checking datatypes

```
In [2]: print(type(9))

<class 'int'>
```

```
In [3]: print(type(5.4))

<class 'float'>
```

```
In [4]: print(type(2+3j))

<class 'complex'>
```

```
In [5]: print(type('sidra'))

<class 'str'>
```

```
In [6]: print(type([1,2,3]))

<class 'list'>
```

```
In [7]: print(type((9.8,8.5,6.6)))

<class 'tuple'>
```

```
In [8]: print(type(3==3))

<class 'bool'>
```

```
In [9]: print(type(3>=3))

<class 'bool'>
```

```
In [10]: print(type({'sidra',1,2}))

<class 'set'>
```

```
In [11]: print(type(('sidra',1,2)))

<class 'tuple'>
```

```
In [12]: print(type(['sidra',1,2]))

<class 'list'>
```

Arithmetic operation in python

integers

```
In [13]: print('Addition:',3+2)

Addition: 5
```

```
In [14]: print('Subtraction:',3-2)

Subtraction: 1
```

```
In [15]: print('Multiplication:',3*2)
```

```
Multiplication: 6
```

In [16]:
```python
print('division:',6/2)
```
```
division: 3.0
```

In [17]:
```python
print('Addition:',7/2)
```
```
Addition: 3.5
```

In [18]:
```python
print('division without the remainder:',7//2)
```
```
division without the remainder: 3
```

In [19]:
```python
print('exponential:',3**2)
```
```
exponential: 9
```

floating numbers

In [20]:
```python
print('Floating number,PI',3.14)
```
```
Floating number,PI 3.14
```

In [21]:
```python
print('Floating number,gravity',9.81)
```
```
Floating number,gravity 9.81
```

complex numbers

In [22]:
```python
print('complex number:',1+1j)
```
```
complex number: (1+1j)
```

In [23]:
```python
print('multiplying complex numbers:',(1+1j)*(1-2j))
```
```
multiplying complex numbers: (3-1j)
```

declaring the variables at the top first

In [24]:
```python
a=3 #a is the variable name and 3 is the integer data type
b=4
```

Arithmetic operation and assigning the result to a variable

In [25]:
```python
total=a+b
diff=a-b
product=a*b
division=a/b
remainder=a%b
floor_division=a//b
exponential=a**b
```

In [26]:
```python
print('a+b=',total)
print('a-b=',diff)
```

```python
print('a*b=',product)
print('a/b=',division)
print('a%b=',remainder)
print('a//b=',floor_division)
print('a**b=',exponential)
```

```
a+b= 7
a-b= -1
a*b= 12
a/b= 0.75
a%b= 3
a//b= 0
a**b= 81
```

In [27]:
```python
#declaring values and organizing them together
n1=2
n2=4
```

In [28]:
```python
#arithmetic operations
total=n1+n2
diff=n1-n2
product=n1*n2
div=n1/n2
rem=n1%n2
```

In [29]:
```python
#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 [31]:
```python
#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 [33]:
```python
#calculating the area of rectangle
length=20
width=10
area_of_rectangle=length*width
print("area of rectangle",area_of_rectangle)
```

```
area of rectangle 200
```

In [35]:
```python
#calculating the weight of an object
mass=75
gravity=9.81
weight=mass*gravity
print(weight,'N')
```

```
735.75 N
```

In [37]:
```python
print(3 > 2)
print(3 >= 2)
print(3 < 2)
print(3 <= 2)
```

```python
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('tomatp') == len('potato'))
print(len('python') > len('dragon'))
```

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

In [38]:
```python
#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 [39]:
```python
#another way of comparison
print('1 is 1', 1 is 1)
print('1 is not 2', 1 is not 2)
print('A is Asabeneh', 'A' in 'Asabeneh')
print('B is Asabeneh', 'B' is '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 is Asabeneh True
B is 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 "!="?
<>:5: SyntaxWarning: "is" 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 "!="?
<>:5: SyntaxWarning: "is" with a literal. Did you mean "=="?
<>:8: SyntaxWarning: "is" with a literal. Did you mean "=="?
C:\Users\sidra\AppData\Local\Temp\ipykernel_23468\1674465178.py:2: SyntaxWarning:
"is" with a literal. Did you mean "=="?
  print('1 is 1', 1 is 1)
C:\Users\sidra\AppData\Local\Temp\ipykernel_23468\1674465178.py:3: SyntaxWarning:
"is not" with a literal. Did you mean "!="?
  print('1 is not 2', 1 is not 2)
C:\Users\sidra\AppData\Local\Temp\ipykernel_23468\1674465178.py:5: SyntaxWarning:
"is" with a literal. Did you mean "=="?
  print('B is Asabeneh', 'B' is 'Asabeneh')
C:\Users\sidra\AppData\Local\Temp\ipykernel_23468\1674465178.py:8: SyntaxWarning:
"is" with a literal. Did you mean "=="?
  print('4 is 2 ** 2:', 4 is 2 ** 2)
```

In [40]:
```python
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
True
False
False
True
True
False
```

variable in python

In [41]:
```python
first_name='sidra'
last_name='raheem'
country='india'
city='hyd'
age=21
is_married=False
skills=['html','css','js','python']
personal_info={'firstname':'zoha',
               'lastname':'hashmi',
               'country':'usa',
               'city':'chicago'}
```

In [43]:
```python
print('first name:', first_name)
print('first name length:', len(first_name))
```

```python
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: sidra
first name length: 5
first name: sidra
last name length: 6
country: india
city: hyd
age: 21
married: False
skills: ['html', 'css', 'js', 'python']
personal information: {'firstname': 'zoha', 'lastname': 'hashmi', 'country': 'us
a', 'city': 'chicago'}
```

In [45]:
```python
#declaring multiple variable in one line
first_name,last_name,country,age,is_married='maimona','begum','india',22,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)
```

```
maimona begum india 22 False
first name: maimona
last name: begum
country: india
age: 22
married: False
```

In [ ]: