Lab Report No: 04

Lab Report Name: Introduction to Python

Name: Mahade Hasan

ID: IT-17040

Definition

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

Features or characteristics:

1.Simple
2.Easy to learn
3. Free and Open Source
4.Portable
5.High-Level Language
6.Multi-Platform
7.Interpreted
8.Object Oriented
9. Extensible
10. Embeddable
11. Extensive Libraries

3. Methodology

Section 3.1: Setup of Python Environment

STEP 1: Open Eclipse and setup a correct access to Internet

STEP 2: Installing python environment using Eclipse Graphical Interface1:

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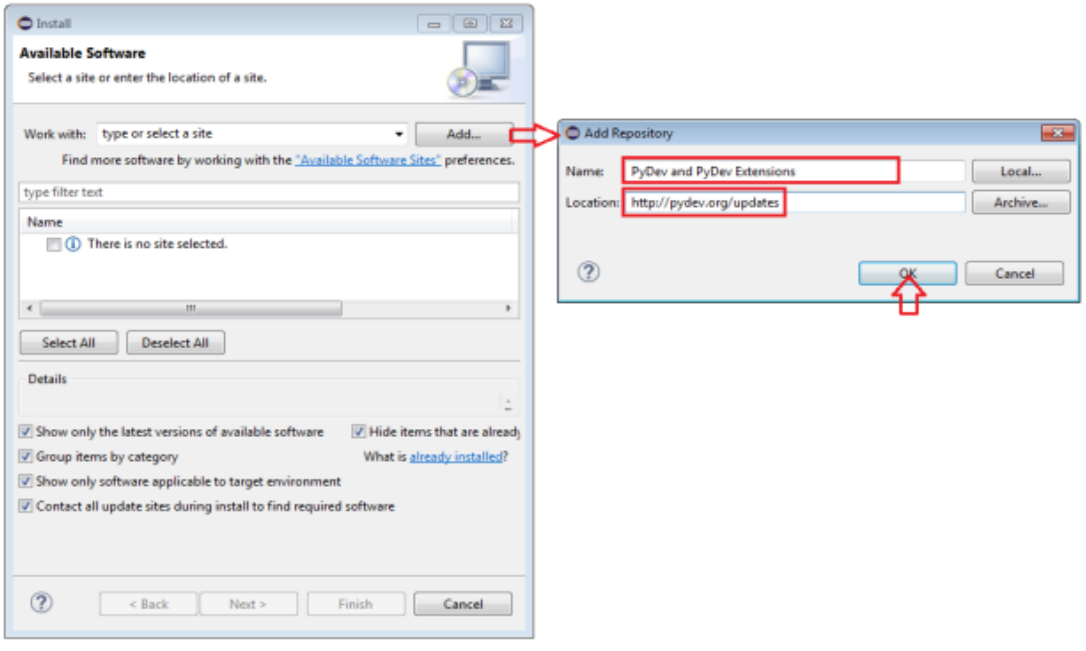
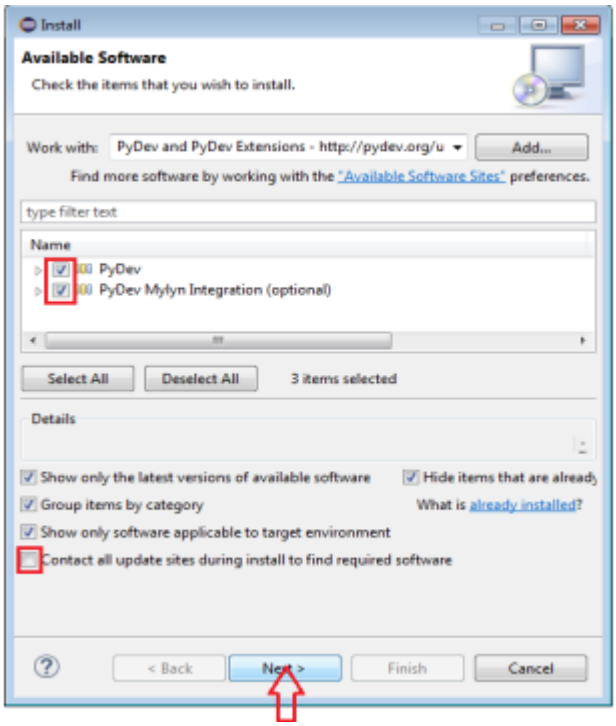
1. To install PyDev and PyDev Extensions using the Eclipse Update Manager, you needto use the Help > Install New Software... menu (note that in older versions, this would be the 'Find and Install' menu) as shown in the following figure:

2. In the next screen, add the update site(s) you want to work with (see the figurebelow). The available update sites are (see Figure):
* http://pydev.org/updates

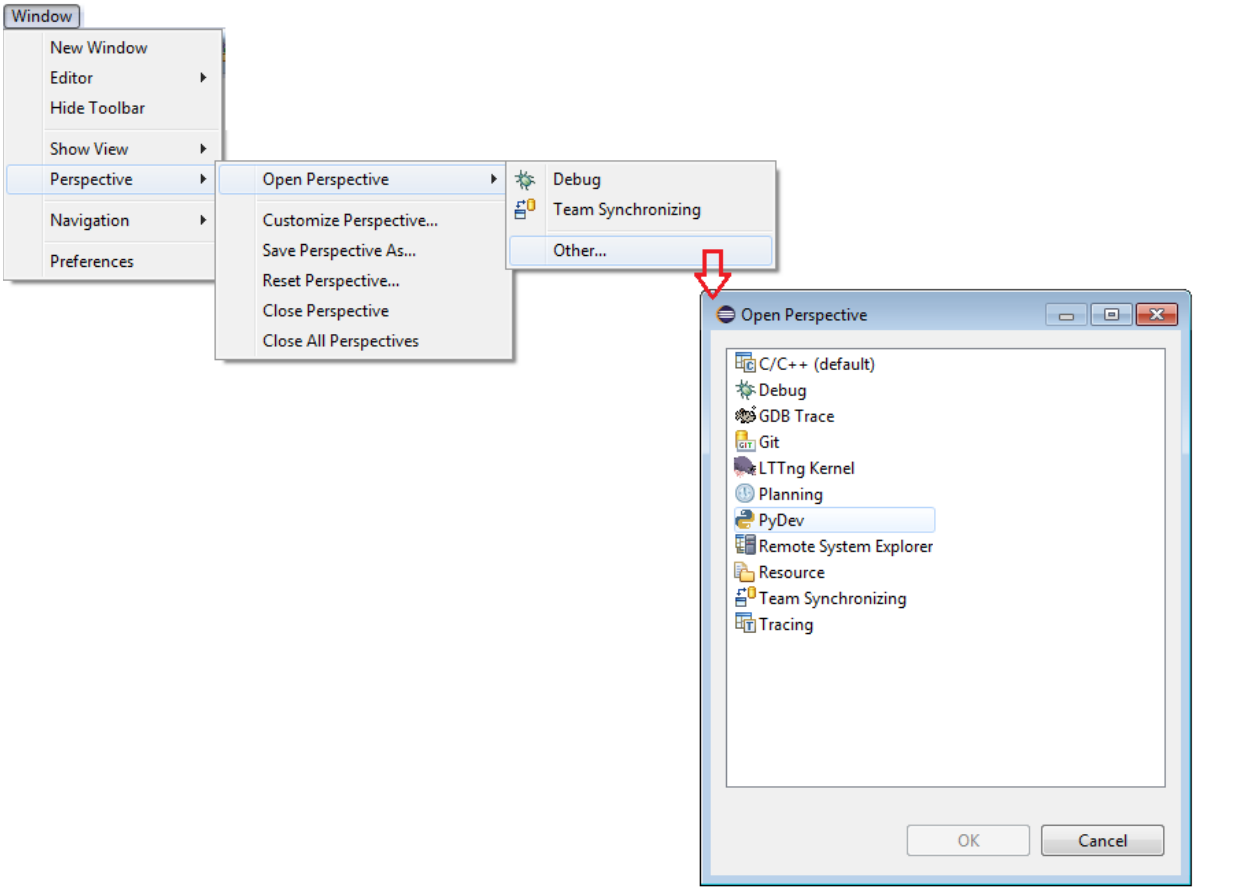


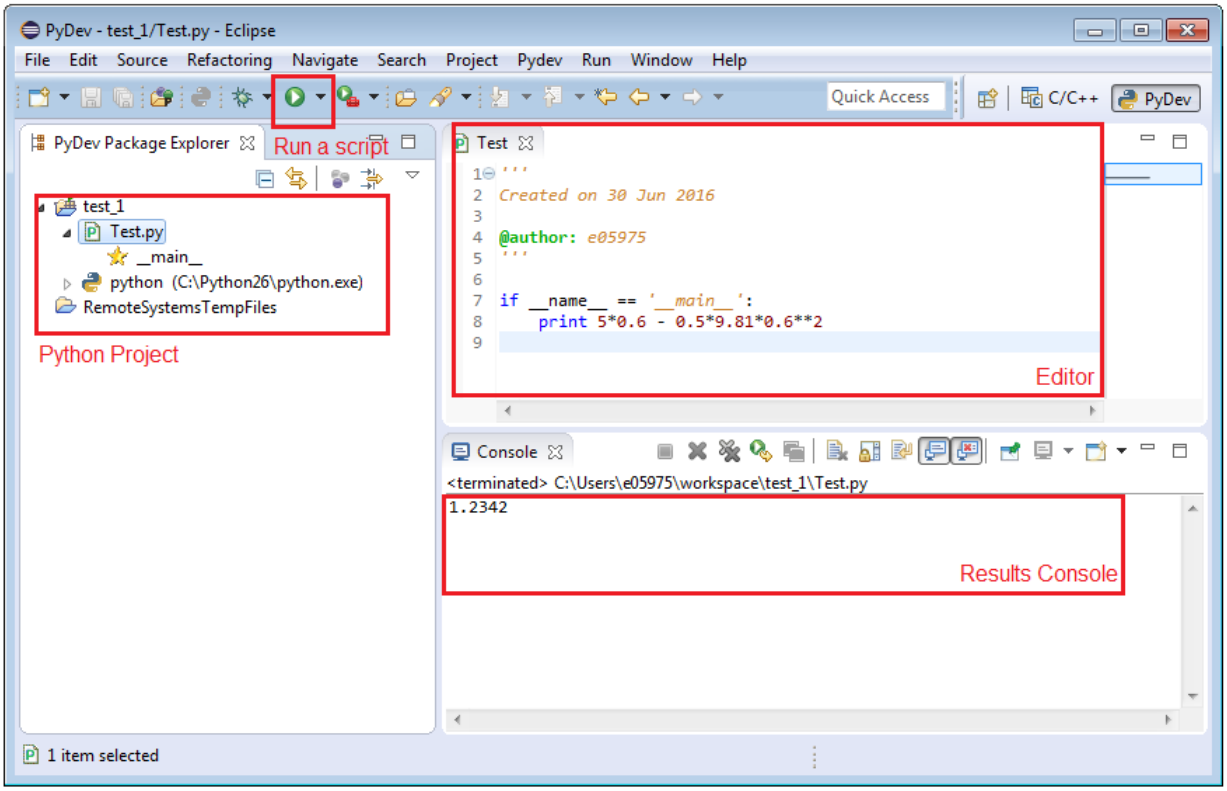
2. After entering the update sites, select the update site you entered or select "All available sites" and add a filter for PyDev, so that it shows the contents of all the update sites that have PyDev, then select what you want to install and click 'Next'



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. After that eclipse will display the graphical interface for python perspective, the main components are (see Figure 8):

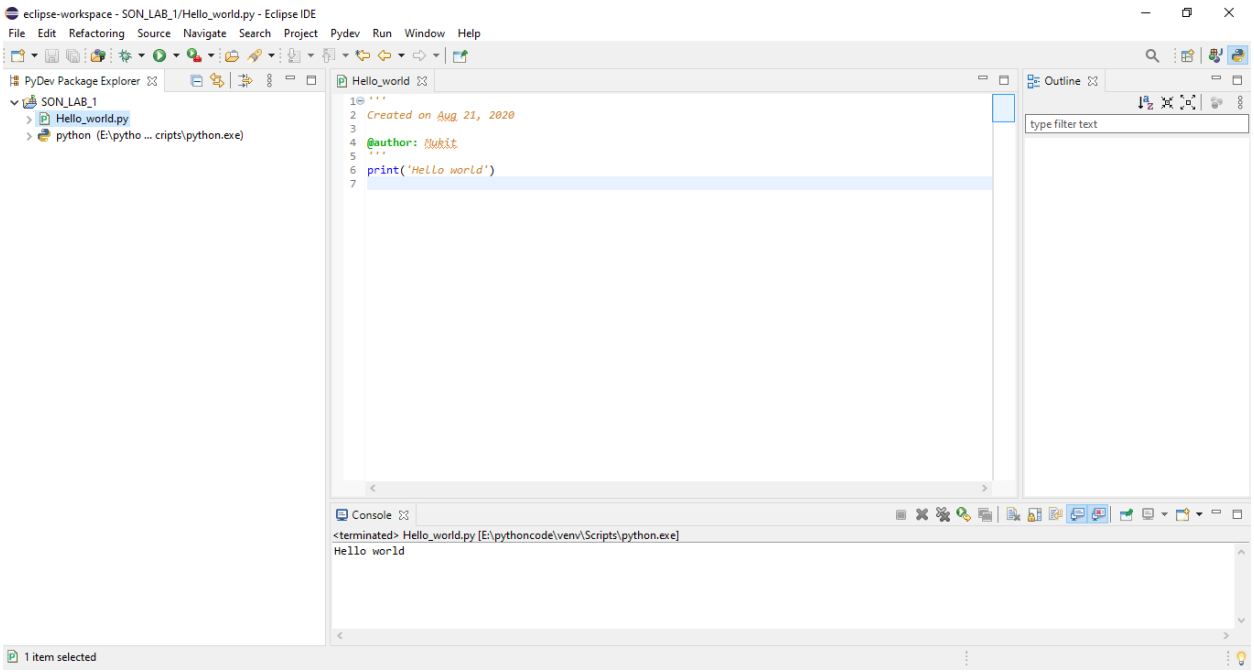
- Project space is the section where all your python projects are visualized,
- Project Editor is the section where python scripts can be edited,
- Console allows the visualization of results father running a python script,


Window
New Window
Editor
Hide Toolbar
Show View
Perspective
Navigation
Preferences
Open Perspective
Customize Perspective...
Save Perspective As...
Reset Perspective...
Close Perspective
Close All Perspectives
Debug
Team Synchronizing
Other...
Open Perspective
C/C++ (default)
Debug
GDB Trace
Git
LTTng Kernel
Planning
PyDev
Remote System Explorer
Resource
Team Synchronizing
Tracing
OK
Cancel

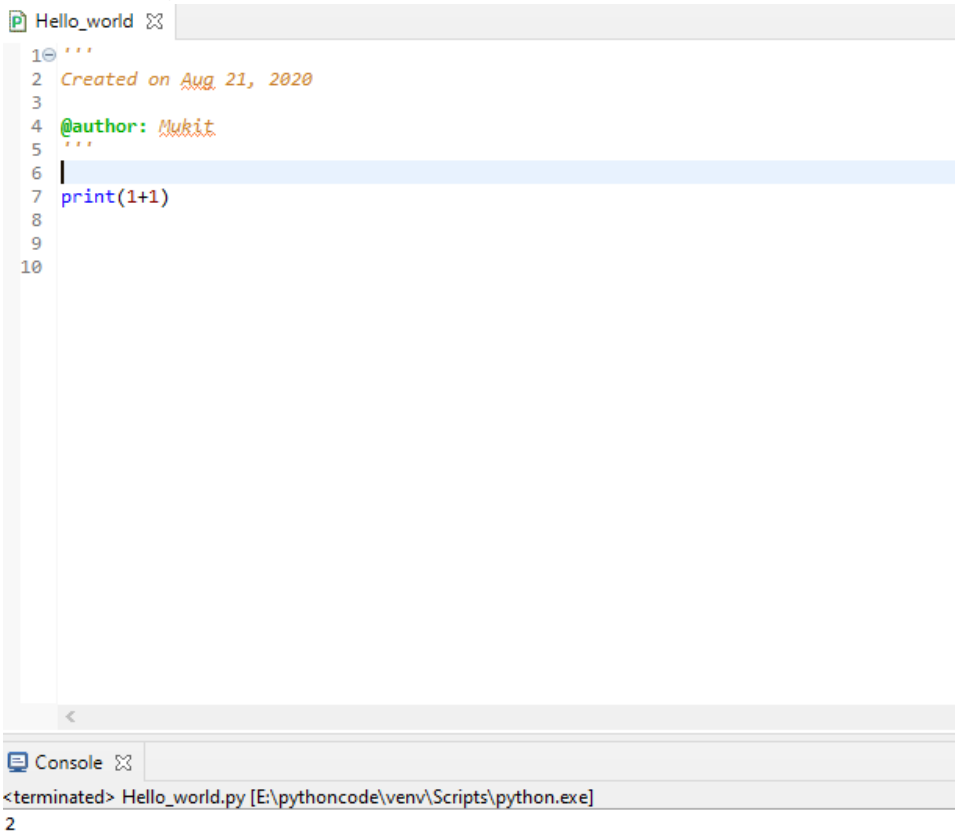

PyDev - test_1/Test.py - Eclipse
File Edit Source Refactoring Navigate Search Project Pydev Run Window Help
Quick Access
C/C++
PyDev
PyDev Package Explorer
Run a script
test_1
Test.py
__main__
python (C:\Python26\python.exe)
RemoteSystemsTempFiles
Python Project
Test
'''
Created on 30 Jun 2016
@author: e05975
'''
if __name__ == '__main__':
print 5*0.6 - 0.5*9.81*0.6**2
Editor
Console
<terminated> C:\Users\e05975\workspace\test_1\Test.py
1.2342
Results Console
1 item selected

Exercise:

4.1.2:Print Hello world



4.1.3compute 1+1



4.1.4.Type in programe test

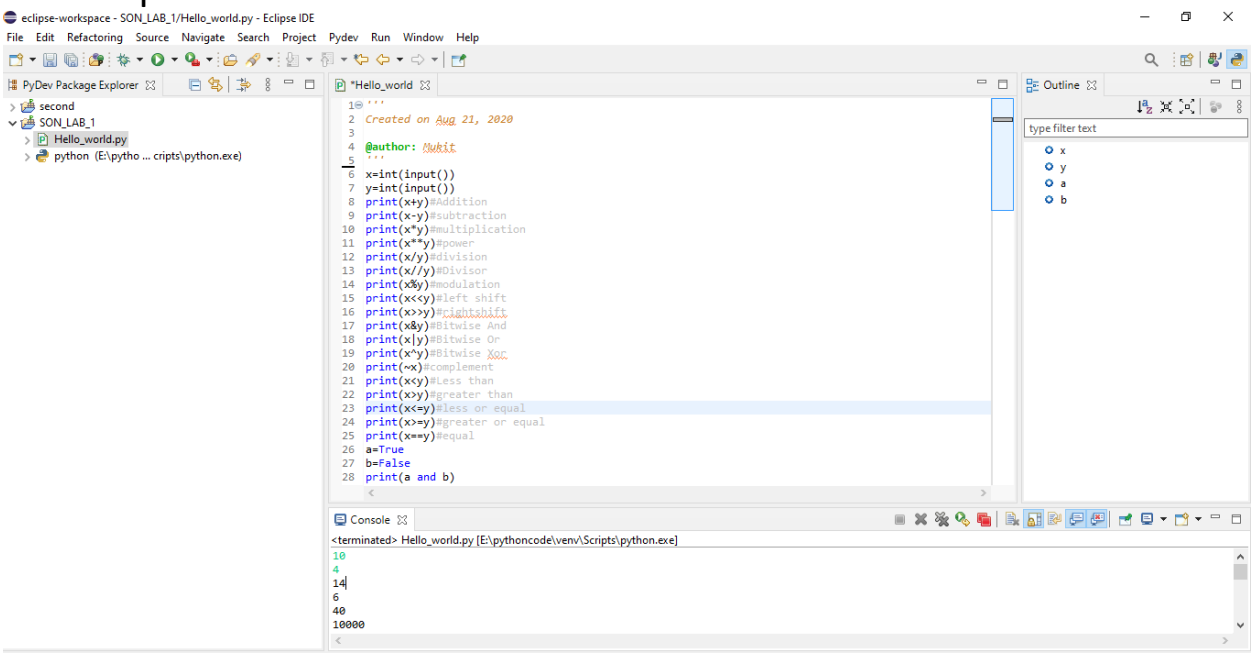
```
'''
Created on Aug 21, 2020

@author: Nkit
'''

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)
```

Console

<terminated> Hello_world.py [E:\pythoncode\venv\Scripts\python.exe]

```
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
```

4.2.1 Expression



4.2.2 **IF Statement:**

```
'''
Created on Aug 21, 2020

@author: Mukit
'''
n=5
if(n<4):
    print(" less han four")
else:
    print("greater than four")
```

Console

```
<terminated> Hello_world.py [E:\pythoncode\venv\Scripts\python.exe]
greater than four
```

4.2.3 While Loop

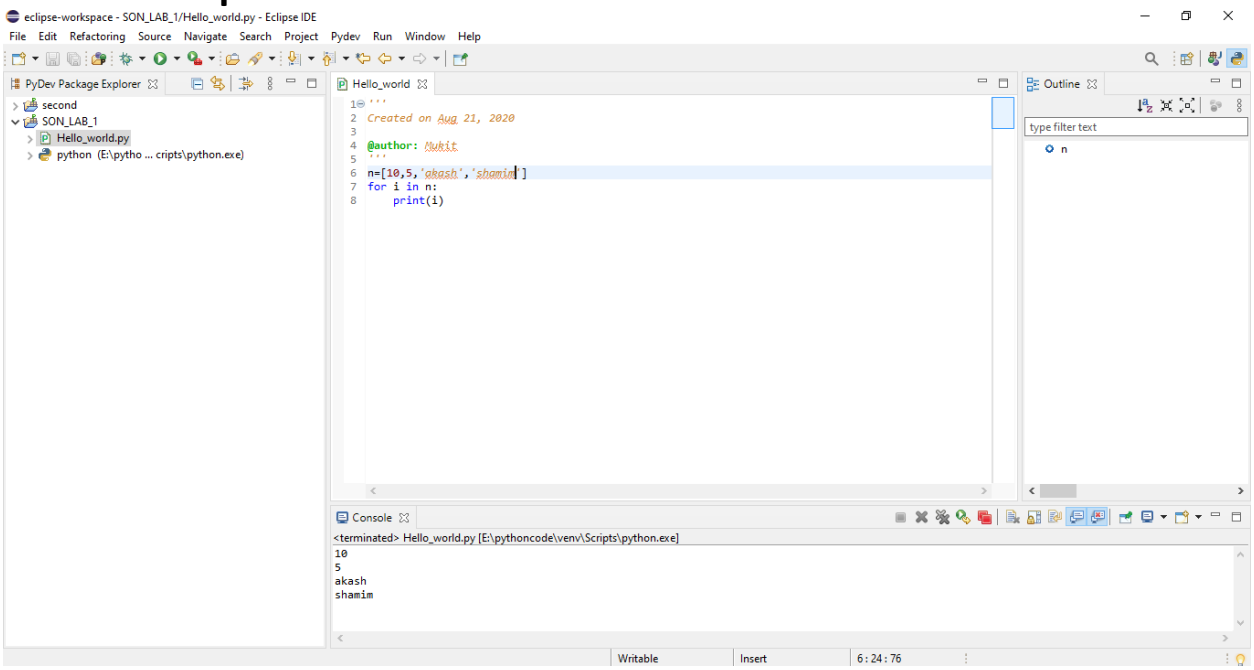
Hello_world

```
'''
Created on Aug 21, 2020

@author: Mukit
'''
n=5
while(n>1):
    print(n)
    n=n-1
```

Console

```
<terminated> Hello_world.py [E:\pythoncode\venv\Scripts\python.exe]
5
4
3
2
```

4.2.4 for loop


eclipse-workspace - SON_LAB_1/Hello_world.py - Eclipse IDE
File Edit Refactoring Source Navigate Search Project Pydev Run Window Help
PyDev Package Explorer
second
SON_LAB_1
Hello_world.py
python (E:\pytho ... cripts\python.exe)
Hello_world
'''
Created on Aug 21, 2020
@author: Mukit
'''
n=[10,5,'akash','shamim']
for i in n:
print(i)
Outline
type filter text
n
Console
<terminated> Hello_world.py [E:\pythoncode\venv\Scripts\python.exe]
10
5
akash
shamim
Writable
Insert
6 : 24 : 76