In [3]:
```
import sys
sys.version
```

Out[3]:
```
'3.14.0 (tags/v3.14.0:ebf955d, Oct  7 2025, 10:15:03) [MSC v.1944 64 bit (AMD6
4)]'
```

Arithmetic operators

In [4]:
```
2+2
```

Out[4]:
```
4
```

In [5]:
```
x1=10
y1=5
x1,y1
```

Out[5]:
```
(10, 5)
```

In [6]:
```
x1+y1
```

Out[6]:
```
15
```

In [7]:
```
x1-y1
```

Out[7]:
```
5
```

In [8]:
```
x1*y1
```

Out[8]:
```
50
```

In [9]:
```
x1/y1
```

Out[9]:
```
2.0
```

In [10]:
```
x1//y1
```

Out[10]:
```
2
```

In [11]:
```
x1%y1
```

Out[11]:
```
0
```

In [14]:
```
x1,y1
```

Out[14]:
```
(10, 5)
```

In [15]:
```
x1**y1
```

Out[15]:
```
100000
```

Assignment operators

In [16]:
```
x=2
x
```

Out[16]: 2

In [17]:
```
x=x+2
x
```

Out[17]: 4

In [18]:
```
x+=2
x
```

Out[18]: 6

In [19]:
```
x-=2
x
```

Out[19]: 4

In [20]:
```
x*=2
x
```

Out[20]: 8

In [22]:
```
x/=2
x
```

Out[22]: 2.0

In [23]:
```
x//=2
x
```

Out[23]: 1.0

In [26]:
```
a=10
b=5
print(a)
print(b)
```

```
10
5
```

In [27]:
```
a,b=5,10
print(a)
print(b)
```

```
5
10
```

Unary operator

In [31]:
```
n=7
n
```

Out[31]: 7

In [32]:
```
n=-(n)
n
```

Out[32]: -7

Relational operator

In [33]:
```
a=5
b=6
a,b
```

Out[33]: (5, 6)

In [34]:
```
a<b
```

Out[34]: True

In [35]:
```
a>b
```

Out[35]: False

In [36]:
```
a==b
```

Out[36]: False

In [37]:
```
a!=b
```

Out[37]: True

In [38]:
```
a>=b
```

Out[38]: False

In [39]:
```
a<=b
```

Out[39]: True

Logical operator(And(&),or(|))

In [40]:
```
a=5
b=6
a,b
```

Out[40]: (5, 6)

In [41]:
```
a<8 and b<7
```

Out[41]: True

In [42]:
```
a<10 and b<5
```

Out[42]: False

In [44]:
```
a,b
```

Out[44]: (5, 6)

In [47]:
```
a=not a
a
```

Out[47]: False

In [48]:
```
a=not a
a
```

Out[48]: True

In [ ]:
```
#Number system convertion (bit- binary disit)
```

In [49]:
```
25
```

Out[49]: 25

In [50]:
```
bin(25)
```

Out[50]: '0b11001'

In [51]:
```
int(0b11001)
```

Out[51]: 25

In [52]:
```
bin(30)
```

Out[52]: '0b11110'

In [53]:
```
int(0b11110)
```

Out[53]: 30

In [54]:
```
oct(25)
```

Out[54]: '0o31'

In [55]:
```
int(0o31)
```

Out[55]: 25

In [56]:
```
int(0b11110)
```

Out[56]: 30

In [57]:
```
hex(25)
```

Out[57]: '0x19'

In [58]:
```
int(0x19)
```

```
Out[58]: 25

In [59]: hex(16)

Out[59]: '0x10'

In [60]: int(0x10)

Out[60]: 16

In [61]: 0xa

Out[61]: 10

In [62]: 0xb

Out[62]: 11

In [63]: 0xc

Out[63]: 12

In [64]: 0xd

Out[64]: 13

In [65]: 0xe

Out[65]: 14

In [66]: 0xf

Out[66]: 15

In [68]: 0x11

Out[68]: 17

In [69]: 0x12

Out[69]: 18

In [70]: hex(1)

Out[70]: '0x1'

In [71]: hex(256)

Out[71]: '0x100'

In [72]: 0x19

Out[72]: 25

In [73]: 0x20
```

Out[73]: 32

swap-2 2 variable in python

In [74]:
```
a=5
b=6
a=b
b=a
print(a)
print(b)
```

```
6
6
```

In [75]:
```
a=5
b=6
a,b
```

Out[75]: (5, 6)

In [76]:
```
a=b
b=a
```

In [77]:
```
print(a)
print(b)
```

```
6
6
```

in the above case we lost the value of a that is 5

In [80]:
```
a1=7
b1=8
a1,b1
```

Out[80]: (7, 8)

In [81]:
```
temp=a1
a1=b1
b1=temp
print(a1)
print(b1)
```

```
8
7
```

swap with out using 3rd variable

In [83]:
```
a2=5
b2=6
a2,b2
```

Out[83]: (5, 6)

In [84]:
```
a2=a2+b2
b2=a2-b2
a2=a2-b2
print(a2)
print(b2)
```

```
6
5
```

In [87]:
```
bin(6)
```

Out[87]: '0b110'

In [88]:
```
bin(5)
```

Out[88]: '0b101'

In [89]:
```
print(0b101)
print(0b110)
```

```
5
6
```

xor operator

In [90]:
```
12
```

Out[90]: 12

In [91]:
```
13
```

Out[91]: 13

In [92]:
```
12&13
```

Out[92]: 12

In [93]:
```
12|13
```

Out[93]: 13

In [94]:
```
1&0
```

Out[94]: 0

In [95]:
```
1|0
```

Out[95]: 1

In [1]:
```
35&40
```

Out[1]: 32

In [2]:
```
35|40
```

Out[2]: 43

In [3]:
```
12^13
```

Out[3]: 1

In [4]:
```
print(bin(25))
print(bin(30))
```

```
0b11001
0b11110
```

In [5]:
```
25^30                #11001^11110=00111=7
```

Out[5]: 7

left shift/right shift

In [6]:
```
bin(10)
```

Out[6]: '0b1010'

left shift add (we gain the bit)

In [8]:
```
10<<1
```

Out[8]: 20

In [10]:
```
10<<2
```

Out[10]: 40

right shift discard (we lose the bit)

In [9]:
```
10>>1
```

Out[9]: 5

In [11]:
```
10>>2
```

Out[11]: 2

print function print()

print() is use for answer

In [12]:
```
a=50
b=40
a
b
```

Out[12]: 40

In [13]:
```
a=50
b=40
print(a)
print(b)
```

```
50
40
```

In [16]:
```
print(100)
print(100,200)
print('python')
print('arun',100,200)
```

```
100
100 200
python
arun 100 200
```

In [17]:
```
a=40
b=30
c=a+b
print(c)
```

```
70
```

PRINT RESULT WITH STRING

In [19]:
```
a=40
b=30
c=a+b
print("the addition of",'a','and','b','is=',c)
```

```
the addition of a and b is= 70
```

In [22]:
```
name="arun"
age=25
place="odisha"
print('my name is',name,'and iam',age,'years old from',place)
```

```
my name is arun and iam 25 years old from odisha
```

#print format method .format() number of varriable ={}

In [25]:
```
a=30
b=40
c=a+b
print('the addition of {} and {} is= {}'.format(a,b,c))
```

```
the addition of 30 and 40 is= 70
```

In [32]:
```
name= 'arun'
place='dunguripali'
pin='767023'
print('my name is {},and i am from {},{}'.format(name,place,pin))
```

```
my name is arun,and i am from dunguripali,767023
```

In [36]:
```
a=38
b=98
c=45
avg=(a+b+c)/3
avg1=round((a+b+c)/3,2)
print('the avg of {},{},and{} is {}or {}'.format(a,b,c,avg,avg1))
```

```
the avg of 38,98,and45 is 60.333333333333336or 60.33
```

more short format method f format method

variable should be in {} and write every thing inside quots'' at starting simply add f

In [38]:
```
a=30
b=40
c=a+b
print(f' the addition of {a} and{ b} is {c}')
```

```
 the addition of 30 and40 is 70
```

In [2]:
```
a=100
b=345
c=349
avg=round((a+b+c)/3,2)
print(f'the average of {a},{b} and {c }is= {avg}')
```

```
the average of 100,345 and 349is= 264.67
```

lets combine all

In [12]:
```
a=100
b=350
c=23
d=a+b+c
print('the addition of',a,b,'and',c,'is =',d)
```

```
the addition of 100 350 and 23 is = 473
```

In [19]:
```
a=100
b=350
c=23
d=a+b+c
print('the addition of {} {} and {} is ={}'.format(a,b,c,d))
```

```
the addition of 100 350 and 23 is =473
```

In [20]:
```
a=100
b=350
c=23
```

```
d=a+b+c
print(f'the addition of {a} {b} and {c} is ={d}')
```

```
the addition of 100 350 and 23 is =473
```

end statement --->,end=''

In [21]:
```
print('hello sir')
print('good morning')
```

```
hello sir
good morning
```

In [ ]:
```
# in the above statement if we wants to print  in one line 'hello sir good morni
we use end statement
```

In [24]:
```
print('hello sir',end='')
print('good morning')
```

```
hello sirgood morning
```

In [25]:
```
print('hii mr',end='')
print('handsome')
```

```
hii mrhandsome
```

In [ ]:
```
#seprator,sep=
```

In [27]:
```
print('hello','arun','how are you',sep='/')
```

```
hello/arun/how are you
```

In [28]:
```
print('hello','arun','how are you',sep='@')
```

```
hello@arun@how are you
```

In [29]:
```
print('hello','arun','how are you',sep='--->')
```

```
hello--->arun--->how are you
```

In [ ]:
```

```

In [ ]:
```

```