

# DataTypes in Python

In [2]:

```
1 a = 5
2 b=5.8
3 c='hi'
4 d = True
5 e = 5+3j
6 f=None
7 g=[1,2,3]
8 h=(1,2,3)
9 i={1:'a',2:'b'}
10 j={1,2,3}
11 print(type(a))
12 print(type(b))
13 print(type(c))
14 print(type(d))
15 print(type(e))
16 print(type(f))
17 print(type(g))
18 print(type(h))
19 print(type(i))
20 print(type(j))
```

```
<class 'int'>
<class 'float'>
<class 'str'>
<class 'bool'>
<class 'complex'>
<class 'NoneType'>
<class 'list'>
<class 'tuple'>
<class 'dict'>
<class 'set'>
```

## print

In [3]: 1 `dir(__builtins__)`

Out[3]: ['ArithmeticError',  
'AssertionError',  
'AttributeError',  
'BaseException',  
'BlockingIOError',  
'BrokenPipeError',  
'BufferError',  
'BytesWarning',  
'ChildProcessError',  
'ConnectionAbortedError',  
'ConnectionError',  
'ConnectionRefusedError',  
'ConnectionResetError',  
'DeprecationWarning',  
'EOFError',  
'Ellipsis',  
'EnvironmentError',  
'Exception',  
'False',  
'FileNotFoundError',  
'FloatingPointError',  
'FormatWarning',  
'FutureWarning',  
'GeneratorExit',  
'GroupError',  
'ImportError',  
'ImportWarning',  
'InterruptedError',  
'IOError',  
'IsADirectoryError',  
'KeyError',  
'KeyboardInterrupt',  
'LookupError',  
'MemoryError',  
'ModuleNotFoundError',  
'NameError',  
'NotADirectoryError',  
'NotImplementedError',  
'OSError',  
'OverflowError',  
'PermissionError',  
'ProcessLookupError',  
'RecursionError',  
'ReferenceError',  
'RuntimeError',  
'RuntimeWarning',  
'StopIteration',  
'SystemError',  
'SystemExit',  
'TabError',  
'TimeoutError',  
'True',  
'UnboundLocalError',  
'UnicodeDecodeError',  
'UnicodeEncodeError',  
'UnicodeError',  
'UnicodeTranslateError',  
'UserWarning',  
'ValueError',  
'Warning',  
'ZeroDivisionError']

In [4]: 1 `print ??`

File "<ipython-input-4-bb5c399ac776>", line 1  
`print ??`  
 ^

**SyntaxError:** Missing parentheses in call to 'print'. Did you mean print(??)?

In [ ]: 1 `print??`

In [ ]: 1 `g.append??`

In [ ]: 1 `print("apple", "banana", sep="😊😊", end = "!")`  
 2 `print("cherry")`

## f string

In [ ]: 1 `x = 8`  
 2 `y = 9`  
 3 `print(f"the sum of {x} and {y} is {x+y}")`

In [ ]: 1 `import this`

## Math module

```
In [ ]: 1 import math
        2 x=math.pi
        3 print(x)
```

```
In [ ]: 1 print(f"the value of pi upto two decimal is {x:.2f}")
```

Type *Markdown* and LaTeX:  $\alpha^2$

## naming rule for desining variable

- the name must start with letter or \_
- the name must only use alphanumeric and/or \_
- variable is case sensitive
- it must not start with number

```
In [ ]: 1 a1=100
        2 print(a1)
```

## commenting

```
In [ ]: 1 # this is a comment
        2 x = 5
        3 y = 10 #inline comment
        4 print(x,y)
        5 """
        6 This is a multiline comment
        7 """
```

## infinity defined

```
In [ ]: 1 x = math.inf
        2 x>10000000000
```

## Input method

- used to take input fromn user and it give output in string by deafuault

```
In [ ]: 1 whos
```

```
In [ ]: 1 m= input("Enter num ")
        2 print(type(m))
```

## typecasting

```
In [ ]: 1
```

## operator in python

## ARITHMETIC OPERATORS

- +, -, \*

```
In [8]: 1 d = 4/2
        2 print(type(d))
```

<class 'float'>

```
In [9]: 1 a=5*2
        2 print(a)
```

10

## Comparion operator

- ==, !=, <, >, <=, >=

```
In [11]: 1 0==False
```

Out[11]: True

## Membership operator

- in
- out

```
In [12]: 1 5 in [1,2,3,4,5]
```

Out[12]: True

```
In [14]: 1 'p' in 'python'
```

```
Out[14]: True
```

## Assignment operator

```
In [15]: 1 a = 5
        2 a+=5 # same as a = a + 5
        3 print(a)
```

```
10
```

## Ternary operator

```
In [19]: 1 age = 15
        2 rule = "not allowed to smoke" if age<18 else "allowed but dangerous"
        3 print(rule)
```

```
not allowed to smoke
```

## Logical operator

- not x
- return true if x is False otherwise False
- x or y
- returns y if x is false , x otherwise
- x and y
- returns x if x is true , y otherwise

```
In [30]: 1 x=5
        2 y=6
        3 x or y
        4 x and y
```

```
Out[30]: 6
```

## Operator precedence

Operators	Associativity
() Highest precedence	Left - Right
**	Right - Left
+X, -X, ~X	Left - Right
*, /, //, %	Left - Right
+, -	Left - Right
<<, >>	Left - Right
&	Left - Right
^	Left - Right
	Left - Right
Is, is not, in, not in, <, <=, >, >=, ==, !=	Left - Right
Not x	Left - Right
And	Left - Right
Or	Left - Right
If else	Left - Right
Lambda	Left - Right
=, +=, -=, *=, /= Lowest Precedence	Right - Left

In [ ]: 1 0 or 'hello'

In [1]: 1 #WAP to find the area and circumference of circle with user given input and  
 2 r = int(input("Enter radius"))  
 3 area = Math.pi\*r\*r  
 4 circum = 2\*Math.pi\*r  
 5 print(area)  
 6 print(circum)

Enter radius2

```

-----
NameError                                Traceback (most recent call last)
<ipython-input-1-e82d8414c179> in <module>
      1 #WAP to find the area and circumference of circle with user given input
and radius
      2 r = int(input("Enter radius"))
----> 3 area = Math.pi*r*r
      4 circum = 2*Math.pi*r
      5 print(area)

```

**NameError:** name 'Math' is not defined

```
In [ ]: 1 #wap to convert days into number of year,no of month and no of days
        2 # Days 398 : year=1 month=1 days=3
        3 total = int(input("Enter no. of days: "))
        4 year = total/365
        5 month = year/30
        6 print(year)
        7 print(month)
        8
```

```
In [ ]: 1
```

```
In [ ]: 1
```