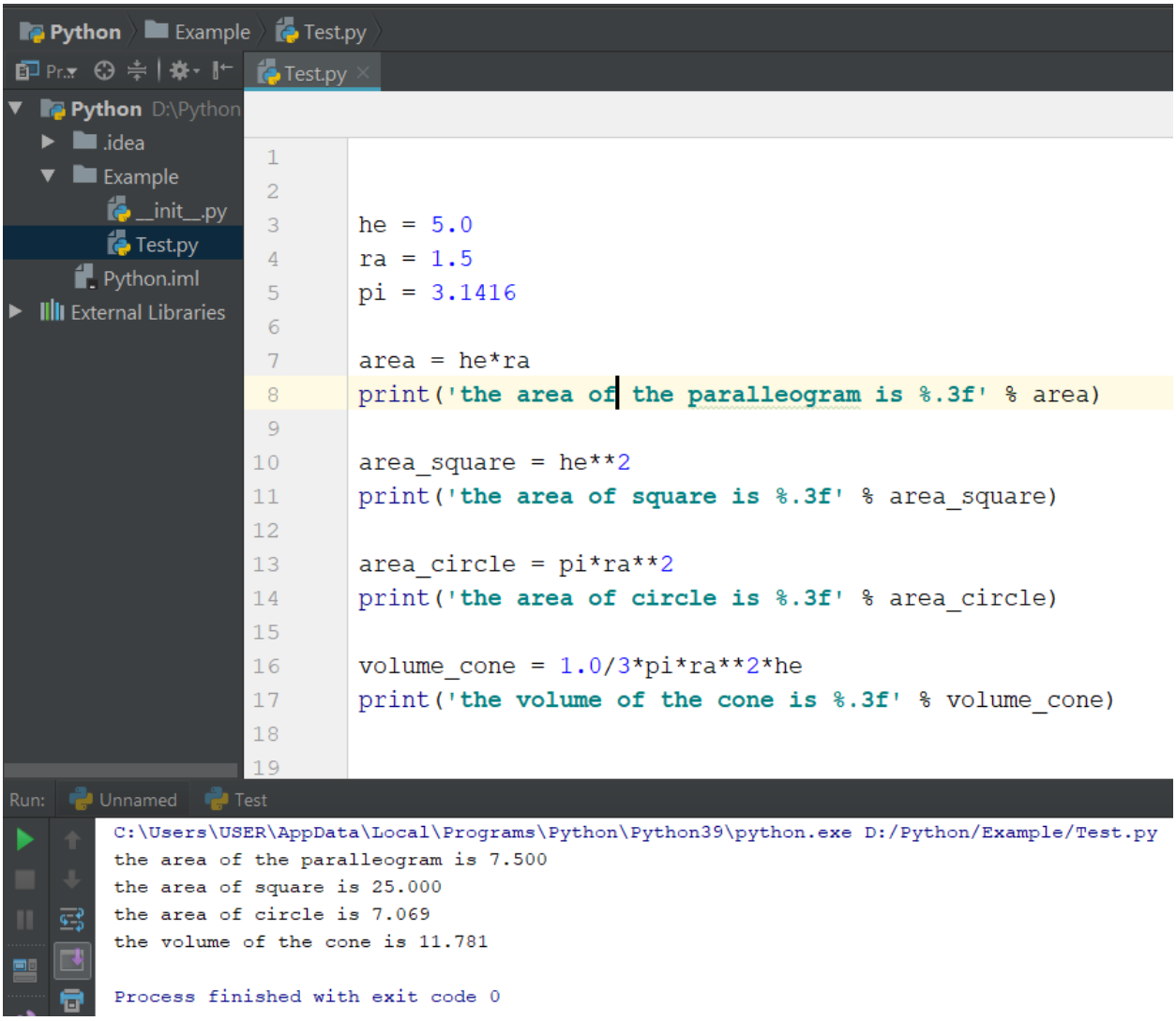
Exercise 4.1.2: Write a Hello World



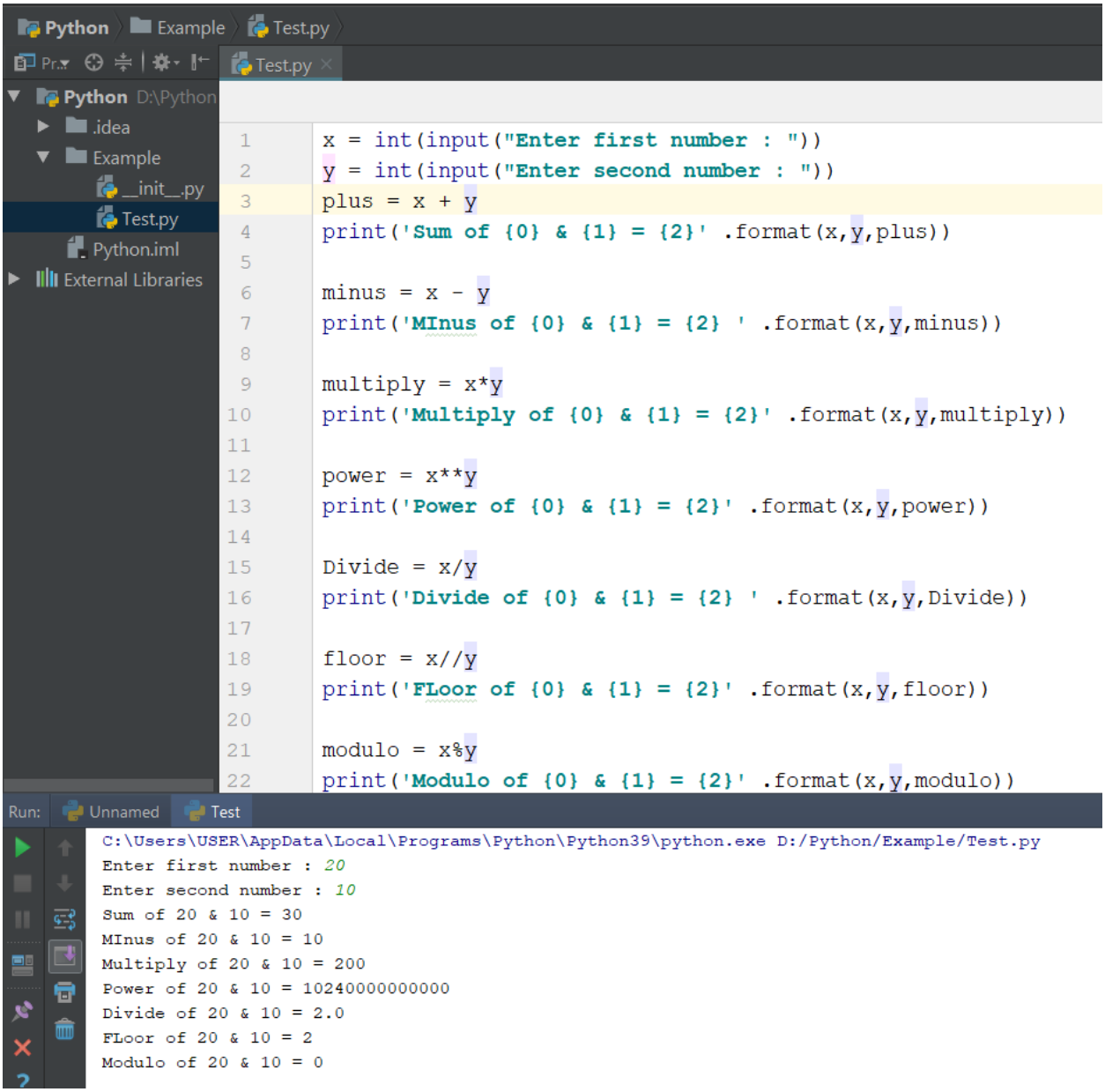
Exercise 4.1.3: Compute 1+1



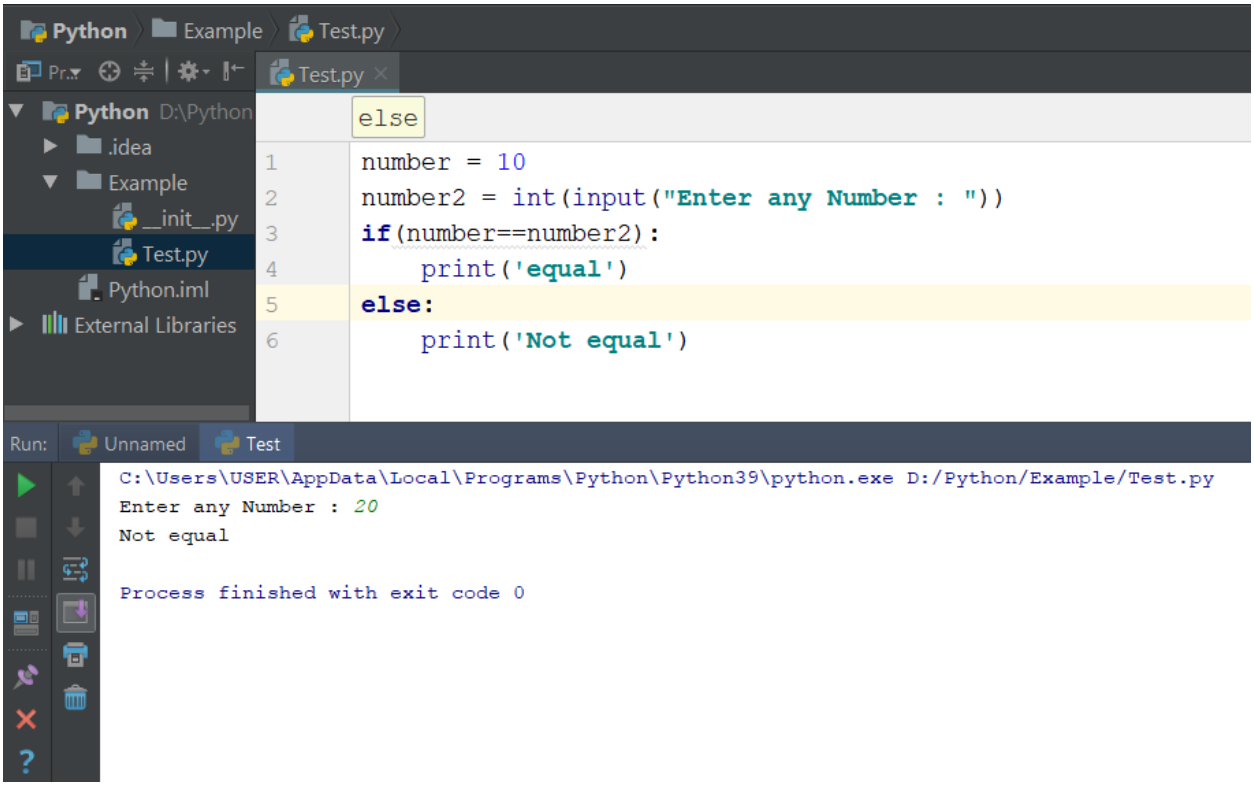
Exercise 4.1.4: Type in program text



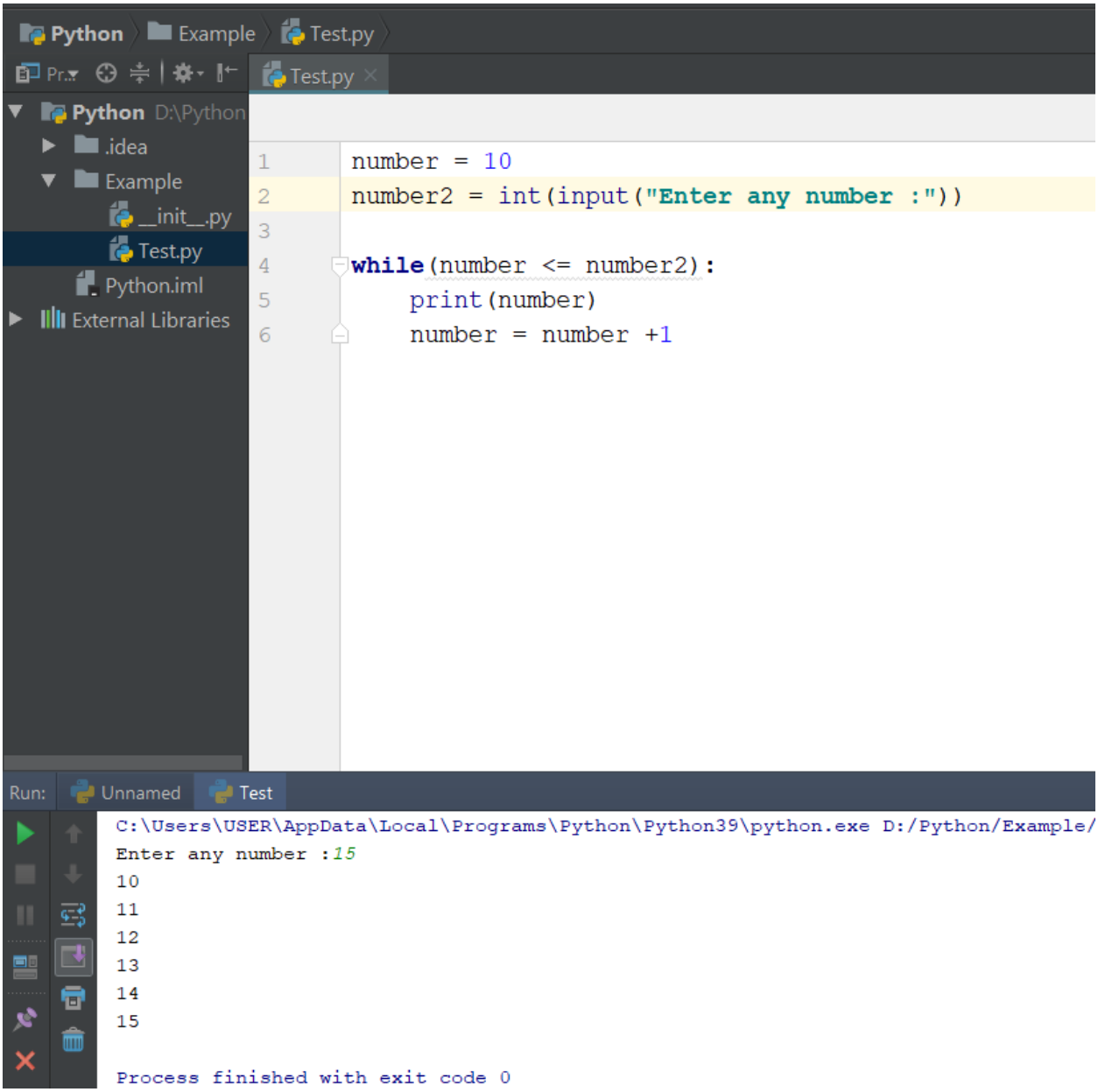
Section 4.2.1: Create and run basic example.



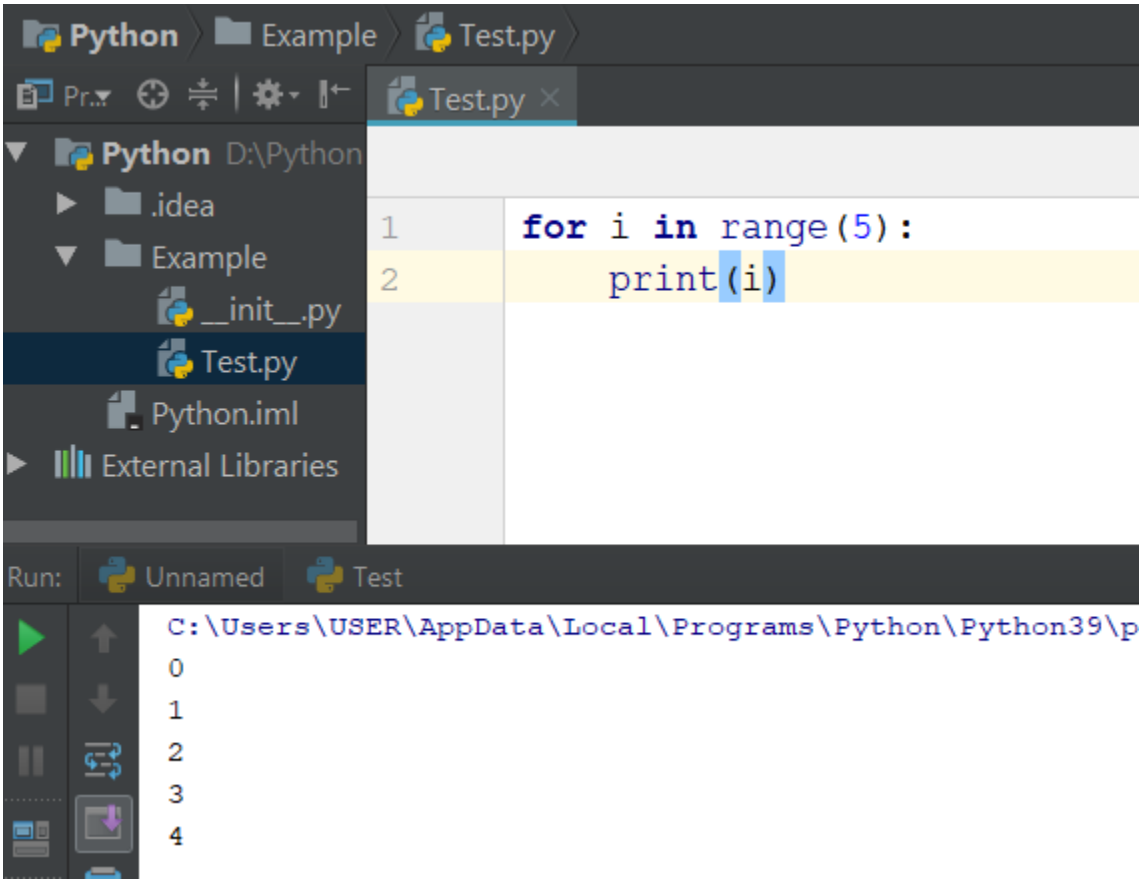
Exercise 4.2.2: The if statement:



Exercise 4.2.3: The while Statement



Exercise 4.2.4: The for Statement



Question 5.1: Explain what is eclipse? And why we use it for programing on python?

Answer:

Eclipse is an integrated development environment (IDE) used in computer programming. It contains a base workspace and an extensible plug-in system for customizing the environment. ... It was one of the first IDEs to run under GNU Classpath and it runs without problems under IcedTea.

For python development under Eclipse you can use the PuDev Plugin which is an open source project. So, we use it for programming on python.

Question 5.2: Explain three main characteristics of python that you test in the lab?

Answer:

Features in Python

There are many features in Python, some of which are discussed below –

1. Easy to code:

Python is a very developer-friendly language which means that anyone and everyone can learn to code it in a couple of hours or days. As compared to other object-oriented programming languages like Java, C, C++, and C#, Python is one of the easiest to learn.

2. Open and Free Source:

Python is an open-source programming language which means that anyone can create and contribute to its development. Python has an online forum where thousands of coders gather daily to improve this language further. Along with this python is free to download and use in any operating system, be it Windows, Mac or Linux.

Question 5.3: Which is the difference between empty module and main module when creating a python script?

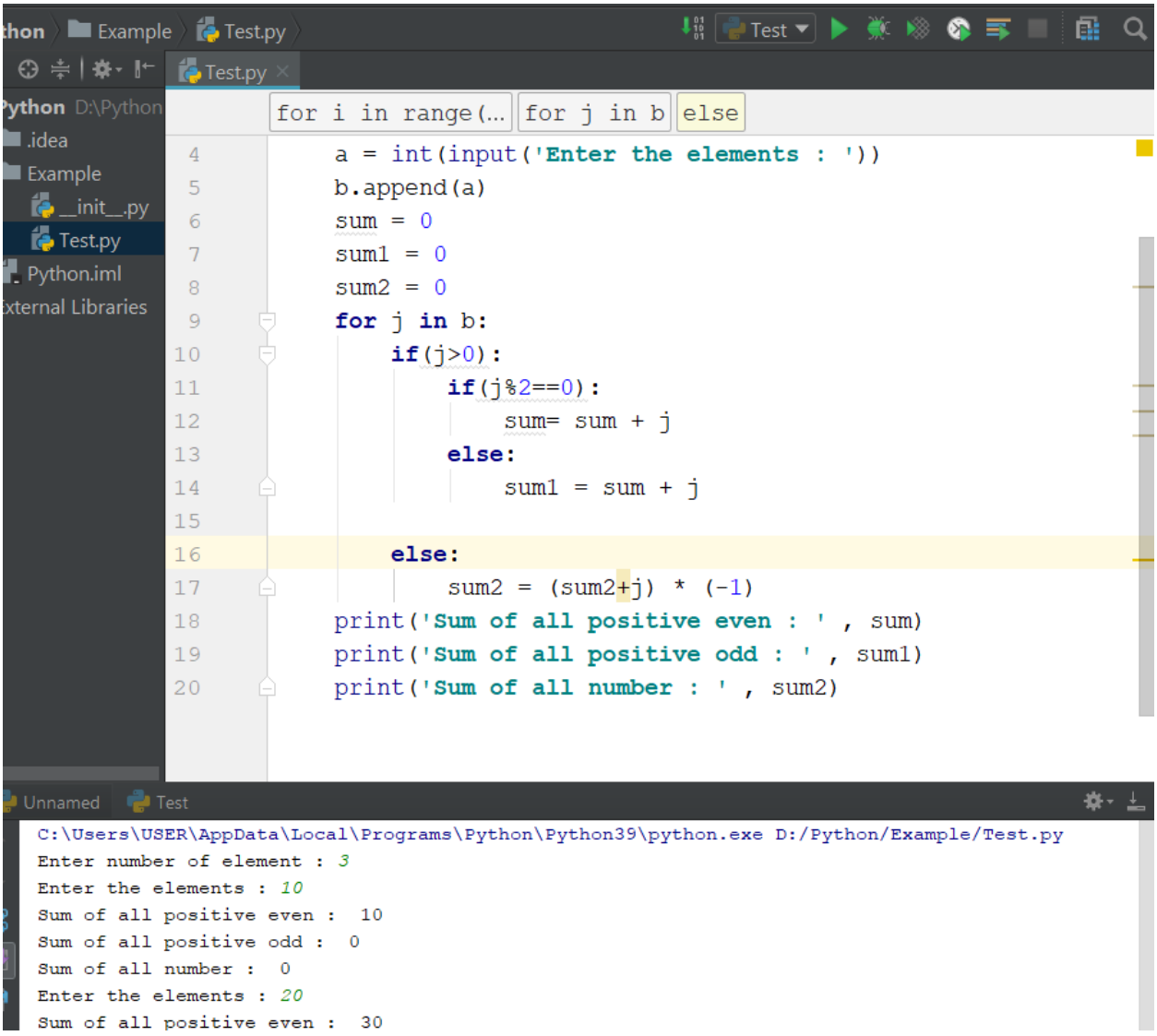
Answer:

A module is a file containing Python code. Python modules can be managed using functions, classes etc.

A module name is the file name with the .py extension. When we have a file called empty.py empty is the module name. The __name__ is a variable that holds the name of the modules being executed called also the main module, has a special name: '__main__'. With this name it can be referenced from the Python code.

Question 5.5: Create a python program that combines at least 4 operators and one statement (if, while or for)

Answer:



Discussion:

In this lab, we can learn setup the python in eclipse, and can execute a python code successfully. 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.