

Getting Started with Python

Programming Language:

A programming language is used to develop the programs and softwares. The code written in any programming language is known as source code and this source code convert into intermediate code (Machine code / byte Code / Object Code) to run on computer. Some examples of programming languages are.

BASIC, FORTRAN, PASCAL, COBOL, C, C++, Visual Basic (VB), C#, Java and Python etc.

Every Language has its own characteristic like Character set and grammar.

Introduction of Python:

Python is modern language for computer programming. It is High Level, Object Oriented and Open Source Programming Language. It was developed by **Guido Van Rossum** in 1991 at National Research Institute for Mathematics-Netherlands.



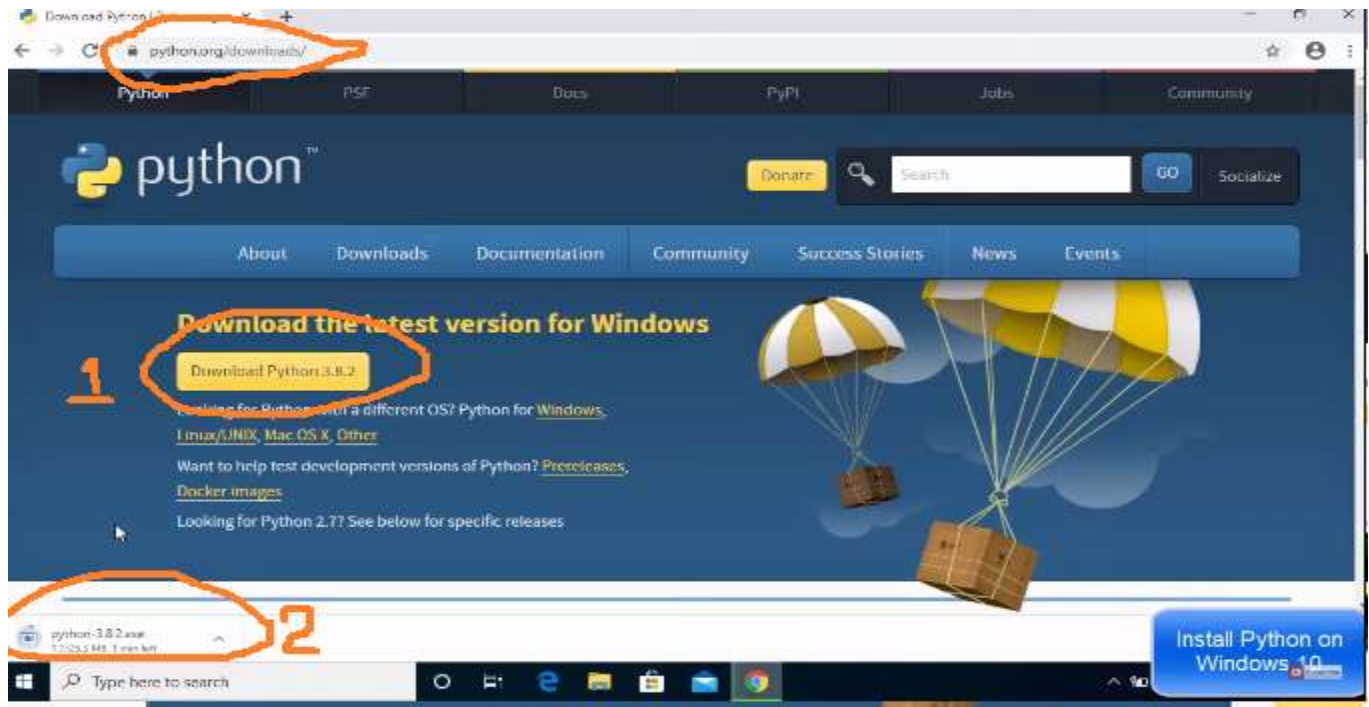
Features of Python:

- Python is **interpreter based** programming Language
- It is **easy, simple and interactive language**
- The code is written in simple English like language and **easy to understand**.
- It is **open source and freely** available.
- It is populated with **built in high level data types and libraries**.
- It supports **OOP** (Object Oriented Programming Language) Concepts.
- It supports **GUI** (Graphical User Interface).
- It also provides **IDLE** (Integrated Development Learning Environment) to develop large application. IDE mean to incorporate various applications to develop large application. Like **Python, Web Application, Database** etc.
- It is **Platform Independent** because it can run across the various platforms (operating systems) like windows, Linux, Unix, Mac, Android etc.
- **Syntax highlighting language** that highlight the syntax of code and errors occurred in code while design time and run time of program.
- Python is **Case Sensitive Language** that mean upper case letters and lower case letters behave differently.

Installation of Python

Python can be downloaded freely from its official website. Python is available in many versions on its website and you can download the latest version also.

Official website: <https://www.python.org/downloads/>

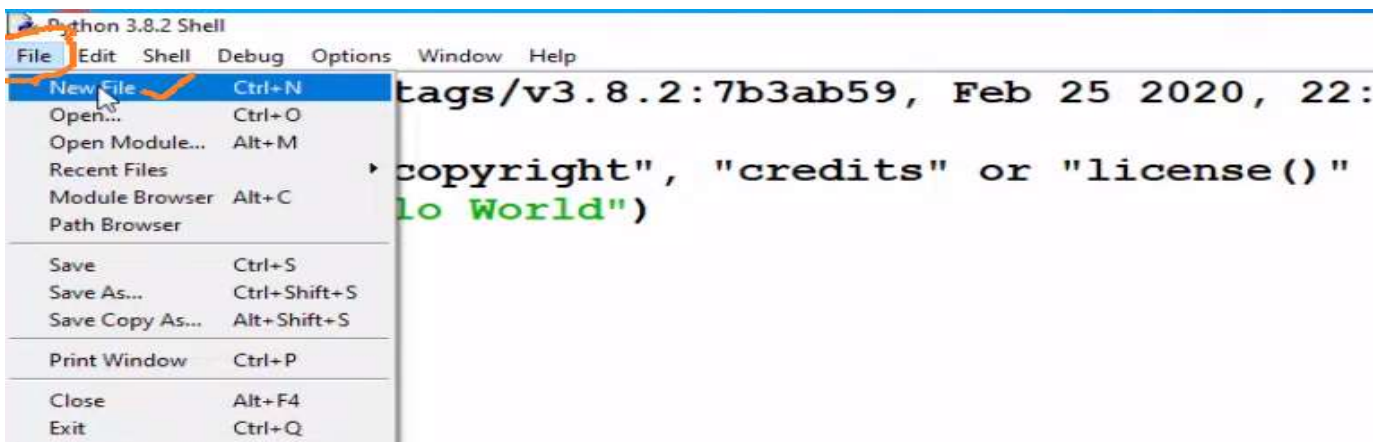
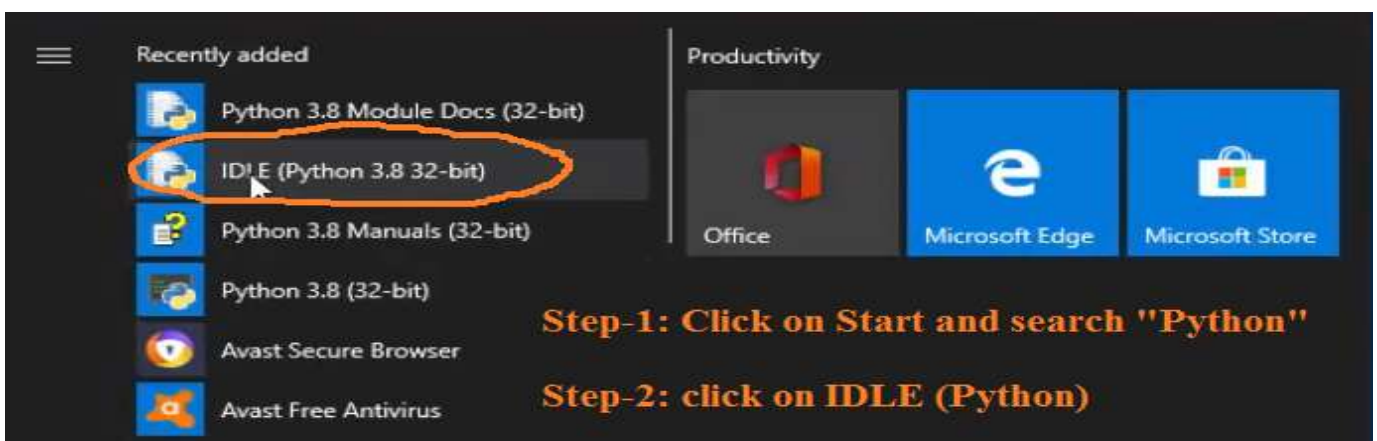


Open the Downloaded software to proceed with installation.





Click on Close to Complete the Setup



- **Write Code/ program in newly opened window. Like `print("My First Program")`**
- **Click File-> Save to save the file.**
- **Click Run-> Run Module (F5) to run the program**
- **That all for Installation of Python.**

Mode of Working with Python:

Python shell or IDLE provides two types of modes to work in it.

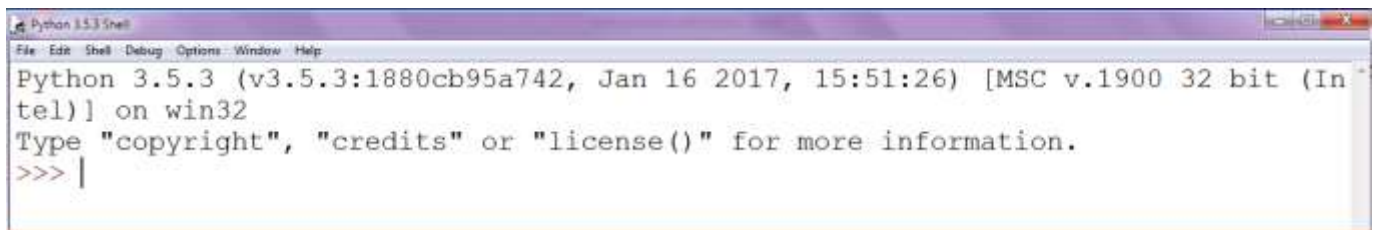
(A) Interactive Mode

(B) Script Mode

(A). Interactive Mode

When the Python IDLE opened in computer then it by default open in Interactive mode.

The interactive mode display **Version of the Python and Version of window** information as shown in below screenshot of IDLE.

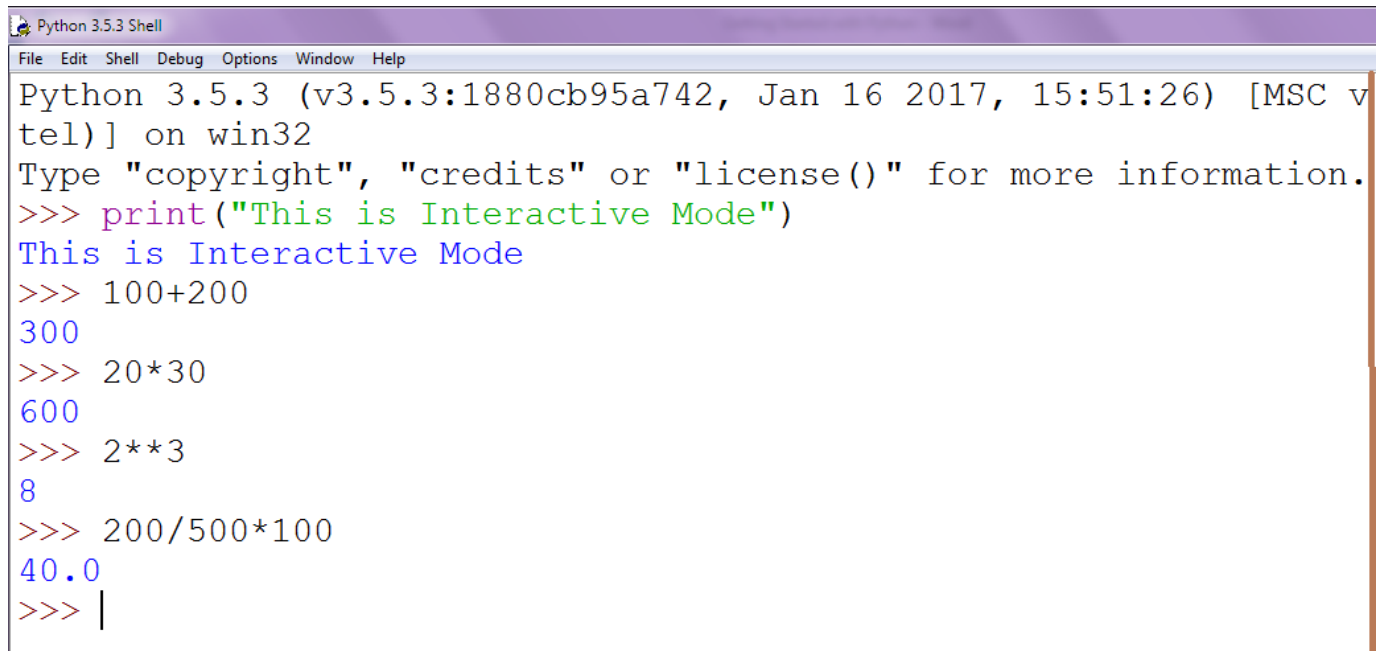


```
Python 3.5.3 Shell
File Edit Shell Debug Options Window Help
Python 3.5.3 (v3.5.3:1880cb95a742, Jan 16 2017, 15:51:26) [MSC v.1900 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> |
```

Features of Interactive Mode:

- **By default Python IDLE opens in Interactive mode.**
- **The various python commands can directly type, run and produce output in same window.**
- **File cannot be created in this mode and hence the commands will not save in any file.**
- **As soon as the Python window closed, all the typed commands and their outputs will cleared and cannot recover them.**
- **This mode used for testing of small codes and their outputs rather than the testing of whole program.**

Example:



```
Python 3.5.3 Shell
File Edit Shell Debug Options Window Help
Python 3.5.3 (v3.5.3:1880cb95a742, Jan 16 2017, 15:51:26) [MSC v
tel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("This is Interactive Mode")
This is Interactive Mode
>>> 100+200
300
>>> 20*30
600
>>> 2**3
8
>>> 200/500*100
40.0
>>> |
```

(B). Script Mode

Script mode provides the following facilities

- **Script mode can start by clicking "File-> New File".**
- **A script is collection of commands to carry out specific output.**
- **A file can be created to save the script permanently.**
- **The script can save in .py file extension. This file can open and edit in future for updating it.**
- **Once the script saved in file, it can run by clicking command "Run->Run Module (F5)".**
- **The output or errors of script, always shown in different output window.**

Example

The image shows a Python script in a text editor window and its execution in a Python 3.5.3 Shell. The script calculates the percentage of a student based on obtained marks out of a total of 500. The output window shows the result: Percentage= 50.0.

```
File Edit Format Run Options Window Help
# Script to find the Percentagae of student
Ob_marks=250
Tot_marks=500
Per=Ob_marks/Tot_marks*100
print("Percentage=", Per)
```

Script Window

```
Python 3.5.3 Shell
File Edit Shell Debug Options Window Help
Python 3.5.3 (v3.5.3:1880cb95a742, Jan
tel)] on win32
Type "copyright", "credits" or "licens
>>>
RESTART: C:/Users/Administrator/AppDa
py
Percentage= 50.0
>>> |
```

Output Window

The image shows a Python script in a text editor window and its execution in a Python 3.5.3 Shell. The script prompts the user for their name and obtained marks, then calculates the percentage. The output window shows the user input and the resulting percentage: 96.0.

```
File Edit Format Run Options Window Help
# Script to find the Percentagae of student
name=input("Enter your Name: ")

Ob_marks=int(input("Enter Obtained Marks out of 500: "))

Per=Ob_marks/500*100

print("Name of Student: ", name)
print("Marks Obtained out of 500: ", Ob_marks)
print("Percentage=", Per)
```

```
Python 3.5.3 Shell
File Edit Shell Debug Options Window Help
Python 3.5.3 (v3.5.3:1880cb95a742, Jan
:26) [MSC v.1900 32 bit (Intel)] on win
Type "copyright", "credits" or "licens
nformation.
>>>
RESTART: C:/Users/Administrator/AppDat
ms/Python/Python35-32/test.py
Enter your Name: Ajay
Enter Obtained Marks out of 500: 480
Name of Student: Ajay
Marks Obtained out of 500: 480
Percentage= 96.0
>>> |
```