

MAWLANA BHASHANI SCIENCE AND TECHNOLOGY UNIVERSITY

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Lab Report No : 04
Lab Report Name : Introduction to Python
Course Name : Computer Networks Lab

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Introduction to Python

Objective :

- Setup python environment for programing.
- Learn the basics of python.
- Create and run basic examples using python.

Theory :

Definition of Python: Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together.

Main Features of Python:

- Easy to code
- Free and Open Source
- Object-Oriented Language
- GUI Programming Support
- High-Level Language
- Extensible feature
- Python is Portable language
- Python is Integrated language
- Interpreted Language
- Large Standard Library
- Dynamically Typed Language

Setup of Python Environment :

Step 1: Open Eclipse and setup a correct access to Internet.

Step 2: Installing python environment using Eclipse Graphical Interface.

To install PyDev, we need to use **Help > Eclipse Marketplace** and installed PyDev – Python IDE for Eclipse 7.6.0.


Eclipse Marketplace

Select solutions to install. Press Install Now to proceed with installation.
Press the "more info" link to learn more about a solution.




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PyDev - Python IDE for Eclipse 7.6.0
PyDev is a plugin that enables Eclipse to be used as a Python IDE (supporting also Jython and IronPython). It uses advanced type inference techniques which allow... [more info](#)
by [Brainwy Software](#), EPL

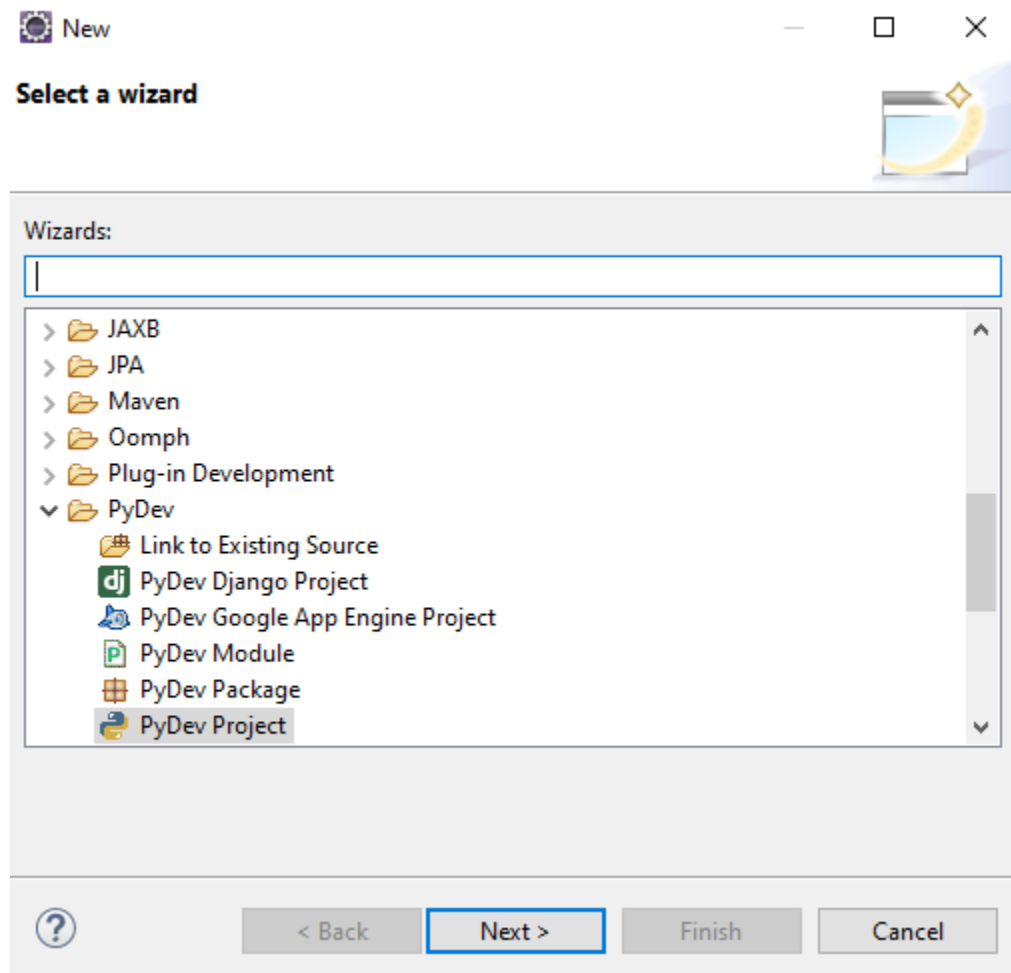
★ 1864 🔄 Installs: **1.41M** (11,381 last month) Installed




Vrapper (Vim) 0.74.0
Vrapper acts as a wrapper for Eclipse text editors to provide a Vim-like input scheme for moving around and editing text. Unlike other plugins which embed Vim in... [more info](#)
by [Vrapper Team](#), GPL

★ 382 🔄 Installs: **188K** (1,331 last month) Install

Step 3 : After installing PyDev, have to go **File > New > Other > PyDev > PyDev Project**.



— □ ×

PyDev Project

Create a new PyDev Project.

Project name:

Project contents:

☒ Use default

Directory

Project type

Choose the project type

☒ Python ☐ Jython ☐ IronPython

Grammar Version

▾

Interpreter

▾

[Click here to configure an interpreter not listed.](#)

Additional syntax validation: <no additional grammars selected>.

☒ Add project directory to the PYTHONPATH

☐ Create 'src' folder and add it to the PYTHONPATH


☐ Create links to existing sources (select them on the next page)

☐ Don't configure PYTHONPATH (to be done manually later on)

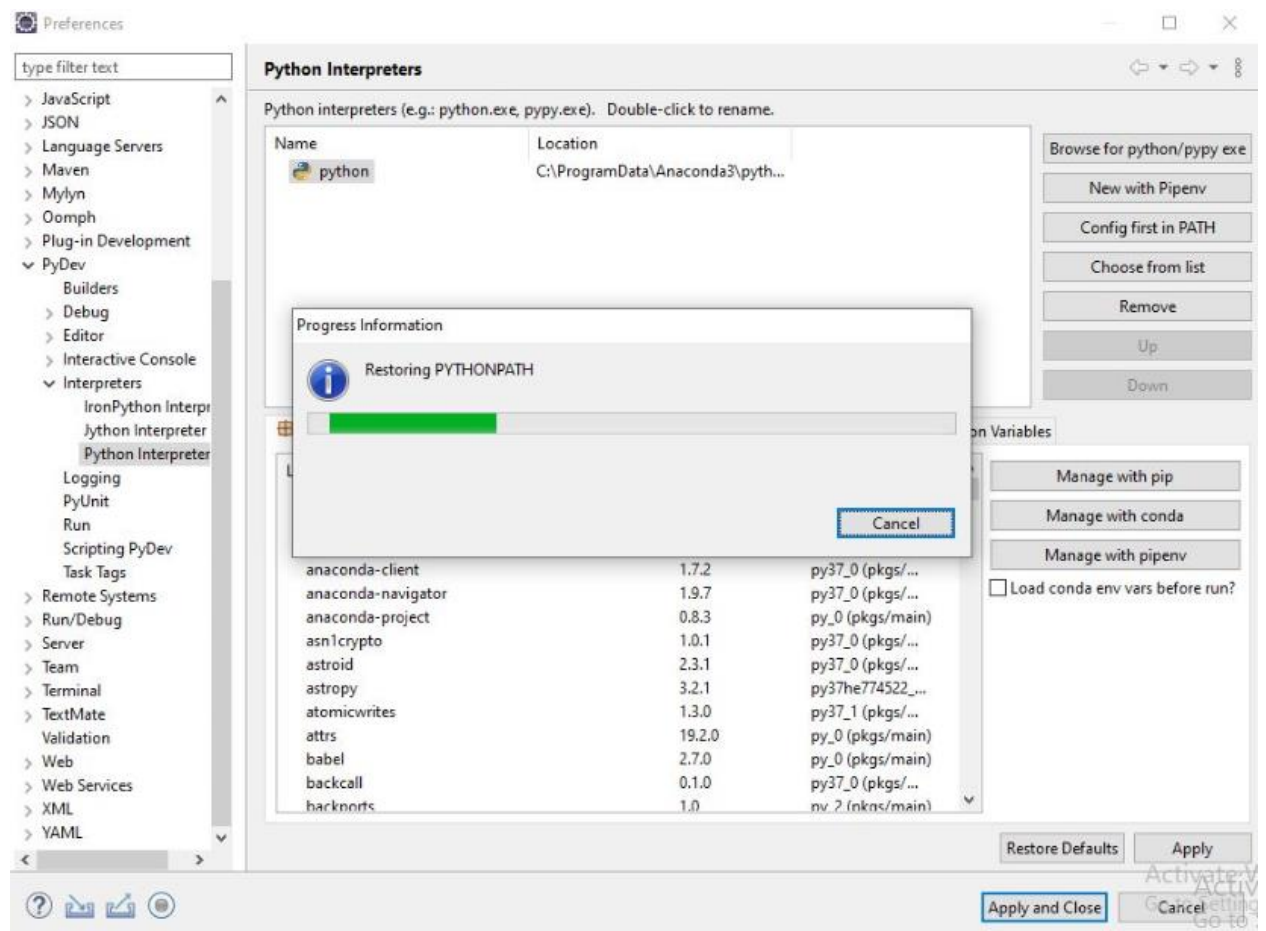
Working sets

☐ Add project to working sets

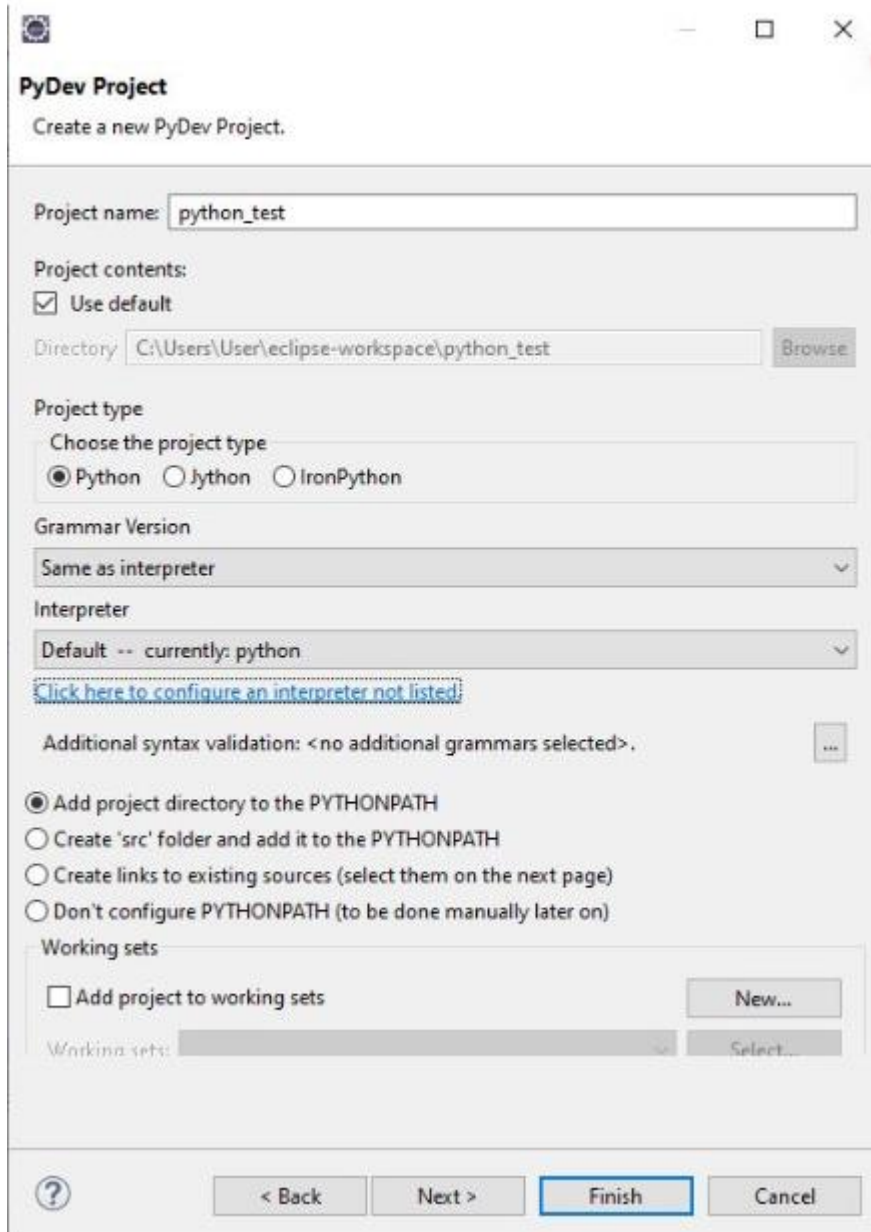
Working sets: ▾



Step 4 : To configure an interpreter , have to go “click here to configure an interpreter not listed” and select “Config first in PATH”.



Step 5 : Then, give a project name and click “Finish” button.



The image shows the 'PyDev Project' dialog box in Eclipse. The title bar says 'PyDev Project' and the subtitle is 'Create a new PyDev Project.' The dialog is divided into several sections. The 'Project name' field contains 'python_test'. The 'Project contents' section has a checked 'Use default' checkbox. The 'Directory' field shows 'C:\Users\User\eclipse-workspace\python_test' with a 'Browse' button. The 'Project type' section has a 'Choose the project type' label and three radio buttons: 'Python' (selected), 'Jython', and 'IronPython'. The 'Grammar Version' dropdown is set to 'Same as interpreter'. The 'Interpreter' dropdown is set to 'Default -- currently: python' with a link below it that says 'Click here to configure an interpreter not listed'. The 'Additional syntax validation' section shows '<no additional grammars selected>' with a button to the right. The 'Working sets' section has a checkbox 'Add project to working sets' which is unchecked, a 'New...' button, and a 'Working sets:' dropdown with a 'Select...' button. At the bottom, there are four buttons: a help button '?', '< Back', 'Next >', and 'Finish' (which is highlighted with a blue border), and a 'Cancel' button.

PyDev Project
Create a new PyDev Project.

Project name:

Project contents:
☒ Use default

Directory:

Project type
Choose the project type
☒ Python ☐ Jython ☐ IronPython

Grammar Version

Interpreter

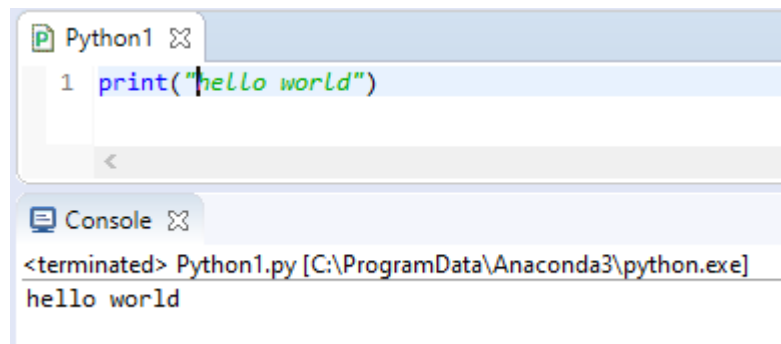
[Click here to configure an interpreter not listed](#)

Additional syntax validation: <no additional grammars selected>

☒ Add project directory to the PYTHONPATH
☐ Create 'src' folder and add it to the PYTHONPATH
☐ Create links to existing sources (select them on the next page)
☐ Don't configure PYTHONPATH (to be done manually later on)

Working sets
☐ Add project to working sets
Working sets:

Exercise 4.1.2: Write a Hello World program

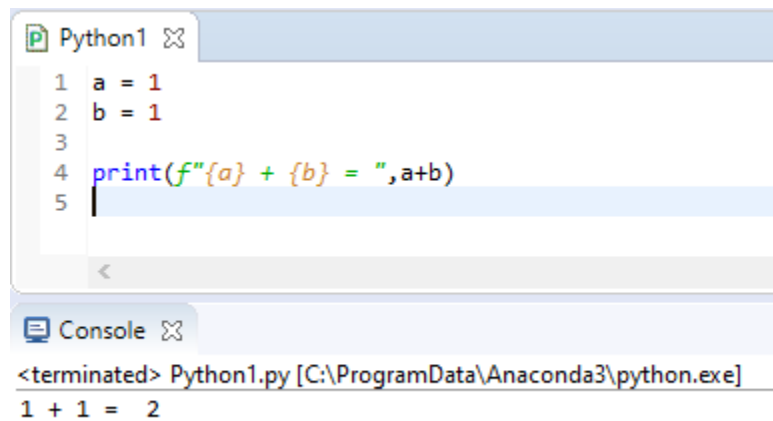


The screenshot shows a Python IDE with a file named 'Python1.py'. The code in the editor is a single line: `print("hello world")`. Below the editor is a console window showing the output: `<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]` followed by `hello world`.

```
Python1
1 print("hello world")

Console
<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]
hello world
```

Exercise 4.1.3: Compute 1+1

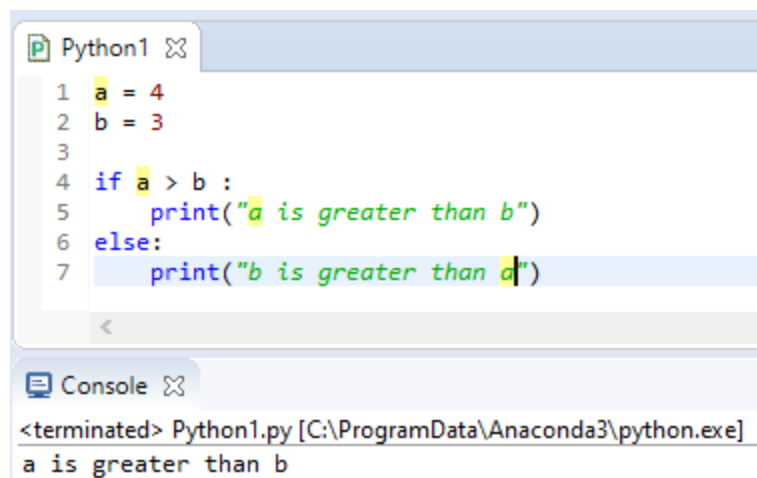


The screenshot shows a Python IDE with a file named 'Python1.py'. The code in the editor is: `a = 1`, `b = 1`, and `print(f"{a} + {b} = ", a+b)`. Below the editor is a console window showing the output: `<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]` followed by `1 + 1 = 2`.

```
Python1
1 a = 1
2 b = 1
3
4 print(f"{a} + {b} = ", a+b)
5

Console
<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]
1 + 1 = 2
```

Exercise 4.2.2: The if statement:



The screenshot shows a Python IDE with a file named 'Python1.py'. The code in the editor is: `a = 4`, `b = 3`, and an `if` statement: `if a > b :` followed by `print("a is greater than b")` and an `else:` block with `print("b is greater than a")`. Below the editor is a console window showing the output: `<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]` followed by `a is greater than b`.

```
Python1
1 a = 4
2 b = 3
3
4 if a > b :
5     print("a is greater than b")
6 else:
7     print("b is greater than a")

Console
<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]
a is greater than b
```


Exercise 4.2.3: The while Statement

```
Python1
1 y = 1
2 while y<4:
3     print(y,end=" ")
4     y = y+1

Console
<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]
1 2 3
```

Exercise 4.2.4: The for Statement

```
Python1
1 num = [10,20,30]
2 sum = 0
3 for x in num:
4     sum = sum + x
5
6 print(sum)
7

Console
<terminated> Python1.py [C:\ProgramData\Anaconda3\python.exe]
60
```

Conclusion : In this lab, we have learned how to setup python environment for programming and learn basic program of python.