PYTHON

(swiss-knife of programming language)

A programming language helps you give command/instructions to the computer to execute a particular task.

A computer can only understand binary language [0/1]. Binary instructions are understood by a computer. It is not feasible to write binary language for a human. so, we write a programming language called **code.** It has a rule which is called "**syntax**".

Python converts our code to 0 & 1. Our code which is written in a file in Python Language, will be instructions give to computer to perform a particular task. In python there is a program called compiler which will convert our code into machine code which computer can understand.

Python was invented by Guido van Rossum. As he was learning the programing language "ABC", he invented ***Python***. It has become so popular since then, because it is python can do **anything you can think of**.

Syntax for Python

The first syntax is ***print ()***.

Input:	**Output**:
print (*"hello world!"*)	hello world

NOTE: Use double quotes for it is a good practice.

Concepts:

If a=5, b=7, c=a + b. What is the value of c? In python language as well, a, b & care variables. In python addition.

Ex: 01

Input:	**Output**:
a = 5 b = 7 c = a + b print (c)	12

Ex: 02

Input:	**Output**:
a = 5 print ("the value of a is", a) b = 7 print ("the value of b is", b) c = a + b print ("the value of c is", c)	the value of a: 5 the value of b: 7 the value of c: 12

In print command, if you write something separated by comma (,) then the values will be separated by space.

Ex: 03

Input:	**Output**:
print ("hello", "world!", 4, 5, 10.5)	hello world! 4 5 10.5

data type

Variables are place holders in Python Language to hold some values/data.

- In Math's 1,2,3... are integers (int).
- Anything written in double/single quotes is called string (str). Good practice to write everything in double quotes and not in single quotes.
- Decimals in python are called float.

Ex: 01

Input:	**Output**:
a = 5 print (type(a)) b = 5.6 print (type(b)) name = "Rahul" print (type(name))	<class 'int'> <class 'float'> <class 'str'>

How to name a valid variable?

1) A valid variable should start from a – z or A – Z or with an underscore (_).

Ex:

Valid Variables:	Not Valid Variables:
Abc, b6, _2, _abc	^ab, 936, 2, 6b

NOTE:

Anything written with '#' at the beginning in Python Language is taken as a comment by Python Language for documentation. Documentation is written notes in code for explanations purpose.

2) IN body you cannot use symbols.

Ex:

_9^ is not a valid variable.

_b_ is a valid variable.

The only exception is to have _ in-between.

Program to demonstrate type keyword

Input:

```
"""
This is the first lecture on Python for Subramanyam
 Batch.
The below code demonstrates type keyword
We are especially learning about three datatypes fo
r now
int
str
float
>>> type (4)
>>> <class, 'int'>
>>> type ("abcd")
>>> <class, 'str'>
>>> type (1.5)
>>> <class, 'float'>
"""
integer_variable = 5
```

```
print ("the type of a is", type(integer_variable))
string_variable = "abcd"
print ("the type of b is", type(string_variable))
float_variable = 1.3
print ("the type of c is", type(float_variable))
```

Output:

the type of a is <class 'int'>

the type of b is <class 'str'>

the type of c is <class 'float'>

Program to take input ()

Input:

```
"""
In this file we will be writing code which will dem
onstrate how to take input and output from user.
The command to take unput from user is
>>> user_input = input ()
Here user_input is a variable which will capture us
er input and input () is a function which will capt
ure user Input
Input will always take Input as string data
"""
print ("Hello! Enter your Name")
text = input ()
print ("You've entered", text)
```

Output:

Hello! Enter your Name

Rahul

You've entered Rahul

Input:

```
print ("enter name")
name = input ()
print ("enter age")
age = input ()
print ("Your name is ", name)
print ("and you are ", age)
print ("years old")
```

Output:

enter name

Rahul

enter age

30

Your name is Rahul

and you are 30

years old

To convert a string datatype into integer datatype we need to typecast it. To typecast an input (), we need to wrap it in int () or str () or float ().

Ex: a = int (“5”). The ‘int’ mentioned first is an integer, but since we written the number 5 between “”, it’s datatype would now be str (string) datatype.

Input:

```
# To convert a str - int; we need to do "typecast"

print ("Enter First Name")
a = input ()

print ("Enter Last Name")
b = input ()

print ("enter you age")
c = int (input ())

print ("enter a decimal number")
d = float (input ())

print ("Your Name is;", a + b)
print ("You are", c)
print ("you've entered a decimal number ", d)
```

Output:

Enter First Name

Rahul

Enter Last Name

Roy

enter you age

25

enter a decimal number

3.05

Your Name is; Rahul Roy

You are 25

you've entered a decimal number 3.05