

GITHUB → Similar to GDrive

↳ Used by programmers.

Where can Python be used?

↳ Desktop Applications

Ex: Calculator, Notepad, etc.

↳ Web Applications

Ex: YouTube, Dropbox, Google, Instagram,  
Quora, Spotify.

↳ Scientific and Numeric computing

Ex: SciPy, NumPy

↳ Data base Applications

Ex: library Management systems,  
Pharmaceutical.

↳ Network Applications

Ex: Network Sniffer, Network parameter

extraction, Routing Algo's like OSPF

Wireshark (Hacking) - VPN needs to be installed

⑦  
↳ Developing Games

Ex: Battle field, Sims 4, PUBG

↳ Data Science

Ex: Pandas, Matplotlib, Seaborn, ... etc.

↳ Machine learning

Ex: Scikit

↳ AI

Ex: AIMA - AI: A modern approach.

↳ IOT

Ex: Raspberry Pi, Phillips (works great

with low level code in C++)

## FEATURES OF PYTHON:

↳ Simple & easy to learn.

↳ Free & open source

↳ General purpose & High level programming language

↳ Platform Independent

Ex: MAC, LINUX, Windows

(B)

- ↳ Case sensitive (Upper & Lower)
- ↳ Interpreted language

- ↳ Dynamically Typed

\* no need to declare them as int or float or anything.

- ↳ Rich library.

\* writing the codes of AI, DS, ML, DL,  
Desktop & Web applications.

- ↳ We can write concise code using python.

# → <sup>commented</sup> command in python

\* I/P -  $x = 2$

$y = 3$

$z = x + y$

Print(z)

O/P - 5

\* I/P -  $a = 10$

$b = 20$

print(a+b)

O/P - 30.

\* I/P →  $a, b = 10, 20$

Print(a+b)

- O/P - 30.

IDENTIFIERS: Any variable name, function name, class name.

Rules of Identifiers:

↳ Allowed characters

\* Alphabets, Digits & Underscore symbol.

↳ Identifier shouldn't start with a digit.

↳ Case sensitive

↳ No length limit.

↳ Can't use reserved words for Identifier.

\* I/p - abc123 = 10

ABC123 = 20

Print(id(abc123))

Print(id(ABC123))

id - address of  
memory.

O/p - 14073220498480

14073220498800.

## ⑩ RESERVED WORDS IN PYTHON: (35)

[ 'False', 'None', 'True', 'and', 'as', 'assert', 'async',  
'await', 'break', 'class', 'continue', 'def', 'del', 'elif',  
'else', 'except', 'finally', 'for', 'from', 'global', 'if'  
'import', 'in', 'is', 'lambda', 'nonlocal', 'not', 'or',  
'pass', 'raise', 'return', 'try', 'while', 'with',  
'yield'. ]

\* I/P - d = 10

Print(d)

Print(id(d))

Print(type(d))

O/P - 10

14073220498480

<class 'int'>

## BASIC DATA TYPES IN PYTHON:

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- ↳ Numeric - int, float, complex (Immutable)
- ↳ Boolean - Bool (True/False)
- ↳ strings (Immutable)
- ↳ list (Mutable, mostly used to store homogeneous data types)
- ↳ Tuple (Immutable, faster compared to list)
- ↳ set (unordered collection of items, mutable, removes duplicates)
- ↳ Dictionary (unordered collection of key-value pairs, Mutable, Keys are unique-values may not be unique)

\* I/P -  $a = 2$

$b = 3.0$

$c = 5 + 7j$

O/P - int

float

complex

Print(type(a))

Print(type(b))

Print(type(c))

NOTE:

(12)

In complex, any case (lower/upper) can be used & no errors occur.

\* I/P -  $f = 1.2E34$

O/P -  $1.23e34$

Print(f)

<class 'float'>

Print(type(f))

$\rightarrow f = 1.2^3E34 \neq f = 1.23e+34$  are equivalent

\* I/P -  $c = 10 + 20j$

Print(type(c))

Print(c+5)

Print(instance(c, complex))

Print(c.real)

Print(c.imag)

O/P - <class 'complex'>

$15 + 20j$

True

10.0

20.0

\* I/P -  $a = \text{True}$ . (13) O/P - <class 'bool'>

Print(type(a))

\* I/P -  $a = 5$

Print(type(a))

Print(isinstance(a, int))

O/P - <class 'int'>

True.

\* I/P -  $a = 10.6e-2$

O/P - <class float>

b = False.

<class bool>

Print(type(a))

Print(type(b))

\* I/P -  $a = \text{input}("Enter the 1^{\text{st}} \text{ no.: }")$

$b = \text{input}("Enter the 2^{\text{nd}} \text{ no.: }")$

Print(type(a), type(b))

Print(a+b)

O/P - Enter the 1<sup>st</sup> no. : 1

Enter the 2<sup>nd</sup> no. : 1

<class 'str' , class 'str'>

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## TYPE CONVERSION:

\* I/P -  $a = \text{int}(\text{input}("Enter 1^{st} no.: "))$

$b = \text{int}(\text{input}("Enter 2^{nd} no.: "))$

Print (type(a), type(b))

Print (a+b)

O/P - Enter 1<sup>st</sup> no.: 1

Enter 2<sup>nd</sup> no.: 1

<class 'int', class 'int'>

2.

NOTE :

number + number = addition.

String + String = joining together

\* I/P -  $a = 20$

$b = 2$

Print (a/b)

O/P - 10.0

\* I/P -  $a = 20$

$b = 2$

Print (a/b)

O/P - 10.

\* I/P -  $a = 20$

$b = 3$

Print (a % b)

O/P - 2

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$$* \text{ I/P} - a = 20$$

$$b = 2$$

$$\text{O/P} - 400.$$

Point ( $a^{**} b$ )  $\downarrow$  power of something i.e.,  $a^b$

## OPERATORS :

↳ Arithmetic : +, -, \*, %, /, //, \*\*

↳ Relational : >, >=, <, <=

↳ Equality: ==, !=  $\downarrow$  not equal  
 ↳ comparison

↳ Logical : and, or, not

↳ Bitwise : 2, 1, ~, <<, >>

↳ Assignment : =, +=, -=, \*=, /=, ... etc.

↳ Ternary

↳ Identity Identity : is, is not (used for address comparison)

↳ Membership : in, not in (for, while)