In [26]:
```
oct(25)
```

Out[26]:
```
'0o31'
```

In [27]:
```
int(0o31)
```

Out[27]:
```
25
```

In [3]:
```
hex(25)
```

Out[3]:
```
'0x19'
```

In [5]:
```
int(0x19)
```

Out[5]:
```
25
```

In [6]:
```
hex(1)
```

Out[6]:
```
'0x1'
```

In [7]:
```
hex(0)
```

Out[7]:
```
'0x0'
```

In [8]:
```
0xa
```

Out[8]:
```
10
```

In [9]:
```
0xb
```

Out[9]:
```
11
```

In [10]:
```
12 & 13
```

Out[10]:
```
12
```

In [11]:
```
12 | 13
```

Out[11]:
```
13
```

In [12]:
```
bin(35)
```

Out[12]:
```
'0b100011'
```

In [13]:
```
bin(40)
```

Out[13]:
```
'0b101000'
```

In [14]:
```
35 | 40
```

Out[14]: 43

In [15]:
```
35 & 40
```

Out[15]: 32

In [16]:
```
~35
```

Out[16]: -36

In [17]:
```
~-35
```

Out[17]: 34

In [18]:
```
~(-35)
```

Out[18]: 34

In [19]:
```
12 ^ 13
```

Out[19]: 1

In [22]:
```
35^40
```

Out[22]: 11

In [23]:
```
10<<1
```

Out[23]: 20

In [24]:
```
20<<1
```

Out[24]: 40

In [25]:
```
20>>2
```

Out[25]: 5

In [ ]:
```
#Homework
```

In [28]:
```
    print(10)
print(20)
```

```
10
20
```

In [ ]:
```
#Understanding Operators in Python
```

In [41]:
```
#Arithmetic operators
a=5
b=6
sum = a+b
difference = a-b
```

```
multiply = a*b
division = a/b
intdiv = a//b
mod = a%b
exp = a**b
print("The sum is :",sum)
print("The difference is :",difference)
print("The multiply of numbers is :",multiply)
print("The divison of numbers is :",division)
print("The integer division of numbers is :",intdiv)
print("The mod of numbers is :",mod)
print("The exponential of numbers is :",exp)
```

```
The sum is : 11
The difference is : -1
The multiply of numbers is : 30
The divison of numbers is : 0.8333333333333334
The integer division of numbers is : 0
The mod of numbers is : 5
The exponential of numbers is : 15625
```

In [93]:
```
#Comparison operators
a=5
b=6
equalto = a==b
notequalto = a!=b
greaterthan = a>b
lessthan = a<b
greaterthaneq = a>=b
lessthaneq = a<=b
print("Is a equals b ?",equalto)
print("Is a not equal to b ?",notequalto)
print("Is a greater than b ?",greaterthan)
print("Is a less than b ?",lessthan)
print("Is a greater than equal to b ?",greaterthaneq)
print("Is a less than equal to b ?",lessthaneq)
```

```
Is a equals b ? False
Is a not equal to b ? True
Is a greater than b ? False
Is a less than b ? True
Is a greater than equal to b ? False
Is a less than equal to b ? True
```

In [32]:
```
#Logical operators
a=5
b=6
andop = (a>0) and (b>0)
orop = (a>0) or (b>0)
notop = not(a>0)

andop1 = a>0 and b>0
orop1 = a>0 or b>0
notop1 = not a>0

print("Logical AND :", andop)
print("Logical OR :", orop)
```

```
print("Logical NOT", notop)

print("Logical AND :", andop1)
print("Logical OR :", orop1)
print("Logical NOT", notop1)
```

```
Logical AND : True
Logical OR : True
Logical NOT False
Logical AND : True
Logical OR : True
Logical NOT False
```

In [36]:
```
#Unary Operators
a=5
b=-5
result = -a
resultb = -b
print("Minus Operator:",result)
print("Minus Operator:",resultb)
result = +a
resultb = +b
print("Plus Operator:",result)
print("Plus Operator:",resultb)
t = True
result = not t
resultb = not b
x = 'ABC'
resulta = not x
print("Not Operator:",result)
print("Not Operator of number:",resultb)
print("Not of string:",resulta)
```

```
Minus Operator: -5
Minus Operator: 5
Plus Operator: 5
Plus Operator: -5
Not Operator: False
Not Operator of number: False
Not of string: False
```

In [ ]:
```
#this means that not of anything is False
```

In [38]:
```
(4%3)**1
```

Out[38]: 1

In [39]:
```
5+3*2/2-(4%3)**1
```

Out[39]: 7.0

In [42]:
```
#Print Formats
#In print(), user can pass any number of arguments and any datatype (list,tuple, di
print(10,20,3.6,'ABC',True,1+2j,[1,2],(1,2),{1,2})
```

```
10 20 3.6 ABC True (1+2j) [1, 2] (1, 2) {1, 2}
```

In [ ]:
```
#Print result with string
```

In [46]:
```
a=5
b=6
sum = a+b
print("The sum of",a,"and",b,"is :",sum)
diff = a-b
print('The diff of',a,'and',b,'is :',diff)
```

```
The sum of 5 and 6 is : 11
The diff of 5 and 6 is : -1
```

In [47]:
```
#Print result with Format
print("The sum of {} and {} is qual to {}".format(a,b,sum))
```

```
The sum of 5 and 6 is qual to 11
```

In [48]:
```
print('The sum of {} and {} is qual to {}'.format(a,b,sum))
```

```
The sum of 5 and 6 is qual to 11
```

In [49]:
```
print('''The sum of {} and {} is qual to {}'''.format(a,b,sum))
```

```
The sum of 5 and 6 is qual to 11
```

In [64]:
```
print(f 'The sum of {a} and {b} is equals to {sum}')
```

```
  Cell In[64], line 1
    print(f 'The sum of {a} and {b} is equals to {sum}')
            ^
SyntaxError: invalid syntax
```

In [65]:
```
print(f'The sum of {a} and {b} is equals to {sum}')
```

```
The sum of 5 and 6 is equals to 11
```

In [56]:
```
print('Hello', end = ' ')
print('Good morning')
```

```
Hello Good morning
```

In [57]:
```
print('Hello', end = '***')
print('Good morning', end = '&&&')
```

```
Hello***Good morning&&&
```

In [58]:
```
print('Hello','Good morning','How are you?',sep='--->')
```

```
Hello--->Good morning--->How are you?
```

In [ ]:
```
#Practice sessions
```

In [66]:
```
#Average of 2 numbers
num1 = 100
num2 = 250
num3 = 150
avg = (num1+num2+num3) / 3
avg1 = round(avg,2)
```

```
print('The average of ',num1, 'and',num2,'and',num3,'is :',avg)
print('The rounded average of {} and {} and {} is : {}'.format(num1,num2,num3,avg1))
print(f'The rounded average of {num1} and {num2} and {num3} printing till 2 decimal
```

```
The average of  100 and 250 and 150 is : 166.66666666666666
The rounded average of 100 and 250 and 150 is : 166.67
The rounded average of 100 and 250 and 150 printing till 2 decimals is : 166.6666666
6666666
```

In [72]:
```
print('',' My name is Rashmi Balurkar\n',' I love learning AI and ML\n',' I like Pr
```

```
==> My name is Rashmi Balurkar
==> I love learning AI and ML
==> I like Prakash Senapati Sir classes.
==> He is the best tutor.
```

In [73]:
```
print('1','.')
```

```
1 .
```

In [74]:
```
print('1','.',sep = '')
```

```
1.
```

In [ ]:
```
#By doing this we have removed the distance between 1 & .
```

In [76]:
```
#Print 1,2,3.
print('1','2',end = ' ')
print('3','.',sep = '')
```

```
1 2 3.
```

In [78]:
```
#Differentiate between == and is operator
list1 = [1,2,3]
list2 = [1,2,3]
result1 = list1 == list2
print('Is list 1 == list2 : ',result1)
result2 = list1 is list2
print('Does list1 and list2 refer to the same memory location ?  ',result2)
```

```
Is list 1 == list2 :  True
Does list1 and list2 refer to the same memory location ?   False
```

In [80]:
```
#And, Or, not operator
num1 = 5
num2 = 6
result1 = (num1>0) and (num2>0)
print('And operator : ',result1)
result2 = (num1>0) or (num2>0)
print('Or operator : ',result2)
result3 = not num1
print('Not operator : ',result3)
```

```
And operator :  True
Or operator :  True
Not operator :  False
```

In [87]:
```
#Bitwise operators
num1 = 5
num2 = 3
result1 = num1 & num2
print('& operator : ',result1)
result2 = num1 | num2
print('| operator : ',result2)
result3 = num1 ^ num2
print('^ operator : ',result3)
result4 = num1 << 1
print('Left shift by 1 :',result4)
result5 = num1 << 2
print('Left shift by 2 :',result5)
result6 = num1 >> 1
print('Left shift by 1 :',result6)
result7 = num1 >> 2
print('Left shift by 2 :',result7)
```

```
& operator :  1
| operator :  7
^ operator :  6
Left shift by 1 : 10
Left shift by 2 : 20
Left shift by 1 : 2
Left shift by 2 : 1
```

In [88]:
```
#using identity operators
x = [1,2,3]
y = [1,2,3]
z = x
result1 = x is y
result2 = x is z
print('Is x and y same ? ',result1)
print('Is x and z same ? ',result2)
result3 = x is not y
result4 = x is not z
print('Is x and y not same ? ',result3)
print('Is x and z not same ? ',result4)
```

```
Is x and y same ?  False
Is x and z same ?  True
Is x and y not same ?  True
Is x and z not same ?  False
```

In [92]:
```
#ternary operator or conditional operator
temperature = 25
climate = "Sunny" if temperature > 20 else "Cloudy"
print('Current climate is ',climate)
```

```
Current climate is  Sunny
```

In [96]:
```
#Assignment operators
x = 5
y = x
print('y : ',y)
x+=3
print('x : ',x)
```

```
x-=3
print('x : ',x)
x*=3
print('x : ',x)
x/=3
print('x : ',x)
x%=3
print('x : ',x)
x**=3
print('x : ',x)
x//=3
print('x : ',x)
```

```
y :  5
x :  8
x :  5
x :  15
x :  5.0
x :  2.0
x :  8.0
x :  2.0
```

In [101…

```
#Usage of in keyword in list and strings
a = 'Python'
b = 'y'
result1 = b in a
print(f"Is \'{b}\' present in \'{a}\' ? : {result1}")

c = [1,2,3,4,5]
d = 3
result2 = d in c
print(f"Is \'{d}\' present in \'{c}\' ? : {result2}")
```

```
Is 'y' present in 'Python' ? : True
Is '3' present in '[1, 2, 3, 4, 5]' ? : True
```

In [102…

```
#Usage of not in keyword in list and strings
a = 'Python'
b = 'z'
result1 = b not in a
print(f"Is \'{b}\' present in \'{a}\' ? : {result1}")

c = [1,2,3,4,5]
d = 7
result2 = d not in c
print(f"Is \'{d}\' present in \'{c}\' ? : {result2}")
```

```
Is 'z' present in 'Python' ? : True
Is '7' present in '[1, 2, 3, 4, 5]' ? : True
```

In [119…

```
#Slicing in strings and lists - Formula is extract index [n:n-1] index starts from
stringvar = 'My Name is Rashmi'
substring = stringvar[3:17]
print(substring)
listvar = [1,2,3,4,5,6,7,8,9,0]
sublist = listvar[4:9]
print(sublist)
```

```
Name is Rashmi
[5, 6, 7, 8, 9]
```

In [120…
```python
#Tuple
tup = (1,2,3)
type(tup)
```

Out[120…
```
tuple
```

In [122…
```python
#Comparison in strings (lexicographic comparison)
string1 = 'Rashmi'
string2 = 'Sidhesh'
string3 = string1 > string2
print(string3)
```

```
False
```

In [123…
```python
x = None
y = x is None
y
```

Out[123…
```
True
```

In [ ]: