checking datatypes

In [1]:
```
print(type(9))
```
```
<class 'int'>
```

In [2]:
```
print(type(5.4))
```
```
<class 'float'>
```

In [3]:
```
print(type(2+3j))
```
```
<class 'complex'>
```

In [4]:
```
print(type('sumayay'))
```
```
<class 'str'>
```

In [5]:
```
print(type([1,2,3]))
```
```
<class 'list'>
```

In [7]:
```
print(type({'name':'sumayya'}))
```
```
<class 'dict'>
```

In [8]:
```
print(type({3.4,4.5,6.7}))
```
```
<class 'set'>
```

In [9]:
```
print(type((9.8,8.5,6.6)))
```
```
<class 'tuple'>
```

In [10]:
```
print(type(3==3))
```
```
<class 'bool'>
```

In [11]:
```
print(type(3>=3))
```
```
<class 'bool'>
```

In [12]:
```
print(type({'sumayya',1,2}))
```
```
<class 'set'>
```

In [14]:
```
print(type(('sumayya',1,2)))
```
```
<class 'tuple'>
```

In [15]:
```
print(type(['sumayya',1,2]))
```
```
<class 'list'>
```

Arithmatic operation in python

integers

In [19]:
```
print('Addition:',3+2)
```

```
Addition: 5
```

In [20]:
```
print('subtraction:',3-2)
```

```
subtraction: 1
```

In [21]:
```
print('multiplication:',3*2)
```

```
multiplication: 6
```

In [22]:
```
print('division:',6/2)
```

```
division: 3.0
```

In [24]:
```
print('division:',7/2)
```

```
division: 3.5
```

In [23]:
```
print('division without the remainder',7//2)
```

```
division without the remainder 3
```

In [25]:
```
print('exponential:',3**2)
```

```
exponential: 9
```

floating numbers

In [26]:
```
print('Floating number,PI',3.14)
```

```
Floating number,PI 3.14
```

In [27]:
```
print('Floating number,gravaity',9.81)
```

```
Floating number,gravaity 9.81
```

complex numbers

In [33]:
```
print('complex number:',1+1j)
```

```
complex number: (1+1j)
```

In [34]:
```
print('multiplying complex numbers:',(1+1j)*(1-2j))
```

```
multiplying complex numbers: (3-1j)
```

declaring the variable at the top first

In [36]:
```
a=3 #a is the variable namae and 3 is the integer data type
b=4
```

Arithmatic operation and assigning the result to a variable

In [37]:
```
total=a+b
diff=a-b
product=a*b
```

```
divsion=a/b
remainder=a%b
floor_division=a//b
exponenetial=a**b
```

In [40]:
```
print('a+b=',total)
print('a-b=',diff)
print('a*b=',product)
print('a/b=',divsion)
print('a%b=',remainder)
print('a//b=',floor_division)
print('a**b=',exponenetial)
```

```
a+b= 5
a-b= 1
a*b= 6
a/b= 1.5
a%b= 1
a//b= 1
a**b= 9
```

In [41]:
```
#declaring values and organizing them toegtehr
n1=2
n2=4
```

In [42]:
```
#arithmetic operation
total=n1+n2
diff=n1-n2
product=n1*n2
div=n1/n2
rem=n1%n2
```

In [44]:
```
#printing values with label
print('total=',total)
print('difference=',diff)
print('product=',product)
print('division=',div)
print('remainder=',rem)
```

```
total= 6
difference= -2
product= 8
division= 0.5
remainder= 2
```

In [45]:
```
#calculating area of circle
radius=10
area_of_circle=3.14*radius**2
print('Area of circle:',area_of_circle)
```

```
Area of circle 314.0
```

In [46]:
```
#calculating area of rectangle
length=20
width=10
area_of_rectangle=length*width
print("area of rectangle:",area_of_rectangle)
```

```
area of rectangle: 200
```

In [47]:
```
#calculating the weight of an object
mass=75
gravity=9.81
```

```
weight=mass*gravity
print(weight,'N')
```

```
735.75 N
```

In [48]:
```
print(3 > 2)
print(3 >= 2)
print(3 < 2)
print(2 < 3)
print(2 <= 3)
print(3 == 2)
print(3 != 2)
print(len('mango') == len('avocado'))
print(len('mango') != len('avocado'))
print(len('mango') < len('avocado'))
print(len('milk') != len('meat'))
print(len('milk') == len('meat'))
print(len('tomato') == len('potato'))
print(len('python') > len('dragon'))
```

```
True
True
False
True
True
False
True
False
True
True
False
True
True
False
```

In [49]:
```
#BOOLEAN COMPARISON
print('True == True: ', True == True)
print('True == False: ', True == False)
print('False == False:', False == False)
print('True and True: ', True and True)
print('True or False:', True or False)
```

```
True == True:  True
True == False:  False
False == False: True
True and True:  True
True or False: True
```

In [51]:
```
#another way compariso
print('1 is 1', 1 is 1)
print('1 is not 2', 1 is not 2)
print('A in Asabeneh', 'A' in 'Asabeneh')
print('B in Asabeneh', 'B' in 'Asabeneh')
print('coding' in 'coding for all')
print('a in an:', 'a' in 'an')
print('4 is 2 ** 2:', 4 is 2 ** 2)
```

```
1 is 1 True
1 is not 2 True
A in Asabeneh True
B in Asabeneh False
True
a in an: True
4 is 2 ** 2: True
```

```
<>:2: SyntaxWarning: "is" with a literal. Did you mean "=="?
<>:3: SyntaxWarning: "is not" with a literal. Did you mean "!="?
<>:8: SyntaxWarning: "is" with a literal. Did you mean "=="?
<>:2: SyntaxWarning: "is" with a literal. Did you mean "=="?
<>:3: SyntaxWarning: "is not" with a literal. Did you mean "!="?
<>:8: SyntaxWarning: "is" with a literal. Did you mean "=="?
C:\Users\IPL4\AppData\Local\Temp\ipykernel_5764\1816851457.py:2: SyntaxWarning: "i
s" with a literal. Did you mean "=="?
  print('1 is 1', 1 is 1)                   # True because the data values are the
same
C:\Users\IPL4\AppData\Local\Temp\ipykernel_5764\1816851457.py:3: SyntaxWarning: "i
s not" with a literal. Did you mean "!="?
  print('1 is not 2', 1 is not 2)           # True because 1 is not 2
C:\Users\IPL4\AppData\Local\Temp\ipykernel_5764\1816851457.py:8: SyntaxWarning: "i
s" with a literal. Did you mean "=="?
  print('4 is 2 ** 2:', 4 is 2 ** 2)   # True
```

In [52]:
```
print(3 > 2 and 4 > 3)
print(3 > 2 and 4 < 3)
print(3 < 2 and 4 < 3)
print(3 > 2 or 4 > 3)
print(3 > 2 or 4 < 3)
print(3 < 2 or 4 < 3)
print(not 3 > 2)
print(not True)      # False Negation, the not operator turns true to false
print(not False)
print(not not True)
print(not not False)
```

```
True
False
False
True
True
False
False
False
True
True
False
```

variables in python

In [58]:
```
first_name='sumayya'
last_name='taskeen'
country='india'
city='hyd'
age=21
is_married=False
skills=['html','css','js','python']
personal_info={
    'firstname':'seema',
'Lastname':'hana',
'Country': 'usa',
'city':'Helanski'}
```

In [59]:
```
print('first name:', first_name)
print('first name length:', len(first_name))
print('first name:', first_name)
print('last name length: ', len(last_name))
print('country: ', country)
```

```
print('city: ', city)
print('age: ', age)
print('Married: ', is_married)
print('skills: ', skills)
print('personal information: ', personal_info)
```

```
first name: sumayya
first name length: 7
first name: sumayya
last name length:  7
country:  india
city:  hyd
age:  21
Married:  False
skills:  ['html', 'css', 'js', 'python']
personal information:  {'firstname': 'seema', 'Lastname': 'hana', 'Country': 'us
a', 'city': 'Helanski'}
```

In [62]:
```
#declaring multiple variable in one line
first_name,last_name,country,age,is_married='sana','mahveen','india',21,False
print(first_name,last_name,country,age,is_married)
print('first name:', first_name)
print('last name:', last_name)
print('country: ', country)
print('age: ', age)
print('Married: ', is_married)
```

```
sana mahveen india 21 False
first name: sana
last name: mahveen
country:  india
age:  21
Married:  False
```

In [ ]:
```

```