In [ ]:
```python
#Converting a decimal number into different basis
print("Enter a decimal number..")
x=int(input())
print("Binary is=",bin(x))
print("Oct is=",oct(x))
print("Hex is=",hex(x))
```

```
Enter a decimal number..
128
Binary is= 0b10000000
Oct is= 0o200
Hex is= 0x80
```

In [ ]:
```python
#python buildin functions
print(round(23.47))
print(abs(5-6))
print(max(2,4,6))
print(min(1,2,3,4))
print(divmod(24,3))#prints both quotient and remainder
print(bin(18))
print(oct(128))
print(eval('1+2'))# eval() function returns the value that results fro
m evaluating the input string
```

```
23
1
6
1
(8, 0)
0b10010
0o200
3
```

In [ ]:
```
#math module
import math
dir(math)
```

Out[ ]:
```
['__doc__',
 '__loader__',
 '__name__',
 '__package__',
 '__spec__',
 'acos',
 'acosh',
 'asin',
 'asinh',
 'atan',
 'atan2',
 'atanh',
 'ceil',
 'copysign',
 'cos',
 'cosh',
 'degrees',
 'e',
 'erf',
 'erfc',
 'exp',
 'expm1',
 'fabs',
 'factorial',
 'floor',
 'fmod',
 'frexp',
 'fsum',
 'gamma',
 'gcd',
 'hypot',
 'inf',
 'isclose',
 'isfinite',
 'isinf',
 'isnan',
 'ldexp',
 'lgamma',
 'log',
 'log10',
 'log1p',
 'log2',
 'modf',
 'nan',
 'pi',
 'pow',
 'radians',
 'remainder',
 'sin',
 'sinh',
 'sqrt',
 'tan',
 'tanh',
 'tau',
 'trunc']
```

In [ ]:
```
import math
print (math.pow(5,2),math.sqrt(25))
print("value of 8^2 is and the value of 5^4 ",math.pow(8,2),math.pow(5
,4,))
```

```
25.0 5.0
value of 8^2 is and the value of 5^4  64.0 625.0
```

In [ ]:
```
#Python Program to find Area and Circumference of a Circle
#Standard formula to calculate the Area of a circle is: a=π r².
#Circumference c=2 π r.
import math
r=input("Enter radius :")
r=int(r)
a=math.pi * r * r
c=2* math.pi * r
print("Area of the circle",a)
print ("Circumference of the circle",c)
```

```
Enter radius :25
Area of the circle 1963.4954084936207
Circumference of the circle 157.07963267948966
```

In [ ]:
```
#program to convert time in sec to HH:MM:SS format
time=input("Enter time in seconds")
time=int(time)
timeinmin=time//60
timeinsec=time%60
timeinhr=timeinmin//60
timeinmin=timeinmin%60
print("HH:MM::SS----{}:{}:{}".format(timeinhr,timeinmin,timeinsec))
```

```
Enter time in seconds1600
HH:MM::SS----0:26:40
```

In [2]:
```
#largest of 2 numbers
x=int(input("enter the first no"))
y=int(input("enter the second no"))
if x>y:
    print(x,"is greater")

else:
    print(y,"is greater")
```

```
enter the first no4
enter the second no7
7 is greater
```

In [3]:
```
#largest  and smallest of 3 numbers (max and min)
x=int(input("enter the first no"))
y=int(input("enter the second no"))
z=int(input("enter the thirdno"))
newmin=min(x,y)
newmax=max(x,y,z)
print("maximum value",newmax)
print("minimum value",newmin)
```

```
enter the first no4
enter the second no8
enter the thirdno3
maximum value 8
minimum value 4
```

In [4]:
```
#grade of students
mark=int(input('enter the marks'))
if mark>89:
        print ("A grade")
elif mark>79 and mark<90:
        print ("b grade")
elif mark>69 and mark<80:
        print ("c grade")
else:
        print ("d grade")
```

```
enter the marks76
c grade
```

In [5]:
```
#quadrant of a given point
x=int(input("enter the x axis"))
y=int(input("enter the y axis"))
if x>0 and y>0:
    print("first quadrant")
if x<0 and y>0:
    print("second quadrant")
if x<0 and y<0:
    print("third quadrant")
if x>0 and y<0:
    print("fourth quadrant")
```

```
enter the x axis-6
enter the y axis4
second quadrant
```

In [6]:
```
#given 3 sides of a triangle.check whether it forms a triangle or not
a=int(input("enter the first side"))
b=int(input("enter the second side"))
c=int(input("enter the third side"))
if a+b>c or a+c>b :
    print("triangle")
elif b+c>a:
    print ("triangle")
else:
    print("not triangle")
```

```
enter the first side6
enter the second side3
enter the third side5
triangle
```

In [8]:
```
#sum of n numbers till you press enter
sum=0
data=input("enter the number")
while data !="":
    n1=float(data)
    sum=sum+n1
    data=input("enter the number")
print("sum is",sum)
```

```
enter the number5
enter the number4
enter the number2
enter the number6
enter the number
sum is 17.0
```

In [9]:
```
#sum of first 10 natural numbers
sum=0
count=1
while count<=10:
    sum=sum+count
    count+=1
print ("sum is",sum)
```

```
sum is 55
```

In [ ]:
```
#while with else
count=1
while count<=10:
    print(count)
    count+=1
else:
    print("reached limit")
```

```
1
2
3
4
5
6
7
8
9
10
reached limit
```

In [ ]:
```
#switch-dictionary
dict={1:"one",2:"two"}
print (dict.get(2,"fault"))
```

```
two
```

In [10]:
```
#switch
def sw(case):
        dict={1:"one",2:"two"}
        return dict.get(case,"invalid")
x=sw(1)
print (x)
print(sw(4))
```

```
one
invalid
```

In [11]:
```
#range operator
for i in range(6):
    print (i)
```

```
0
1
2
3
4
5
```

In [12]:
```
#in operator
for i in "python":
    print (i)
```

```
p
y
t
h
o
n
```

In [13]:
```
l1=["apple","orange","grapes",1]
for i in l1:
    print (i)
```

```
apple
orange
grapes
1
```

In [14]:
```
for i in [1,2,4]:
    print (i)
```

```
1
2
4
```

In [15]:
```
for i in range(6,20):
    print (i)
```

```
6
7
8
9
10
11
12
13
14
15
16
17
18
19
```

In [16]:
```
for i in range(6,20,2):
    print (i)
```

```
6
8
10
12
14
16
18
```

In [ ]:
```
for i in range(6):
    print (i)
else:
    print("iteration over")
```

```
0
1
2
3
4
5
iteration over
```

In [ ]:
```
#break
for x in range(6):
  if x == 3:
    break
  print(x)
else:
  print("Finally finished!")
```

```
0
1
2
```

In [17]:
```
#continue
for x in range(6):
  if x == 3:
    continue
  print(x)
else:
  print("Finally finished!")
```

```
0
1
2
4
5
Finally finished!
```

In [18]:
```
for count in range(5):
    print(count + 1, end = " ")
```

```
1 2 3 4 5
```

In [ ]:
```
for count in range(1, 4):
    print(count, end = " ")
```

```
1 2 3
```

In [ ]:
```
for count in range(1, 6, 2):
    print(count, end = " ")
```

```
1 3 5
```

In [19]:
```
for count in range(6, 1, -1):
    print(count, end = " ")
```

```
6 5 4 3 2
```

In [20]:
```
for letter in 'Python':
    if letter == 'h':
        break
    print(letter)
```

```
P
y
t
```

In [21]:
```
for i in range(10):
        pass
```

In [22]:
```
#reverse
rev=0
print("enter number")
num=int(input())
while num!=0:
    d=num%10
    rev=rev*10+d
    num=num//10
print(rev)
```

```
enter number
567
765
```

In [23]:
```
#fibonocci of 10 numbers
a=0
b=1
print(a,b,end=" ")
for i in range(10-2):
    c=a+b
    a=b
    b=c
    print(c,end=" ")
```

```
0 1 1 2 3 5 8 13 21 34
```

In [24]:
```
#prime numbers
print("prime numbers less than 100")
for n in range(2,100):
    i=2
    while i<=n/2:
        if n%i==0:
            break
        i=i+1
    else:
        print(n,end=" ")
```

```
prime numbers less than 100
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
```

In [25]:
```
#pattern printing
for n in range(0,6):
    for i in range(1,n+1):
        print (i,end="   ")
    print("\n")
```

```
1

1   2

1   2   3

1   2   3   4

1   2   3   4   5
```

In [26]:
```
#format output
"%-10.3f" % 3.14
```

Out[26]:
```
'3.140     '
```

In [27]:
```
amount=24.325
print("Your salary is $%0.2f" % amount)
print("The area is %0.1f" % amount)
```

```
Your salary is $24.32
The area is 24.3
```

In [29]:
```
for exponent in range(7, 11):
  print("%-3d%12d" % (exponent, 10 ** exponent))
```

```
7       10000000
8      100000000
9     1000000000
10   10000000000
```

In [30]:
```
#factorial
n=int(input("enter the number"))
fact=1
while n>0:
    fact=fact*n
    n-=1
print(fact)
```

```
enter the number4
24
```

In [ ]:
```
#armstrong
n=int(input("enter the number"))
i=0
c=b=n
armstr=0
while(n>0):
    n=n//10
    i+=1

while(b>0):
    r=b%10
    armstr=armstr+r**i
    b=b//10
if(armstr==c):
    print("armstrong")
else:
    print("not")
```

```
enter the number121
not
```

In [ ]:
```
#armstrong series
n=int(input("enter the range"))
for s in range(n):
    i=0
    c=b=s
    armstr=0
    while(s>0):
        s=s//10
        i+=1

    while(b>0):
        r=b%10
        armstr=armstr+r**i
        b=b//10
    if(armstr==c):
        print(c,end=" ")
```

```
enter the range10000
0 1 2 3 4 5 6 7 8 9 153 370 371 407 1634 8208 9474
```

In [31]:
```
#biggest and largest among n numbers
n=int(input("enter the range"))
max=1
min=1
while(n>0):
    s=int(input("enter the number"))
    if(s>max):
        max=s
    elif(s<=min):
        min=s
    n-=1
print("max",max,"min",min)
```

```
enter the range4
enter the number3
enter the number6
enter the number8
enter the number2
max 8 min 1
```

In [32]:
```
#series 1 2 4 7 11 16...
s=int(input("enter the range"))
num=1
for i in range(s):
    num=num+i
    print(num,end=" ")
```

```
enter the range30
1 2 4 7 11 16 22 29 37 46 56 67 79 92 106 121 137 154 172 191 211 232 2
54 277 301 326 352 379 407 436
```

In [ ]:

```
#multiplication table of n numbers
s=int(input("enter the range"))
for i in range(1,s+1):
    for j in range(1,11):
        print(i ,"*",j,"=",i*j)
    print("\t")
```

```
enter the range10
1 * 1 = 1
1 * 2 = 2
1 * 3 = 3
1 * 4 = 4
1 * 5 = 5
1 * 6 = 6
1 * 7 = 7
1 * 8 = 8
1 * 9 = 9
1 * 10 = 10

2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20

3 * 1 = 3
3 * 2 = 6
3 * 3 = 9
3 * 4 = 12
3 * 5 = 15
3 * 6 = 18
3 * 7 = 21
3 * 8 = 24
3 * 9 = 27
3 * 10 = 30

4 * 1 = 4
4 * 2 = 8
4 * 3 = 12
4 * 4 = 16
4 * 5 = 20
4 * 6 = 24
4 * 7 = 28
4 * 8 = 32
4 * 9 = 36
4 * 10 = 40

5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50

6 * 1 = 6
```

6 * 2 = 12
6 * 3 = 18
6 * 4 = 24
6 * 5 = 30
6 * 6 = 36
6 * 7 = 42
6 * 8 = 48
6 * 9 = 54
6 * 10 = 60

7 * 1 = 7
7 * 2 = 14
7 * 3 = 21
7 * 4 = 28
7 * 5 = 35
7 * 6 = 42
7 * 7 = 49
7 * 8 = 56
7 * 9 = 63
7 * 10 = 70

8 * 1 = 8
8 * 2 = 16
8 * 3 = 24
8 * 4 = 32
8 * 5 = 40
8 * 6 = 48
8 * 7 = 56
8 * 8 = 64
8 * 9 = 72
8 * 10 = 80

9 * 1 = 9
9 * 2 = 18
9 * 3 = 27
9 * 4 = 36
9 * 5 = 45
9 * 6 = 54
9 * 7 = 63
9 * 8 = 72
9 * 9 = 81
9 * 10 = 90

10 * 1 = 10
10 * 2 = 20
10 * 3 = 30
10 * 4 = 40
10 * 5 = 50
10 * 6 = 60
10 * 7 = 70
10 * 8 = 80
10 * 9 = 90
10 * 10 = 100