# DataTypes in Python

In [2]:
```
a =  5
b=5.8
c='hi'
d = True
e = 5+3j
f=None
g=[1,2,3]
h=(1,2,3)
i={1:'a',2:'b'}
j={1,2,3}
print(type(a))
print(type(b))
print(type(c))
print(type(d))
print(type(e))
print(type(f))
print(type(g))
print(type(h))
print(type(i))
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]:
```
dir(__builtins__)
```

Out[3]:
```
['ArithmeticError',
 'AssertionError',
 'AttributeError',
 'BaseException',
 'BlockingIOError',
 'BrokenPipeError',
 'BufferError',
 'BytesWarning',
 'ChildProcessError',
 'ConnectionAbortedError',
 'ConnectionError',
 'ConnectionRefusedError',
 'ConnectionResetError',
 'DeprecationWarning',
 'EOFError',
 'Ellipsis',
 'EnvironmentError',
 'Exception',
 'False',
```

In [4]:
```
print ??
```

```
  File "<ipython-input-4-bb5c399ac776>", line 1
    print ??
          ^
SyntaxError: Missing parentheses in call to 'print'. Did you mean print(??)?
```

In [ ]:
```
print??
```

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

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

# f string

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

In [ ]:
```
import this
```

# Math module

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

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

# commenting

In [ ]:
```
# this is a comment
x = 5
y = 10 #inline comment
print(x,y)
"""
This is a multiline comment
"""
```

# infinity defined

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

# Input method

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

In [ ]:
```
whos
```

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

# typecasting

In [ ]:
```

```

# operator in python

# ARITHMETIC OPERATORS

- +-/*

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

```
<class 'float'>
```

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

```
10
```

# Comparion operator

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

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

Out[11]:
```
True
```

# Membership operator

- in
- out

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

Out[12]:
```
True
```

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

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

# Assignment operator

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

```
10
```

# Ternary operator

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

```
not allowed to smoke
```

# Logical operator

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

In [30]:
```
x=5
y=6
x or y
x and y
```

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

# Operator precedencde

| 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 [ ]:
```
0 or 'hello'
```

In [1]:
```
#WAP to find the area and circumference of circle with user given input and
r = int(input("Enter radius"))
area = Math.pi*r*r
circum = 2*Math.pi*r
print(area)
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 [ ]:
```
#wap to convert days into number of year,no of month and no of days
# Days 398 : year=1 month=1 days=3
total = int(input("Enter no. of days: "))
year = total/365
month = year/30
print(year)
print(month)

```

In [ ]:
```

```

In [ ]:
```

```