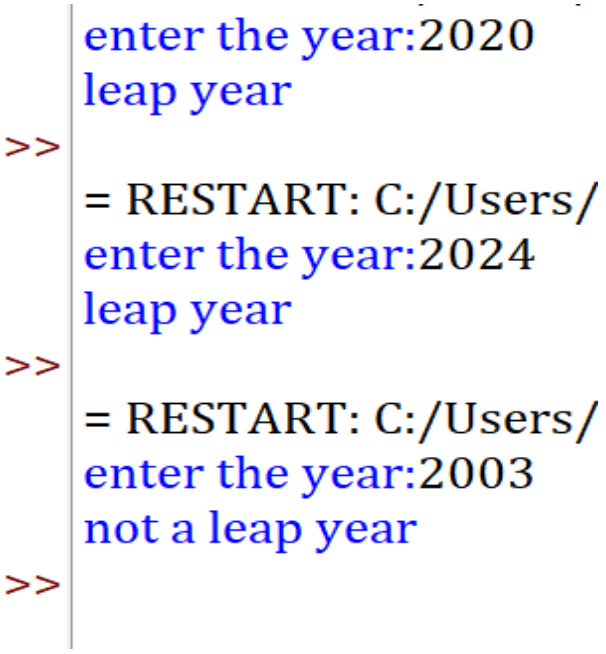
CSA0888-PYTHON PROGRAMMING FOR NATURAL LANGUAGE PROCESSING

IMPORTANT QUESTIONS BY DR E ANBALAGAN, PROFESSOR/CSE

1) WRITE A PYTHON PROGRAM TO LEAP YEAR OR NOT?

SOLUTION:-

```
n=int(input("enter the year:"))
(n%400==0) and (n%100==0):
   print("leap year")
elif(n%4==0)and(n%100!=0):
   print("leap year")
else:
   print("not a leap year")
```



2) WRITE A PYTHON PROGRAM TO PRINT AREA OF THE CIRCLE AND TRIANGLE?

SOLUTION: -

```
r=int(input("enter the radius value:"))
area_circle=3.14*r*r
print("Area of circle:",area_circle)
base=int(input("enter the base of the triangle:"))
height=int(input("enter the height of the triangle:"))
area_triangle=0.5*base*height
print("Area of triangle:", area_triangle)
```

```
enter the radius value:8
Area of circle: 200.96
enter the base of the triangle:6
enter the height of the triangle:8
Area of triangle: 24.0
```

3) WRITE A PYTHON PROGRAM TO PRINT SIMPLE INTREST AND COMPOUND INTREST?

SOLUTION:-

```
p=int(input("enter the principle amount:"))
r=int(input("enter the rate:"))
t=int(input("enter the time:"))
simple=int(p*(r/100)*t)
compound=round((p*(1+r/100)**t)-p)
print("simple:",simple)
print("compound:", compound)
```

```
enter the principle amount:80000
enter the rate:10
enter the time:5
simple: 40000
compound: 48841
```

4) WRITE A PYTHON PROGRAM TO CHECK WHETHER THE GIVEN NUMBER IS ODD OR EVEN?

SOLUTION: -

```
n=int(input("enter the number:"))
if(n%2==0):
    print("even number")
else:
    print("odd number")
```

```
= RESTART: C:/Users,
enter the number:5
odd number

= RESTART: C:/Users,
enter the number:63
odd number

= RESTART: C:/Users,
enter the number:88
even number
```

5) WRITE A PYTHON PROGRAM TO CHECK WHETHER THE GIVEN NUMBER IS POSITIVE OR NEGATIVE?

SOLUTION:-

```
n=int(input("enter n: "))
if n>0:
    print("positive")
else:
    print("negative")
```

```
enter n: -9
negative
>>>
= RESTART:
enter n: 6
positive
```

6) WRITE A PYTHON PROGRAM TO CONVERT DECIMAL NUMBER TO BINARY?

SOLUTION: -

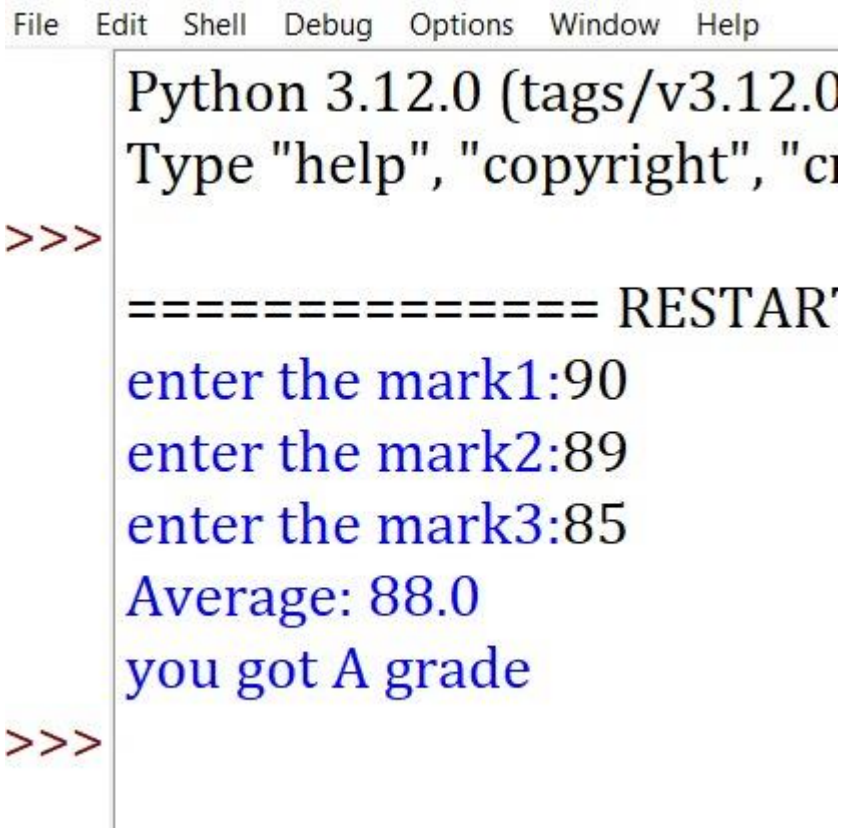
```
n=float(input("enter the decimal number:"))
binary=0
j=1
while(n!=0):
  i=n%2
  binary=binary+(i*j)
  n=n//2
  j *=10
print("binary:",binary)
b=input("enter binary number:")
decimal=0
power=0
for i in reversed(b):
  decimal+=int(i)(2*power)
  power+=1
print(decimal)
```

```
Type "help", "copyright", "credits" o
>>
= RESTART: C:/Users/likit/OneDriv
enter the decimal number:5.6
binary: 101.6
enter binary number:
```

7) WRITE A PYTHON PROGRAM TO PRINT THE GRADE SYSTEM?

SOLUTION: -

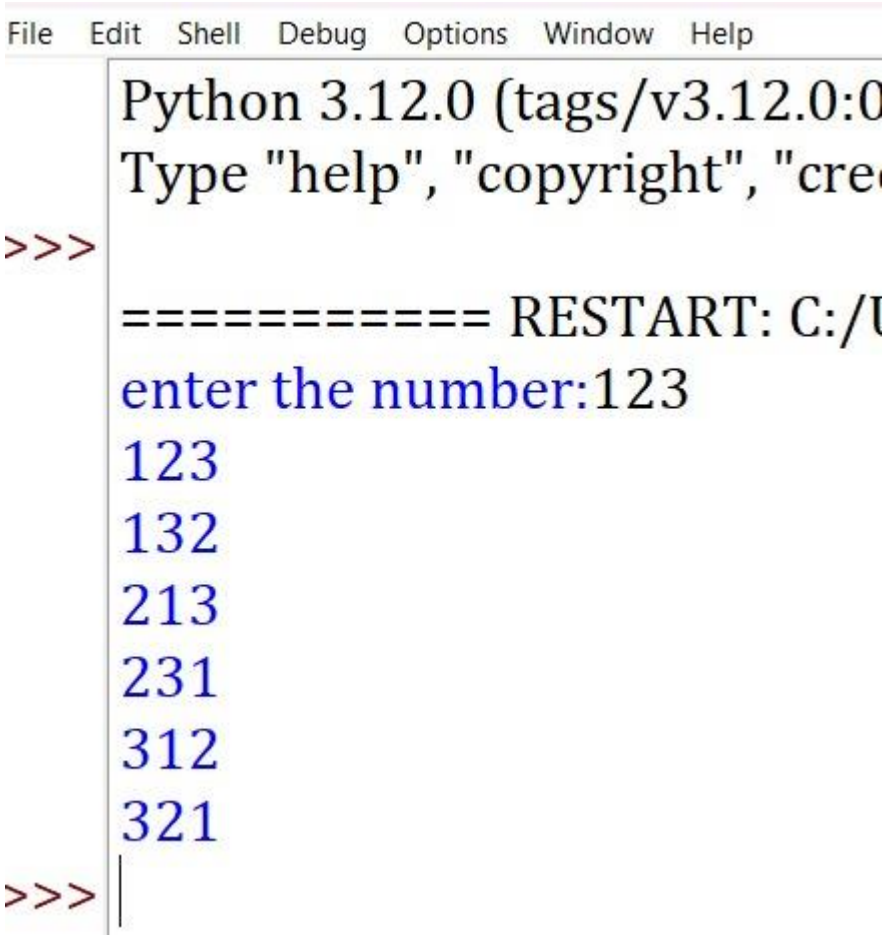
```
m1=int(input("enter the mark1:"))
m2=int(input("enter the mark2:"))
m3=int(input("enter the mark3:"))
total=m1+m2+m3
average=total/3
if(average>=90 and average<=100):
 print("Average:",average)
 print("you got S grade")
elif(average>=80 and average<90):
 print("Average:",average)
 print("you got A grade")
elif(average>=70 and average<80):
 print("Average:",average)
 print("you got B grade")
elif(average>=60 and average<70):
 print("Average:",average)
 print("you got C grade")
elif(average>=50 and average<60):
 print("Average:",average)
 print("you got D grade")
elif(average<50 and average>0):
 print("please enter valid input")
```


File Edit Shell Debug Options Window Help
Python 3.12.0 (tags/v3.12.0
Type "help", "copyright", "cr
>>>
========== RESTAR
enter the mark1:90
enter the mark2:89
enter the mark3:85
Average: 88.0
you got A grade
>>>

8) WRITE A PYTHON PROGRAM TO FIND ALL PERMUTATION OF GIVEN NUMBER?

SOLUTION: -

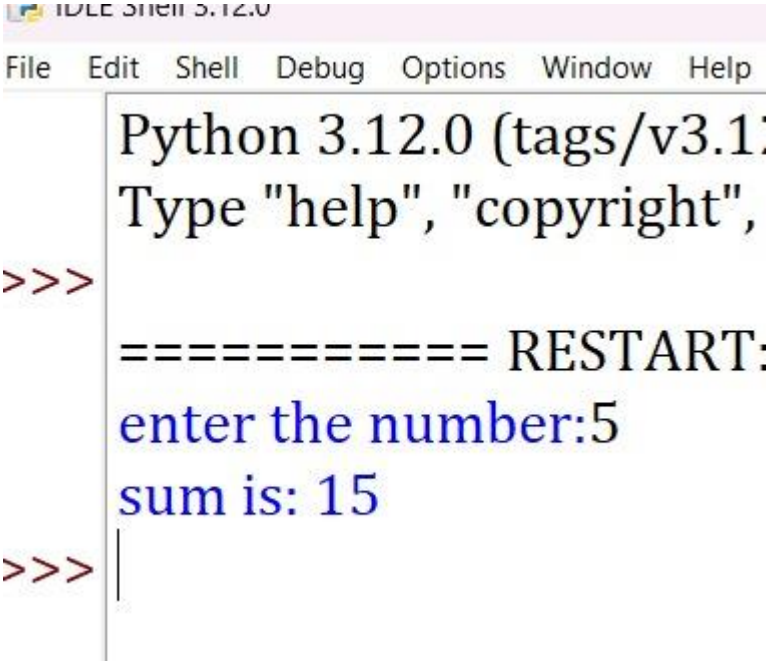
```
import itertools
n=input("enter the number:")
res=list(itertools.permutations(n))
for i in res:
 print(''.join(i))
```



9) WRITE A PYTHON PROGRAM TO PRINT SUM OF THE SERIES?
(1+2+3+4+....+n)

SOLUTION: -

```
n=int(input("enter the number:"))
sum=0
for i in range(n+1):
  sum+=i
print("sum is:", sum)
```



10) WRITE A PYTHON PROGRAM TO PRINT SUM OF SQUARE OF THE SERIES? (1 2+2 2+3 2+4 2+..+n 2)

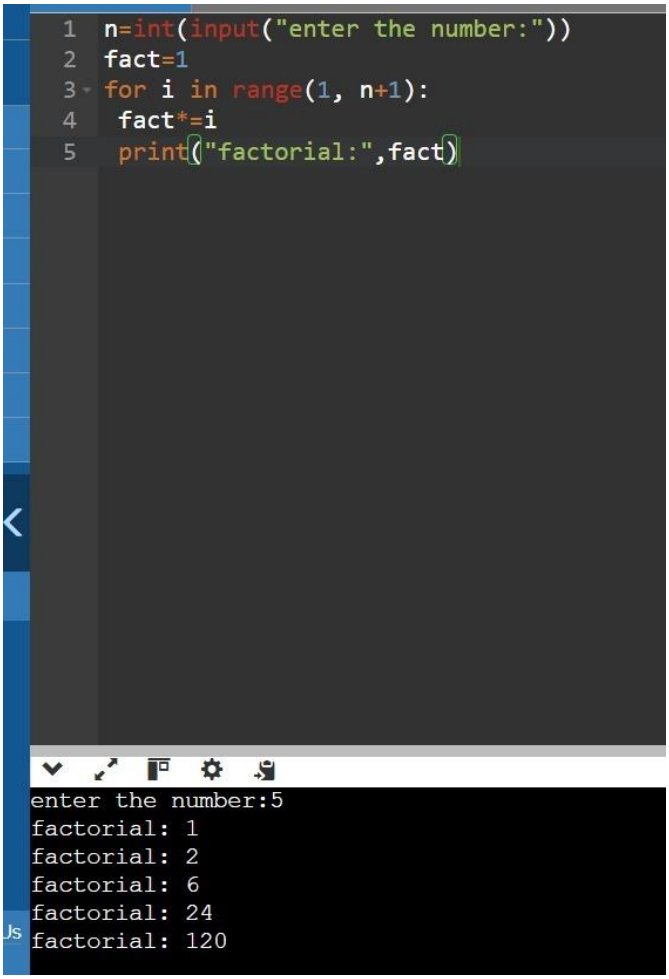
SOLUTION: -

```
n=int(input("enter the number:"))
sum=0
for i in range(n+1):
 sum+=i**2
print("sum:" , sum)
```

11) WRITE A PYTHON PROGRAM TO FIND THE FACTORIAL OF GIVEN NUMBER?

SOLUTION:

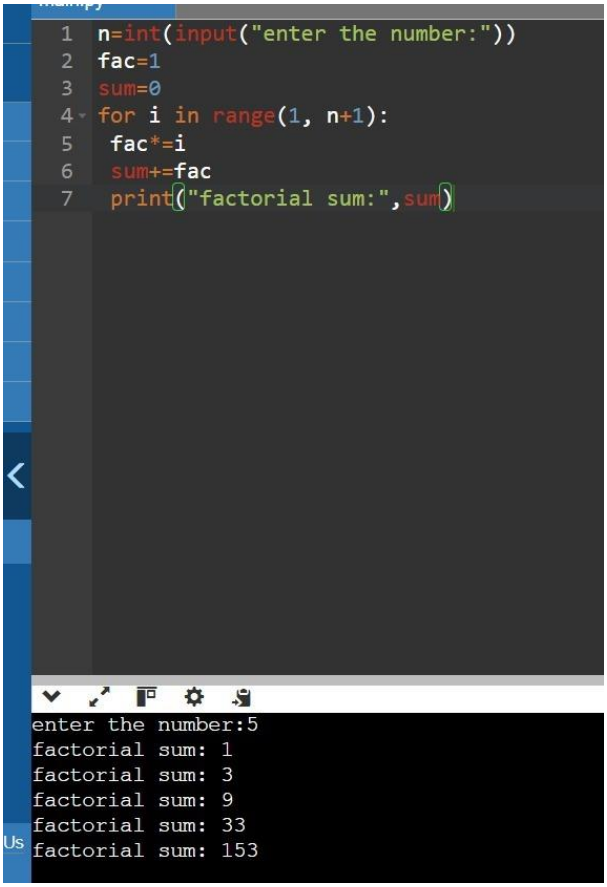
```
n=int(input("enter the number:"))
fact=1
for i in range(1, n+1):
 fact*=i
 print("factorial:",fact)
```



12) WRITE A PYTHON PROGRAM TO FIND SUM OF THE SERIES OF FACTORIAL? (1!+2!+3!+4!+....+n!)

SOLUTION:-

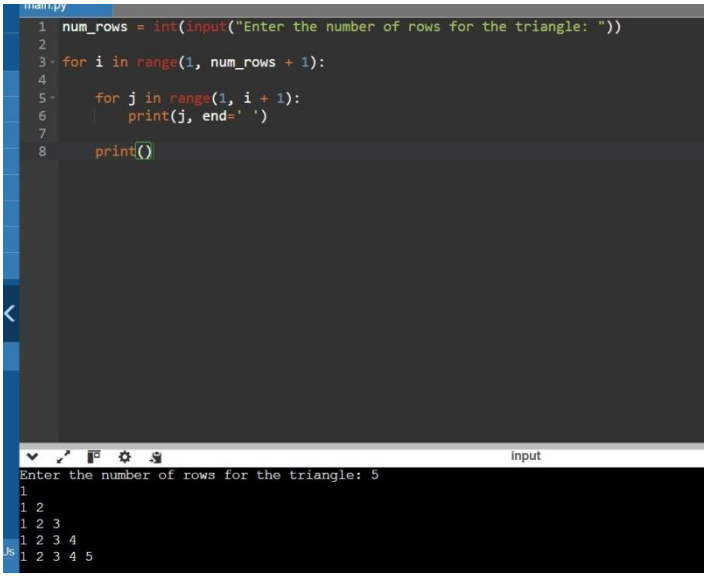
```
n=int(input("enter the number:"))
fac=1
sum=0
for i in range(1, n+1):
 fac*=i
 sum+=fac
 print("factorial sum:",sum)
```



13) WRITE A PYTHON PROGRAM TO PRINT PATTERN? 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5

SOLUTION:-

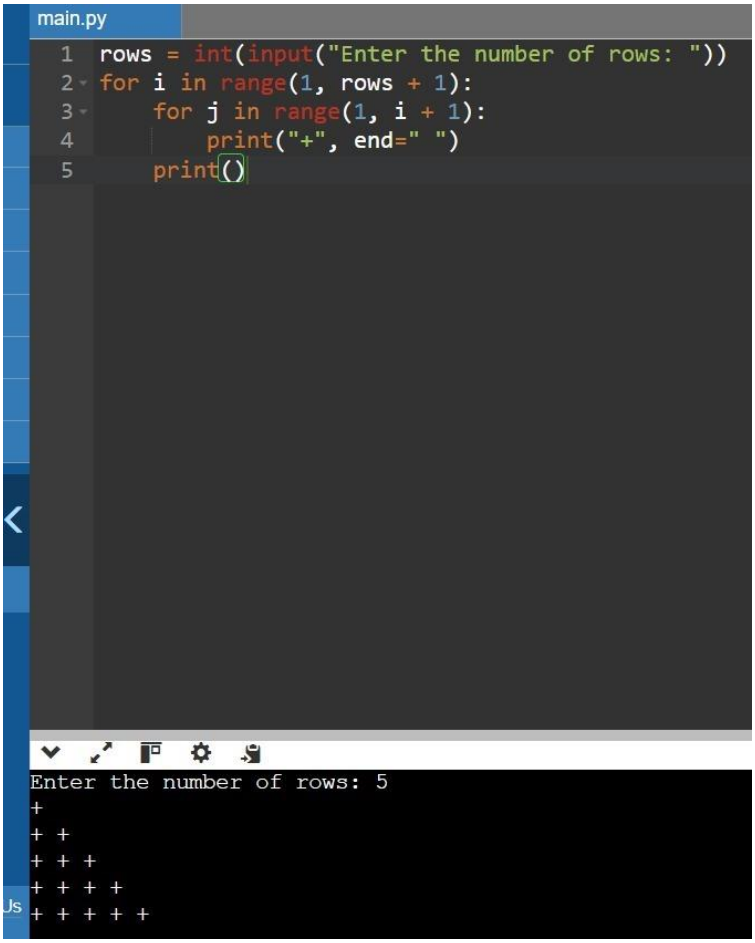
```
n=int(input("enter the number:"))

fact=1

for i in range(1, n+1):

 fact*=i

 print("factorial:",fact)
```



14) WRITE A PYTHON PROGRAM TO PRINT PATTERN? +

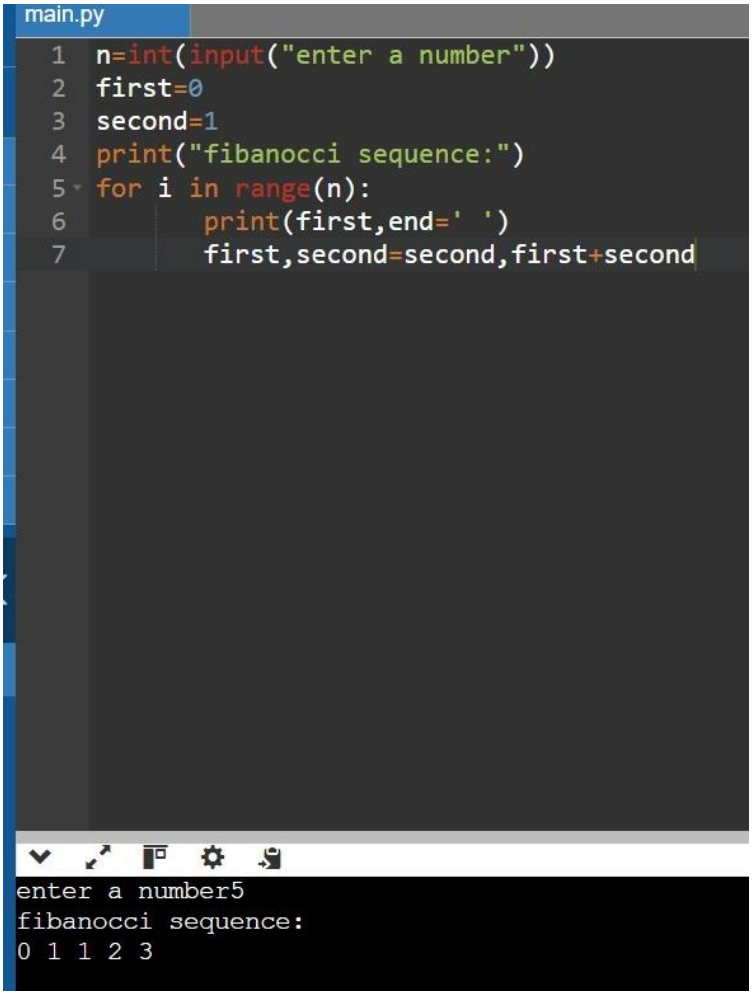
SOLUTION:-

```
rows = int(input("Enter the number of rows: "))
for i in range(1, rows + 1):
    for j in range(1, i + 1):
        print("+", end=" ")
    print()
```



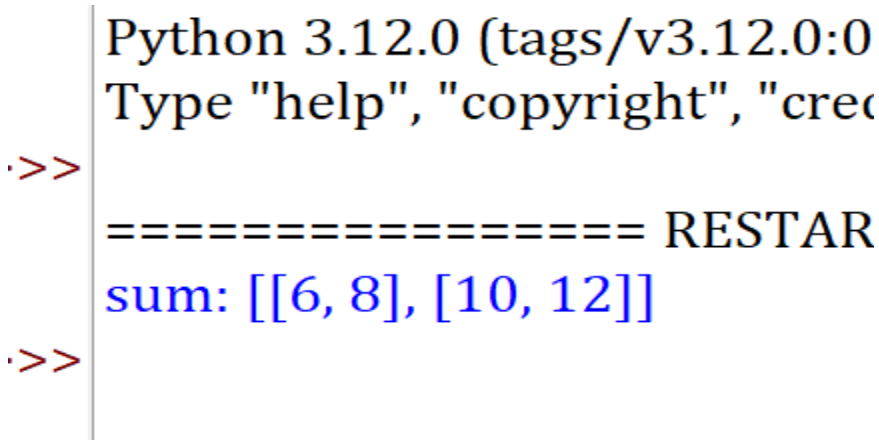
15) WRITE A PYTHON PROGRAM TO PRINT FIBONACCI SERIES OF GIVEN NUMBER?

```
n=int(input("enter a number"))
first=0
second=1
print("fibanocci sequence:")
for i in range(n):
    print(first,end=' ')
    first,second=second,first+second
```



16. 16) WRITE A PYTHON PROGRAM TO EXECUTE ADDITION OF TWO MATRIX? SOLUTION:

```
a= [[1,2], [3,4]]

b= [[5,6], [7,8]]

res= [[0,0], [0,0]]

for i in range(len(a)):

  for j in range (len (a)):

    res[i][j] =a[i][j]+b[i][j]

print ("sum:", res)
```



17. 17) WRITE A PYTHON PROGRAM TO EXECUTE MULTIPLICATION OF TWO MATRIX? SOLUTION:

```
a= [[1,2], [4,1]]

b= [[5,6], [7,8]]

res= [[0,0], [0,0]]

for i in range(len(a)):

  for j in range (len(b)):

    for k in range (len(res)):

      res[i][j]+=a[i][k]*b[k][j]

print ("product matrix:", res)
```

```
================== RESTART: C:/Users/likit/Dc
product matrix: [[19, 22], [27, 32]]
>
```

18) WRITE A PYTHON PROGRAM TO EXECUTE TRANSPOSE OF A MATRIX?

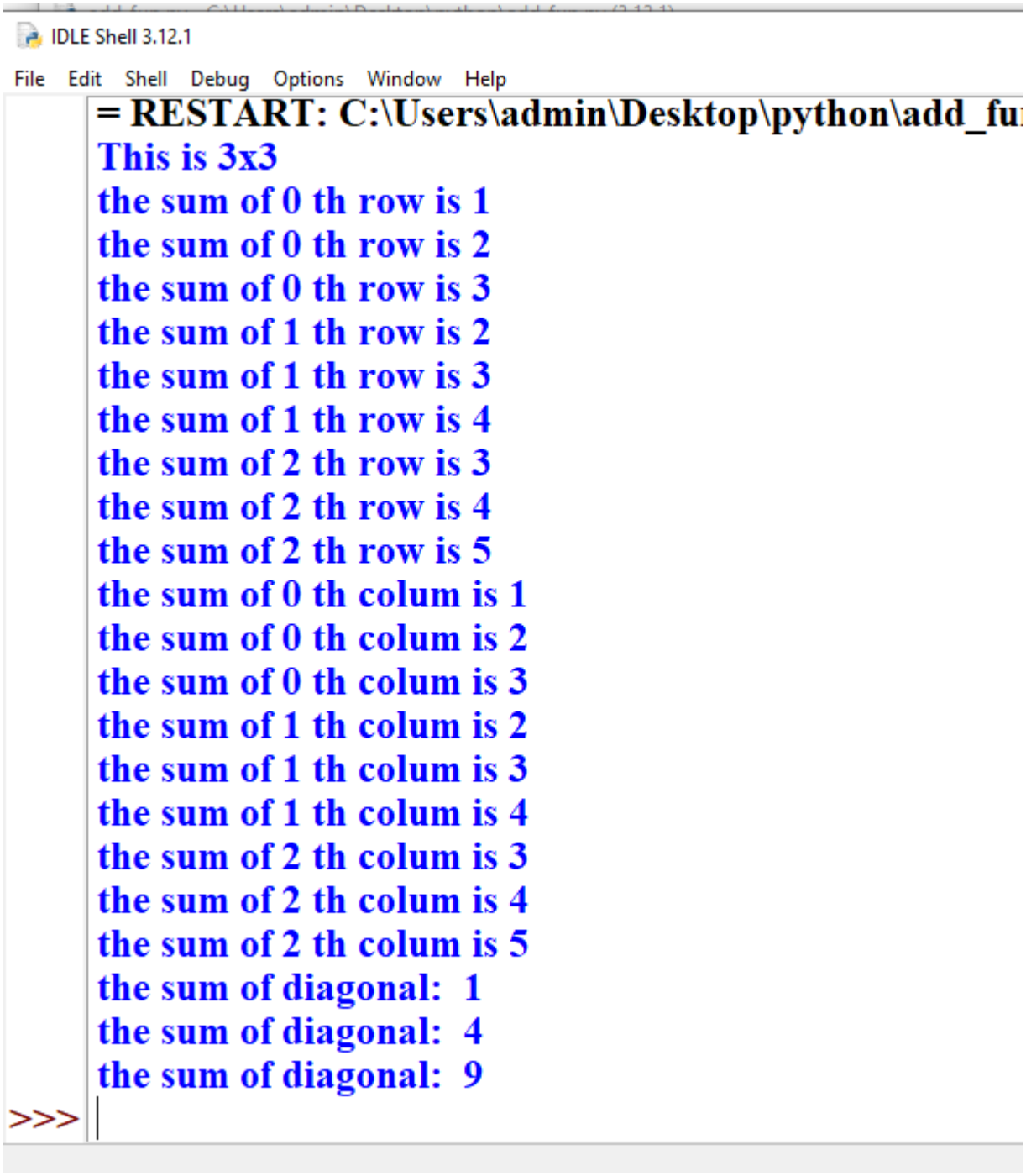
```
a= [[1,2], [3,4]]

res= [[0,0], [0,0]]

for i in range(len(a)):

 for j in range (len (res)):

   res[i][j] =a[j][i]

print ("Transpose matrix:", res)
```

```
================== RESTART: C:/Users/
Transpose matrix: [[1, 3], [2, 4]]
>>>
```

19) WRITE A PYTHON PROGRAM TO SUM OFDIAGONAL, ROW AND COLUMN? **

code:

```
a=[[1,2,3],[2,3,4],[3,4,5]]
rsum=0
csum=0
dsum=0
print(f"This is {len(a)}x{len(a)} matrix")
for i in range(len(a)):
    for j in range(len(a)):
        rsum+=a[i][j]
        print("the sum of",i,"th row is",rsum)
        rsum=0
for i in range(len(a)):
    for j in range(len(a)):
        csum+=a[j][i]
        print("the sum of",i,"th colum is",csum)
        csum=0
for i in range(len(a)):
    for j in range(len(a)):
        if i==j:
            dsum+=a[i][j]
            print("the sum of diagonal: ",dsum)
```


IDLE Shell 3.12.1
File Edit Shell Debug Options Window Help
= RESTART: C:\Users\admin\Desktop\python\add_fu
This is 3x3
the sum of 0 th row is 1
the sum of 0 th row is 2
the sum of 0 th row is 3
the sum of 1 th row is 2
the sum of 1 th row is 3
the sum of 1 th row is 4
the sum of 2 th row is 3
the sum of 2 th row is 4
the sum of 2 th row is 5
the sum of 0 th colum is 1
the sum of 0 th colum is 2
the sum of 0 th colum is 3
the sum of 1 th colum is 2
the sum of 1 th colum is 3
the sum of 1 th colum is 4
the sum of 2 th colum is 3
the sum of 2 th colum is 4
the sum of 2 th colum is 5
the sum of diagonal: 1
the sum of diagonal: 4
the sum of diagonal: 9
>>>

20) WRITE A PYTHON PROGRAM TO PERFORM LIST OPERATIONS?

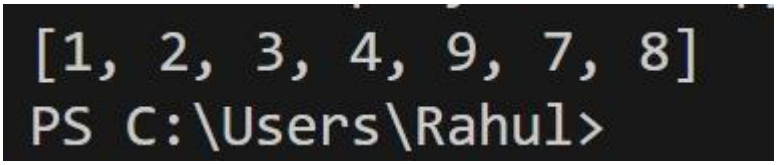
```
a=[5,9,3,4,1,6]
print ("sort:",sorted(a) )
print("reverse:", a[::-1])
print("max:", max(a))
print("min:",min(a))
print("length:",len(a))
```

```
========== RESTAR
sort: [1, 3, 4, 5, 6, 9]
reverse: [6, 1, 4, 3, 9, 5]
max: 9
min: 1
length: 6
>>
```

21) WRITE A PYTHON PROGRAM TO MERGE TWO LISTS?

SOLUTION:-

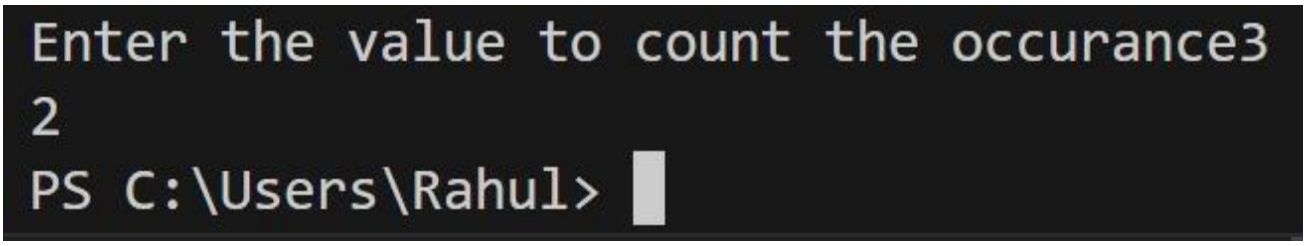
```
a=[1,2,3,4]

b=[9,7,8]

c=a+b

print(c)
```



22)WRITE A PYTHON PROGRAM TO COUNT THE NUMBER

OF OCCURANCE OF AN ELEMENT?

```
a=[1,2,3,3,4,5,5]
n=int(input("Enter the value to count the occurance"))
count=0
for i in a:
    if i==n:
        count=count+1
print(count)
```



23) WRITE A PYTHON PROGRAM TO INSERT AN ELEMENT IN

A LIST?

```
a=[1,2,3,4]

a.append(9)

print(a,end=" ")
```

```
PS C:\Users\Rahul> & C:/Users/Rahul/AppData/Local/Programs/Python/Python312/python.exe c:/Users
/Rahul/Desktop/Python/test/append.py
[1, 2, 3, 4, 9]
PS C:\Users\Rahul>
```

24) WRITE A PYTHON PROGRAM TO FIND INDEX OF AN

ELEMENT IN A LIST?

```
a=[1,2,3,4,5,6]
n=int(input("enter an element to find its index value:"))
for i in range(len(a)):
 if n==a[i]:
  print(i)
```

```
enter an element to find its index value:3
2
PS C:\Users\Rahul>
```

25) WRITE A PYTHON PROGRAM TO FIND ODD AND EVEN ELEMENTS OF A LIST?

```
a=[1,2,4,3]
even=[]
odd=[]
for i in a:
    if i%2==0:
        even.append(i)
    else:
        odd.append(i)
print("odd: ",odd)
print("even:",even)
```

```
s/Rahul/Desktop/Python/test/Even and odd in list.py"
odd number [1, 3, 5]
even number [2, 4, 6]
PS C:\Users\Rahul>
```

26) WRITE A PYTHON PROGRAM TO FIND DUPLICATE ELEMENTS IN A LIST

```
a=[1,2,2,3,4,5,5,6]
v=[]
for i in range(len(a)):
 for j in range(len(a)):
   if i!=j:
     if a[i]==a[j]:
        if a[i] in v:
           break
else:
     v.append(a[i])
print("duplicate elements are:",v)
```

```
========== RESTART: C:/Us
duplicate elements are: [6]
```

27) WRITE A PYTHON PROGRAM FOR MULTIPLICATION TABLE?

1*5=5

2*5=10

3*5=15

4*5=20

SOLUTION:- n=int(input("enter n: "))

for i in range(1,11):

print(i,"*",n,"=",n*i)

```
==========
enter n: 3
1 * 3 = 3
2 * 3 = 6
3 * 3 = 9
4 * 3 = 12
5 * 3 = 15
6 * 3 = 18
7 * 3 = 21
8 * 3 = 24
9 * 3 = 27
```

28) WRITE A PYTHON PROGRAM TO CREATE A DICTONARY AND PRINT IT?

SOLUTION: -

```
person={"name":"jeethu","age":22,"gender":"male","city":"chennai"}

print(person)
```

```
>>>
========== RESTART: C:/Users/likit/
{'name': 'jeethu', 'age': 22, 'gender': 'male', 'city': 'chennai'}
>>>
```

29) WRITE A PYTHON PROGRAM TO COUNT THE NO OF VOWELS AND CONSONENTS IN A STRING? SOLUTION:-

```
a=input("enter a string: ")
b="aeiouAEIOU"
vow=0
const=0
space=0
for i in a:
  if i in b:
    vow+=1
  elif i.isspace():
    space+=1
  else:
    const+=1
print("no of vowels:",vow)
print("no. of consonants:",const)
```

```
enter a string: saveetha
no of vowels: 4
no. of consonants: 4
```

30) WRITE A PYTHON PROGRAM TO PERFORM STRING OPERATIONS?

SOLUTION:-

```
#concatination
a="hello"
b="world"
c= a+b
print(c)
#reverse
c=c[::-1]
print(c)
#length
length=len(c)
print("length:",length)
#slice
d=c[::2]
print(d)
```

```
==========
helloworld
dlrowolleh
length: 10
drwle
```

31) WRITE A PYTHON PROGRAM TO CHECK IT IS A SUBSTRING OR NOT?

SOLUTION:-

```
a=input("enter string: ")
b=input("enter substring: ")
if b in a:
 print("yes it is a substring")
else:
 print("not a substring")
```

```
==========================
enter string: saveetha
enter substring: university
not a substring
>>
```

32) WRITE A PYTHON PROGRAM TO CONVERT UPPERCASE AND LOWERCASE OF A STRING?

SOLUTION:-

```
a=input("enter string:")

print("uppercase:",a.upper())

print("lowercase:",a.lower())
```

```
-----------------------------
enter string:saveetha
uppercase: SAVEETHA
lowercase: saveetha
```

33) WRITE A PYTHON PROGRAM TO CHECK IT A PALINDROME OR NOT?

SOLUTION:-

```
a=input("enter string:")
b=a[::-1]
if a==b:
 print("palindrome")
else:
 print("not a palindrome")
```

```
==========:
enter string:saveetha
not a palindrome
>

==========:
enter string:mom
palindrome
>
```

34) WRITE A PYTHON PROGRAM TO FIND NUMBER OF WORDS IN A STRING?

SOLUTION:

```
n=input("enter string: ")

b=n.split()

print(b)

print("no of words:",len(b))
```

```
==================================
enter string: hello i m saveetha college
['hello', 'i', 'm', 'saveetha', 'college']
no of words: 5
```

35) WRITE A PYTHON PROGRAM TO CHECK PERFECT NUMBER OR NOT?

SOLUTION:-

```
n = int(input("Enter any Number: "))
Sum = 0
for i in range(1, n):
 if(n% i == 0):
  Sum = Sum + i
if (Sum == n):
 print("Perfect Number")
else:
 print(" not a Perfect Number" )
```

```
==========
Enter any Number: 28
Perfect Number
>>
==========
Enter any Number: 145
 not a Perfect Number
```

36) WRITE A PYTHON PROGRAM TO CHECK AMSTRONG NUMBER OR NOT?

SOLUTION:-

```
n=int(input("enter n: "))
a=[int(i) for i in str(n)]
sum=0
for i in a:
 sum+=i**3
if sum==n:
 print("amstrong number")
else:
 print("not a amstrong number")
```

```
================================
enter n: 371
amstrong number
>

================================
enter n: 125
not a amstrong number
```

37) WRITE A PYTHON PROGRAM TO CHECK TECH NUMBER OR NOT?

SOLUTION:-

```
n = 3025
m = str(n)
a = m[:len(m)//2]
b = m[len(m)//2:]
c = int(a)+int(b)
d = c**2
if(d==n):
 print("Tech number")
else:
 print("Not a Tech number")
```

```
==============
Tech number
```

38) WRITE A PYTHON PROGRAM TO CHECK PRIME NUMBER OR NOT?

SOLUTION:

```
n=int(input("enter n:"))
flag=0
for i in range(2,n):
 if n%i==0:
   print("non prime")
   break
else:
  print("prime")
```

```
enter n:9
non prime
>>>
==========
enter n:7
prime
```

39) WRITE A PYTHON PROGRAM TO CHECK COMPOSITE NUMBER OR NOT?

SOLUTION:

```
n=int(input("enter n:"))
flag=0
for i in range(2,n):
 if n%i==0:
   print("composite")
   break
else:
   print("non composite")
```

```
==========
enter n:5
non composite
>>>
==========
enter n:8
composite
>>>
```

40) WRITE A PYTHON PROGRAM TO CHECK HARSHAD NUMBER OR NOT?

SOLUTION:-

```
num=int(input("Enter the number:"))
Sum=0
temp=num
while temp>0:
  digit=temp%10
  Sum+=digit
  temp=temp//10
if num%Sum==0:
 print("Harshad Number")
else:
 print("Not a Harshad Number")
```

```
======================
Enter the number:37
Not a Harshad Number
>
======================
Enter the number:157
Not a Harshad Number
>
======================
Enter the number:156
Harshad Number
```

41) WRITE A PYTHON PROGRAM TO FIND LSB AND MSB?

SOLUTION:-

```
n=int(input("enter a binary number:"))
b=str(n)
print("LSB:",b[-1])
print("MSB:",b[0])
```

```
==========================
enter a binary number:0011
LSB: 1
MSB: 1
```

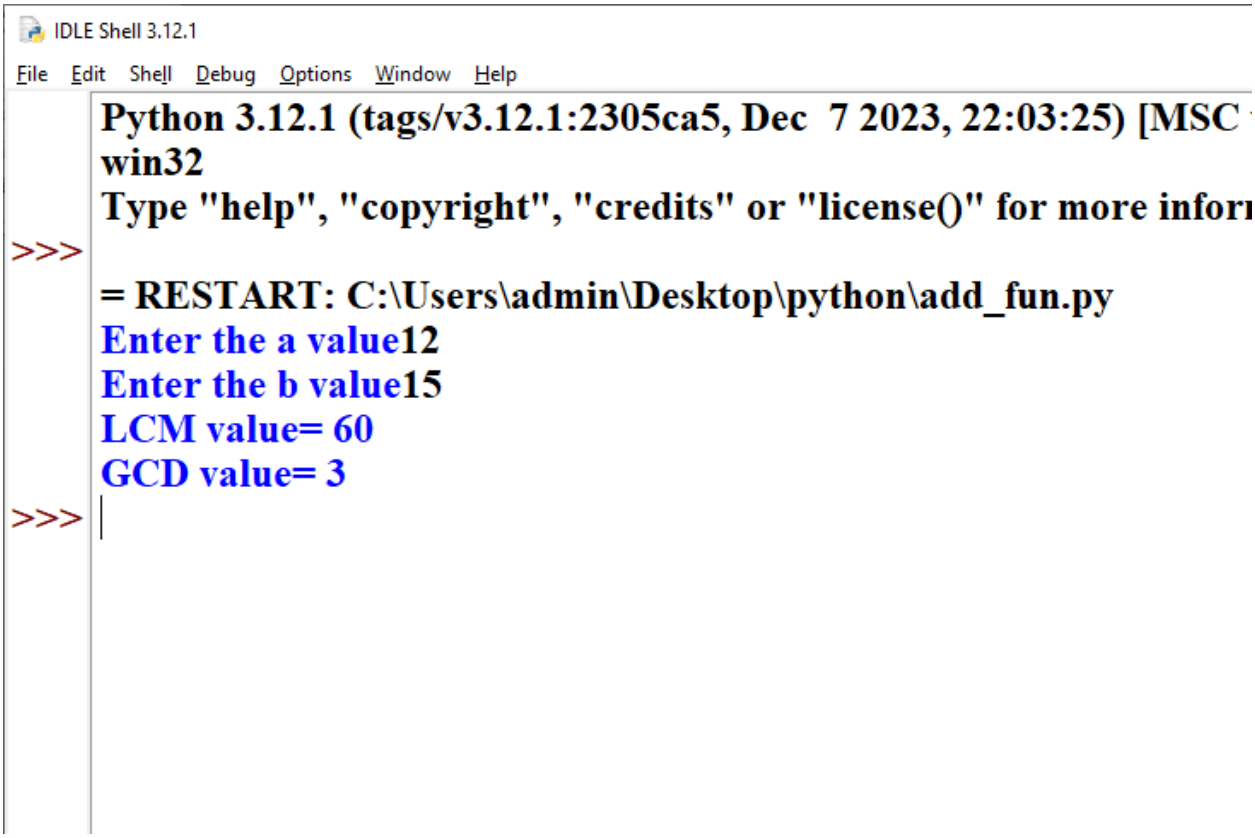
42) WRITE A PYTHON PROGRAM TO FIND MEAN,MEDIAN AND MODE?

SOLUTION:

```
import statistics
a=[1,2,3,4,5,5]
mean=statistics.mean(a)
print(mean)
median=statistics.median(a)
print(median)
mode=statistics.mode(a)
print(mode)
```

```
==========
3.3333333333333335
3.5
5
```

43) WRITE A PYTHON PROGRAM TO FIND LCM AND GCD?

SOLUTION:

```
import math
a=int(input("Enter the a value"))
b=int(input("Enter the b value"))
c=math.lcm(a,b)
d=math.gcd(a,b)
print("LCM value=",c)
print("GCD value=",d)
```