In [2]:
```
# Arithmetic operations in python
# Integers

print('Addition: ',1+2)
print('Subtraction:',2-1)
print('Multipication:',2*3)
print('Division:',4/2)          #Division in python gives floating number
print('Division:',6/2)
print('Division:',7/2)
print('Division without remainder: ',7//2)      # gives without the floating r
print('Modulus: ',3%2)                          # Gives the remainder
print('Division without the remainder:',7//3)
print('Exponential: ',3**2)
```

```
Addition:  3
Subtraction: 1
Multipication: 6
Division: 2.0
Division: 3.0
Division: 3.5
Division without remainder:  3
Modulus:  1
Division without the remainder: 2
Exponential:  9
```

In [3]:
```
#Floating numbers
print('Floating Number,PI',3.14)
print('Floating Number,gravity',9.81)
```

```
Floating Number,PI 3.14
Floating Number,gravity 9.81
```

In [4]:
```
# Complex numbers
print('Complex number: ',1+1j)
print('Multiplying complex number:',(1+1j)*(1-1j))
```

```
Complex number:  (1+1j)
Multiplying complex number: (2+0j)
```

In [5]:
```
# Declaring the variable at the top first
a = 3           # a is a variable name and 3 is an integer data type
b = 2           # b is a variable name and 3 is an integer data type
```

In [7]:
```
# Arithmetic operations and assigning the result to a variable

total = a + b
diff = a - b
product = a * b
division = a / b
remainder = a % b
floor_division = a // b
exponential = a**b
```

In [8]:
```
# I should have used sum instead of total but sum is a built-in function try t
print(total)       # if you don't label your print with some string, you never
print('a + b =',total)
print('a - b = ', diff)
print('a * b = ', product)
print('a / b = ', division)
print('a % b = ', remainder)
print('a // b = ', floor_division)
print('a ** b = ', exponential)
```

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

In [9]:
```
# Declaring values and organizing them together
num_one = 3
num_two = 7
```

In [10]:
```
# Arithmetc operations
total = num_one + num_two
diff = num_two - num_one
product = num_one * num_two
div = num_two / num_two
remainder = num_two % num_one
```

In [11]:
```
# Printing values with label
print('total:',total)
print('difference:',diff)
print('product: ',product)
print('division:',div)
print('remainder: ',remainder)
```

```
total: 10
difference: 4
product:  21
division: 1.0
remainder:  1
```

In [13]:
```
#calculating arae of circle
radius = 10                                    # radius of a circle
area_of_circle = 3.14 * radius ** 2            # two * sign means expone
print('Area of a circle:', area_of_circle)
```

```
Area of a circle: 314.0
```

In [14]:
```
# Calculating area of a rectangle
length = 15
width = 12
area_of_rectangle = length * width
print('Area of rectangle:', area_of_rectangle)
```

```
Area of rectangle: 180
```

In [16]:
```
# Calculating a weight of an object
mass = 75
gravity = 9.81
weight = mass * gravity
print(weight,'N')
```

```
735.75 N
```

In [18]:
```
print(3 > 2)                    # True, because 3 is greater than 2
print(3 >= 2)                   # True, because 3 is greater than 2
print(3 < 2)                    # False, because 3 is greater than 2
print(2 < 3)                    # True , because 2 is less than 3
print(2 <= 3)                   # True, because 2 is less than 3
print(3 == 2)                   # False, because 3 is not equal to 2
print(3 != 2)                   # True, because 3 is not equal to 2
```

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

In [24]:
```
print(len('apple') == len('pineapple'))   # False
print(len('apple') != len('pineapple'))   # True
print(len('apple') < len('pineapple'))    # True
print(len('apple') > len('pineapple'))    # False
print(len('onion') == len('tomato'))      # False
print(len('python') == len('dragon'))     # True
print(len('milk') > len('meat'))          # False
```

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

In [1]:
```
# 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 True:', True or False)
```

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

In [2]:
```
# Another way comparison
print('1 is 1',1 is 1)       # True - because the data values are the same
print('1 is not 2', 1 is not 2)           # True - because 1 is not 2
print('A in Asabeneh', 'A' in 'Asabeneh') # True - A found in the string
print('B in Asabeneh', 'B' in 'Asabeneh') # False -there is no uppercase B
print('coding' in 'coding for all') # True - because coding for all has the wo
print('a in an:', 'a' in 'an')      # True
print('4 is 2 ** 2:', 4 is 2 ** 2)   # True
```

```
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\Prachi\AppData\Local\Temp\ipykernel_18232\2447514325.py:2: SyntaxWa
rning: "is" with a literal. Did you mean "=="?
  print('1 is 1',1 is 1)       # True - because the data values are the same
C:\Users\Prachi\AppData\Local\Temp\ipykernel_18232\2447514325.py:3: SyntaxWa
rning: "is not" with a literal. Did you mean "!="?
  print('1 is not 2', 1 is not 2)           # True - because 1 is not 2
C:\Users\Prachi\AppData\Local\Temp\ipykernel_18232\2447514325.py:8: SyntaxWa
rning: "is" with a literal. Did you mean "=="?
  print('4 is 2 ** 2:', 4 is 2 ** 2)   # True
```

In [7]:
```
print(3 > 2 and 4 > 3)  # True - because both statements are true
print(3 > 2 and 4 < 3)  # False - because the second statement is false
print(3 < 2 and 4 < 3)  # False - because both statements are false
print(3 > 2 or 4 > 3)   # True - because both statements are true
print(3 > 2 or 4 < 3)   # True - because one of the statement is true
print(3 < 2 or 4 < 3)   # False - because both statemnts are false
print(not 3 >2)         # False - because 3 > 2 is true , then not True gives
print(not True )        # False - Nagation , the not operator turns true to fa
print(not False )       # True
print( not not True)    # True
print(not not True)     # False
```

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