



Mawlana Bhashani Science And Technology University

Lab-Report

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Lab Report Name: introduction to python

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1 . Objectives :

Learn the basics of python.

Create and run basic examples using python.

2 . Theory :

Definition of Python: The official definition of Python is: 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, together

with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

Main Features of Python: The main features of Python are:

- ❑ Simple: Python is a simple and minimalistic language. This pseudo-code nature of Python is one of its greatest strengths.

❑ Easy to Learn: Python is extremely easy to get started with. Python has an extraordinarily simple syntax.

❑ Free and Open Source: Python is an example of FLOSS (Free/Libré and Open Source

Software). In simple terms, you can freely distribute copies of this software, read it's

source code, make changes to it, use pieces of it in new free programs, and that you know

you can do these things. FLOSS is based on the concept of a community which shares knowledge.

❑ High-level Language: When you write programs in Python, you never need to bother about the low-level details such as managing the memory used by your program, etc.

❑ Portable: Due to its open-source nature, Python has been ported (i.e. changed to make it

work on) to many platforms. All your Python programs can work on any of these

platforms without requiring any changes at all if you are careful enough to avoid any system-dependent features.

❑ Multi-Platform: Python can be used on Linux, Windows, FreeBSD, Macintosh, Solaris,

OS/2, Amiga, AROS, AS/400, BeOS, OS/390, z/OS, Palm OS, QNX, VMS, Psion,

Acorn RISC OS, VxWork, PlayStation, Sharp Zaurus, Windows CE and even PocketPC.

❓ Interpreted: Python does not need compilation to binary. You just run the program directly from the source code. Internally, Python converts the source code . intermediate form called byte codes and then translates this into the native language of your computer and then runs it. All this, actually, makes using Python much easier since you don't have to worry about compiling the program, making sure that the proper libraries are linked and loaded, etc, etc. This also makes your Python programs much more portable, since you can just copy your Python program onto another computer and it just works!

❓ Object Oriented: Python supports procedure-oriented programming as well as object oriented programming. In procedure-oriented languages, the program is built around procedures or functions which are nothing but reusable pieces of programs. In object-oriented languages, the program is built around objects which combine data and functionality.

❓ Extensible: If you need a critical piece of code to run very fast or want to have some piece of algorithm not to be open, you can code that part

of your programming C or C++ and then use them from your Python program.

❑ Embeddable: You can embed Python within your C/C++ programs to give 'scripting' capabilities for your program's users.

❑ Extensive Libraries: The Python Standard Library is huge indeed. It can help you do various things involving regular expressions, documentation generation, unit testing, threading, databases, web browsers, CGI, ftp, email, XML, XML-RPC, HTML, WAV files, cryptography, GUI (graphical user interfaces), Tk, and other system-dependent stuff. Remember, all this is always available wherever Python is installed.

3. Methodology :

Setup of Python Environment:

```
shamim@shamim-HP-ProBook-450-G5: ~  
File Edit View Search Terminal Help  
[sudo] password for shamim:  
sudo: update: command not found  
shamim@shamim-HP-ProBook-450-G5:~$ sudo apt update  
Hit:1 http://ppa.launchpad.net/deadsnakes/ppa/ubuntu bionic InRelease  
Hit:2 http://dl.google.com/linux/chrome/deb stable InRelease  
Hit:3 http://security.ubuntu.com/ubuntu bionic-security InRelease  
Hit:4 http://bd.archive.ubuntu.com/ubuntu bionic InRelease  
Hit:5 http://ppa.launchpad.net/ondrej/php/ubuntu bionic InRelease  
Hit:6 https://packages.microsoft.com/repos/vscode stable InRelease  
Get:7 http://bd.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]  
Get:8 http://bd.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]  
Get:9 http://bd.archive.ubuntu.com/ubuntu bionic-updates/main i386 Packages [1,181 kB]  
Get:10 http://bd.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [1,814 kB]  
Get:11 http://bd.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [214 kB]  
Get:12 http://bd.archive.ubuntu.com/ubuntu bionic-updates/restricted i386 Packages [17.4 kB]  
Get:13 http://bd.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1,700 kB]  
Get:14 http://bd.archive.ubuntu.com/ubuntu bionic-updates/universe i386 Packages [1,549 kB]  
Get:15 http://bd.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 Packages [35.4 kB]  
Get:16 http://bd.archive.ubuntu.com/ubuntu bionic-updates/multiverse i386 Packages [14.0 kB]  
Fetched 6,688 kB in 43s (154 kB/s)  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
All packages are up to date.  
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.l  
ist:3  
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.l  
ist:3  
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vsco  
de.list:3  
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.  
list:3  
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode  
.list:3  
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.l  
ist:3  
W: Target DEP-11-icons-small (main/dep11/icons-48x48.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d  
/vscode.list:3  
W: Target DEP-11-icons (main/dep11/icons-64x64.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vsco
```

```
shamim@shamim-HP-ProBook-450-G5: ~  
File Edit View Search Terminal Help  
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.l  
ist:3  
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vsco  
de.list:3  
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.  
list:3  
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode  
.list:3  
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.l  
ist:3  
W: Target DEP-11-icons-small (main/dep11/icons-48x48.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d  
/vscode.list:3  
W: Target DEP-11-icons (main/dep11/icons-64x64.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vsco  
de.list:3  
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
shamim@shamim-HP-ProBook-450-G5:~$ sudo apt install software-properties-common  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
software-properties-common is already the newest version (0.96.24.32.14).  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
shamim@shamim-HP-ProBook-450-G5:~$ sudo add-apt-repository ppa:deadsnakes/ppa  
  
This PPA contains more recent Python versions packaged for Ubuntu.  
  
Disclaimer: there's no guarantee of timely updates in case of security problems or other issues. If you want to use them in a security-or-oth  
erwise-critical environment (say, on a production server), you do so at your own risk.  
  
Update Note  
=====
```

Please use this repository instead of ppa:fkruhl/deadsnakes.

```
Reporting Issues  
=====
```

Issues can be reported in the master issue tracker at:
<https://github.com/deadsnakes/issues/issues>


```
shamim@shamim-HP-ProBook-450-G5: ~  
File Edit View Search Terminal Help  
es those packages.  
- Note: for focal, older python versions require libssl1.0.x so they are not currently built  
The packages may also work on other versions of Ubuntu or Debian, but that is not tested or supported.  
Packages  
=====
```

The packages provided here are loosely based on the debian upstream packages with some modifications to make them more usable as non-default python3 and on ubuntu. As such, the packages follow debian's patterns and often do not include a full python distribution with just 'apt install python3.#'. Here is a list of packages that may be useful along with the default install:

- 'python3.#-dev': includes development headers for building C extensions
- 'python3.#-venv': provides the standard library 'venv' module
- 'python3.#-distutils': provides the standard library 'distutils' module
- 'python3.#-lib2to3': provides the '2to3-#.#' utility as well as the standard library 'lib2to3' module
- 'python3.#-gdbm': provides the standard library 'dbm.gnu' module
- 'python3.#-tk': provides the standard library 'tkinter' module

```
Third-Party Python Modules  
=====
```

Python modules in the official Ubuntu repositories are packaged to work with the Python interpreters from the official repositories. Accordingly, they generally won't work with the Python interpreters from this PPA. As an exception, pure-Python modules for Python 3 will work, but any compiled extension modules won't.

To install 3rd-party Python modules, you should use the common Python packaging tools. For an introduction into the Python packaging ecosystem and its tools, refer to the Python Packaging User Guide:
<https://packaging.python.org/installing/>

```
Sources  
=====
```

The package sources are available at:
<https://github.com/deadsnakes/>

```
Nightly Builds  
=====
```

```
shamim@shamim-HP-ProBook-450-G5: ~  
File Edit View Search Terminal Help  
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons-small (main/dep11/icons-48x48.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons (main/dep11/icons-64x64.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
N: Skipping acquire of configured file 'main/binary-armhf/Packages' as repository 'https://packages.microsoft.com/repos/vscode stable InRelease' doesn't support architecture 'armhf'  
N: Skipping acquire of configured file 'main/binary-arm64/Packages' as repository 'https://packages.microsoft.com/repos/vscode stable InRelease' doesn't support architecture 'arm64'  
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons-small (main/dep11/icons-48x48.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons (main/dep11/icons-64x64.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3
```

```
shamim@shamim-HP-ProBook-450-G5: ~  
File Edit View Search Terminal Help  
W: Target DEP-11-icons-small (main/dep11/icons-48x48.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons (main/dep11/icons-64x64.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
N: Skipping acquire of configured file 'main/binary-armhf/Packages' as repository 'https://packages.microsoft.com/repos/vscode stable InRelease' doesn't support architecture 'armhf'  
N: Skipping acquire of configured file 'main/binary-arm64/Packages' as repository 'https://packages.microsoft.com/repos/vscode stable InRelease' doesn't support architecture 'arm64'  
W: Target Packages (main/binary-amd64/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Packages (main/binary-all/Packages) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Translations (main/i18n/Translation-en_US) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target Translations (main/i18n/Translation-en) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11 (main/dep11/Components-amd64.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11 (main/dep11/Components-all.yml) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons-small (main/dep11/icons-48x48.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target DEP-11-icons (main/dep11/icons-64x64.tar) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-amd64) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
W: Target CNF (main/cnf/Commands-all) is configured multiple times in /etc/apt/sources.list:52 and /etc/apt/sources.list.d/vscode.list:3  
shamim@shamim-HP-ProBook-450-G5:~$  
shamim@shamim-HP-ProBook-450-G5:~$ sudo apt install python3.8  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
python3.8 is already the newest version (3.8.7-1+bionic1).  
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.  
shamim@shamim-HP-ProBook-450-G5:~$ python3.8 --version  
Python 3.8.7  
shamim@shamim-HP-ProBook-450-G5:~$
```

4. Exercises :

Here I use text editor and linux terminal
to do exercise: **hellow world!:**


```
shamim@shamim-HP-ProBook-450-G5: ~/Desktop
File Edit View Search Terminal Help
shamim@shamim-HP-ProBook-450-G5:~$ ls
codeblocks_17.12-1_amd64.buildinfo
codeblocks_17.12-1_amd64.changes
codeblocks_17.12-1_amd64.deb
codeblocks_17.12-1_amd64_stable.tar.xz
codeblocks-common_17.12-1_all.deb
codeblocks-contrib_17.12-1_amd64.deb
codeblocks-contrib-common_17.12-1_all.deb
codeblocks-dev_17.12-1_amd64.deb
codeblocks-headers_17.12-1_all.deb
codeblocks-libwxcontrib0_17.12-1_amd64.deb
codeblocks-wxcontrib-dev_17.12-1_amd64.deb
codeblocks-wxcontrib-headers_17.12-1_all.deb
composer.phar
core
Desktop
Documents
Downloads
examples.desktop
For2.py
For.py
google-chrome-stable_current_amd64.deb
hgjhg
hgjhg.cpp
hgjhg.o
javasharedresources
libcodeblocks0_17.12-1_amd64.deb
libwxsmithlib0_17.12-1_amd64.deb
libwxsmithlib0-dev_17.12-1_amd64.deb
Music
myproject
Pictures
Public
sum.cpp
Templates
Videos
wxsmith-dev_17.12-1_amd64.deb
wxsmith-headers_17.12-1_all.deb
```

```
shamim@shamim-HP-ProBook-450-G5: ~/Desktop
File Edit View Search Terminal Help
core
Desktop
Documents
Downloads
examples.desktop
For2.py
For.py
google-chrome-stable_current_amd64.deb
hgjhg
hgjhg.cpp
hgjhg.o
javasharedresources
libcodeblocks0_17.12-1_amd64.deb
libwxsmithlib0_17.12-1_amd64.deb
libwxsmithlib0-dev_17.12-1_amd64.deb
Music
myproject
Pictures
Public
sum.cpp
Templates
Videos
wxsmith-dev_17.12-1_amd64.deb
wxsmith-headers_17.12-1_all.deb
shamim@shamim-HP-ProBook-450-G5:~$ cd Desktop
shamim@shamim-HP-ProBook-450-G5:~/Desktop$ ls
helloworld.py
'Screenshot from 2021-01-06 19-25-44.png'
'Screenshot from 2021-01-06 19-26-00.png'
'Screenshot from 2021-01-06 19-26-12.png'
'Screenshot from 2021-01-06 19-26-21.png'
'Screenshot from 2021-01-06 19-26-30.png'
shamim.py
software
'Untitled 1.pdf'
shamim@shamim-HP-ProBook-450-G5:~/Desktop$ python3 helloworld.py
Hello World!
shamim@shamim-HP-ProBook-450-G5:~/Desktop$
```

Compute 1+1:

```
print(1+1)
```

```
shamim@shamim-HP-ProBook-450-G5:~/Desktop$ python3 sum.py
2
shamim@shamim-HP-ProBook-450-G5:~/Desktop$
```

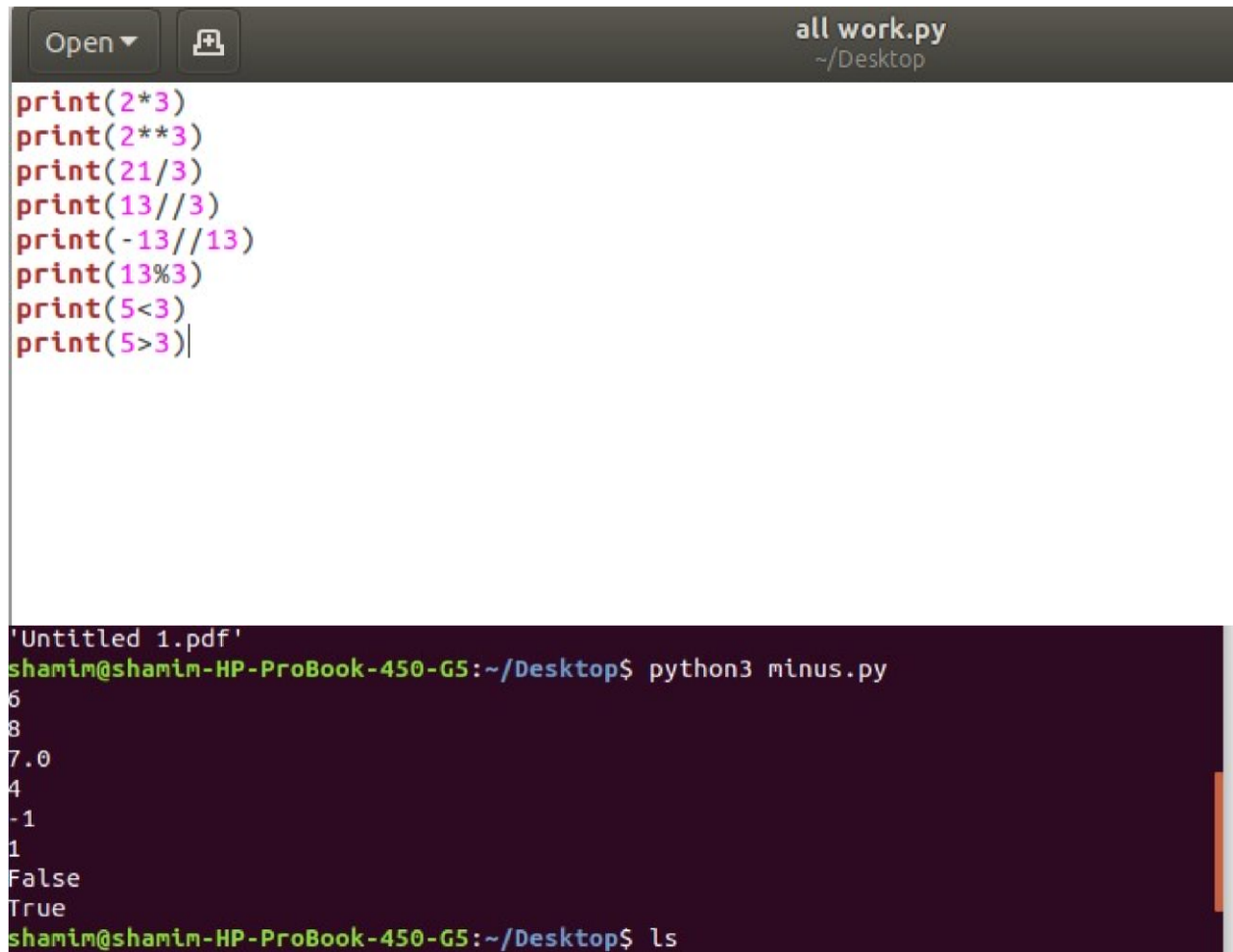
Minus:

```
print(50-24)
```

```
shamim@shamim-HP-ProBook-450-G5:~/Desktop$ python3 diff.py
26
shamim@shamim-HP-ProBook-450-G5:~/Desktop$
```

Divide, Multiple, power, Modulo, Less than, Greater than, Divide and

floor:



The image shows a code editor window titled 'all work.py' located at '~/Desktop'. The code in the editor is as follows:

```
print(2*3)
print(2**3)
print(21/3)
print(13//3)
print(-13//13)
print(13%3)
print(5<3)
print(5>3)|
```

Below the code editor is a terminal window. The prompt is 'shamim@shamim-HP-ProBook-450-G5:~/Desktop\$'. The command executed is 'python3 minus.py'. The output of the program is:

```
6
8
7.0
4
-1
1
False
True
```

The terminal prompt is now 'shamim@shamim-HP-ProBook-450-G5:~/Desktop\$ ls'.

Conditional:

Open ▾



conditional.py

~/Desktop

```
a = 33
b = 200
if b > a:
    print("b is greater than a")

a = 33
b = 33
if b > a:
    print("b is greater than a")
elif a == b:
    print("a and b are equal")

a = 200
b = 33
if b > a:
    print("b is greater than a")
elif a == b:
    print("a and b are equal")
else:
    print("a is greater than b")

a = 2
b = 330
print("A") if a > b else print("B")
```

```

sum.py
'Untitled 1.pdf'
shamim@shamim-HP-ProBook-450-G5:~/Desktop$ python3 conditional.py
b is greater than a
a and b are equal
a is greater than b
B
shamim@shamim-HP-ProBook-450-G5:~/Desktop$

```

while.

```

Open ▾ +l while.py ~/Desktop
i = 1
while i < 6:
    print(i)
    if i == 3:
        break
    i += 1

i = 0
while i < 6:
    i += 1
    if i == 3:
        continue
    print(i)

i = 1
while i < 6:
    print(i)
    i += 1
else:
    print("i is no longer less than 6")


```

```


shamim@shamim-HP-ProBook-450-G5:~/Desktop$ python3 while.py
1
2
3
shamim@shamim-HP-ProBook-450-G5:~/Desktop$

```


For:

```
Open ▾   
for i in range(10):  
    print (i+1)|
```

```
wxsmith-headers_17.12-1_all.deb  
shamim@shamim-HP-ProBook-450-G5:~$ python3 For.py  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
shamim@shamim-HP-ProBook-450-G5:~$
```

```
Open ▾  for2.py  
~/  
fruits = ["apple", "banana", "cherry"]  
for x in fruits:  
    print(x)  
    if x == "banana":  
        break
```

```
shamim@shamim-HP-ProBook-450-G5:~$ for2.py
for2.py: command not found
shamim@shamim-HP-ProBook-450-G5:~$ python3 for2.py
apple
banana
```

5.

Question 5.1:

In the context of computing, Eclipse is an integrated development environment (IDE) for developing applications using the Java programming language and other programming languages such as C/C++, Python, PERL, Ruby etc.

The Eclipse platform which provides the foundation for the Eclipse IDE is composed of plug-ins and is designed to be extensible using additional plug-ins. Developed using Java, the Eclipse platform can be used to develop rich client applications, integrated development environments and other tools. Eclipse can be used as an IDE for any programming language for which a plug-in is available.

The Java Development Tools (JDT) project provides a plug-in that allows Eclipse to be used as a Java IDE, PyDev is a plugin that allows Eclipse to be used as a Python IDE, C/C++ Development Tools (CDT) is a plug-in that allows Eclipse to be used for developing application using C/C++, the Eclipse Scala plug-in allows Eclipse to be used an IDE to develop Scala applications and PHPeclipse is a plug-in to eclipse that provides complete development tool for PHP.

Question 5.2:

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.

Open Source and Free

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.

High-Level Language

Python has been designed to be a high-level programming language, which means that when you code in Python you don't need to be aware of the coding structure, architecture as well as memory management.

Integrated by Nature

Python is an integrated language by nature. This means that the python interpreter executes codes one line at a time. Unlike other object-oriented programming languages, we don't need to compile Python code thus making the debugging process much easier and efficient. Another advantage of this is, that upon execution the Python code is immediately converted into

an intermediate form also known as byte-code which makes it easier to execute and also saves runtime in the long run.

Highly Portable

Suppose you are running Python on Windows and you need to shift the same to either a Mac or a Linux system, then you can easily achieve the same in Python without having to worry about changing the code. This is not possible in other programming languages, thus making Python one of the most portable languages available in the industry.

Question 5.3:

A package is a collection of Python modules: while a module is a single Python file, a package is a directory of Python modules containing an additional `__init__.py` file, to distinguish a package from a directory that just happens to contain a bunch of Python scripts.