

CO 2 PROGRAMS

:Program 1

Program to find the factorial of a number

```
n=int(input('Enter a number : '))
```

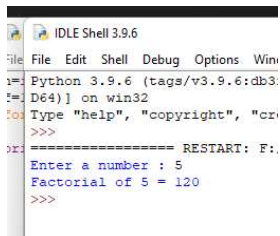
```
f=1
```

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

```
    f=f*i
```

```
print ('Factorial of',n, '=',f)
```

OUTPUT:

A screenshot of the IDLE Shell 3.9.6 window. The window title is 'IDLE Shell 3.9.6'. The menu bar includes 'File', 'Edit', 'Shell', 'Debug', 'Options', and 'Window'. The shell shows the following text: 'Python 3.9.6 (tags/v3.9.6:db33c8e1, May 4 2021, 12:00:00) on win32', 'Type "help()", "copyright()", "credits()", or "quit()" for more help.', '>>>', '===== RESTART: File: <stdin> =====', 'Enter a number : 5', 'Factorial of 5 = 120', and '>>>'.

:Program 2

Generate Fibonacci series of N terms

```
n = int(input("Enter the limit : "))
```

```
a =0
```

```
b =1
```

```
sum = 0
```

```
count = 1
```

```
print("Fibonacci Series :",end= " ")
```

```
while(count <= n):
```

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

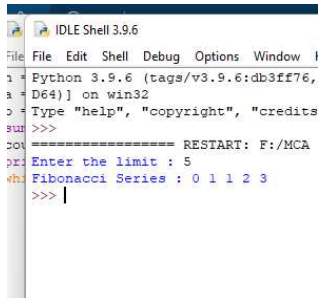
```
    count += 1
```

```
    a = b
```

```
    b = sum
```

```
    sum = a + b
```

OUTPUT:



```
Python 3.9.6 (tags/v3.9.6:db3ff76,
a = D64)] on win32
> Type "help", "copyright", "credits
sum
>>>
===== RESTART: F:/MCA
>>> Enter the limit : 5
Fibonacci Series : 0 1 1 2 3
>>> |
```

:Program 3

Find the sum of all items in a list

```
list1 = [10, 15, 20, 25, 30]
```

```
total = sum(list1)
```

```
print("Sum of list : ",total)
```

OUTPUT:



```
Python 3.9.6 (tags/v3.9.6:db3ff76,
a = D64)] on win32
> Type "help", "copyright", "c:
>>>
===== RESTART: F
Sum of list : 100
>>>
```

:Program 4

Generate a list of four digit numbers in a given range with all their digits even and the number is a perfect square.

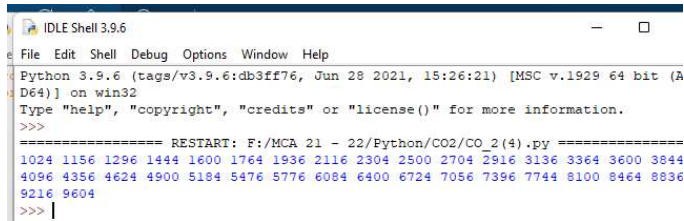
```
from math import sqrt as s
```

```
for i in range(1000,10000):
```

```
    if s(i)==int(s(i)) and i%2==0:
```

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

OUTPUT:



```
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:\MCA 21 - 22\Python\CO2\CO_2(4).py =====
1024 1156 1296 1444 1600 1764 1936 2116 2304 2500 2704 2916 3136 3364 3600 3844
4096 4356 4624 4900 5184 5476 5776 6084 6400 6724 7056 7396 7744 8100 8464 8836
9216 9604
>>> |
```

:Program 5

Display the given pyramid with step number accepted from user.

```
rows = int(input("Enter the number of rows: "))
```

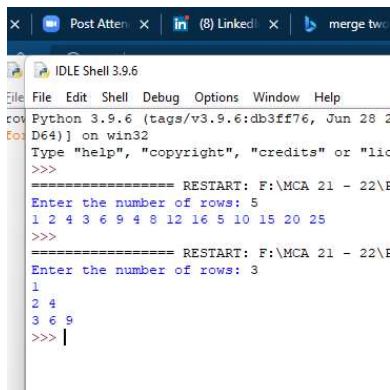
```
for i in range(1, rows+1):
```

```
    for j in range(1,i+1):
```

```
        print(i * j, end="")
```

```
    print()
```

OUTPUT:



```
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:\MCA 21 - 22\F
Enter the number of rows: 5
1 2 4 3 6 9 4 8 12 16 5 10 15 20 25
>>>
===== RESTART: F:\MCA 21 - 22\F
Enter the number of rows: 3
1
2 4
3 6 9
>>> |
```

:Program 6

Count the number of characters (character frequency) in a string.

```
test_str=str(input("Enter the string : "))
```

```
freq = {}
```

```
for i in test_str:
```

```
    if i in freq:
```

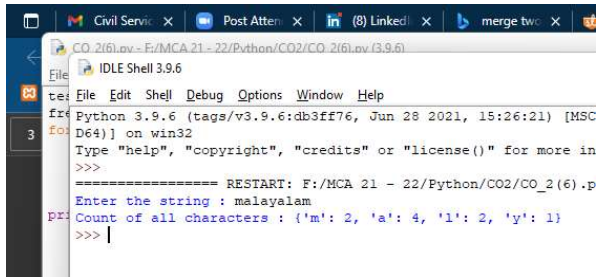
```
        freq[i] += 1
```

```
    else:
```

```
        freq[i] = 1
```

```
print ("Count of all characters : "+str(freq))
```

OUTPUT:



```
CO_2(6).py - F:/MCA 21 - 22/Python/CO2/CO_2(6).py (3.9.6)
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC
D64] on win32
Type "help", "copyright", "credits" or "license()" for more in
>>>
===== RESTART: F:/MCA 21 - 22/Python/CO2/CO_2(6).p
Enter the string : malayalam
Count of all characters : {'m': 2, 'a': 4, 'l': 2, 'y': 1}
>>> |
```

:Program 7

Add 'ing' at the end of a given string. If it already ends with 'ing', then add 'ly'

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

```
print("inputed string is:",str)
```

```
if(str.endswith("ing")):
```

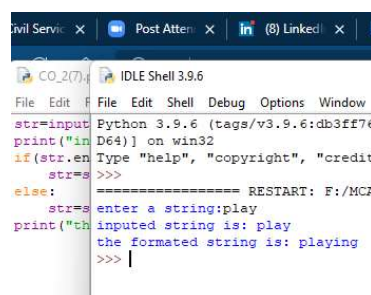
```
    str=str+'ly'
```

```
else:
```

```
    str=str+'ing'
```

```
print("the formatted string is:",str)
```

OUTPUT:



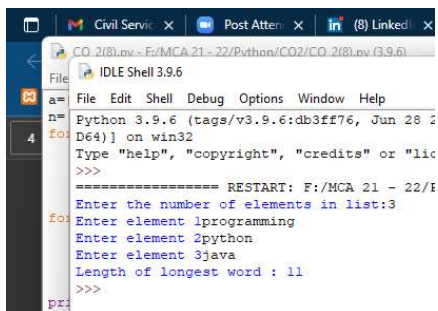
```
CO_2(7).py - F:/MCA 21 - 22/Python/CO2/CO_2(7).py (3.9.6)
IDLE Shell 3.9.6
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC
D64] on win32
Type "help", "copyright", "credits" or "license()" for more in
>>>
===== RESTART: F:/MCA
enter a string:play
inputed string is: play
the formatted string is: playing
>>> |
```

:Program 8

Accept a list of words and return length of longest word.

```
a=[]
n= int(input("Enter the number of elements in list:"))
for x in range(0,n):
    element=input("Enter element "+ str(x+1) )
    a.append(element)
    max1=len(a[0])
    temp=a[0]
for i in a:
    if(len(i)>max1):
        max1=len(i)
        temp=i
print("Longest Word:",temp)
print("Length of longest word :",max1)
```

OUTPUT:



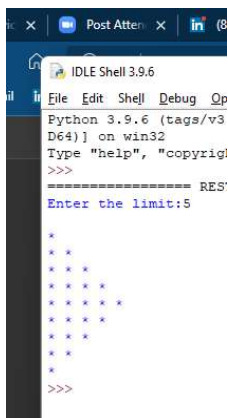
```
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 16:08:00) on win32
Type "help", "copyright", "credits" or "license()" for more
>>>
===== RESTART: F:/MCA 21 - 22/Python/CO2/CO_2(8).py (3.9.6) =====
Enter the number of elements in list:3
Enter element 1lprogramming
Enter element 2python
Enter element 3java
Length of longest word : 11
>>>
```

:Program 9

Construct following pattern using nested loop

```
n= int(input("Enter the limit:"))
for i in range(n):
    for j in range(i):
        print (* ' ', end="")
    print("")
for i in range(n,0,-1):
    for j in range(i):
        print(* ' ', end="")
    print("")
```

OUTPUT:

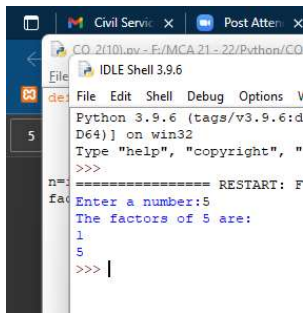


:Program 10

Generate all factors of a number. def print_factors(x):

```
def factors(x):
    print("The factors of",x,"are:")
    for i in range(1, x + 1):
        if x % i == 0:
            print(i)
n=int(input("Enter a number:"))
factors(n)
```

OUTPUT:



```
CO_2(10).mv - F:/MCA 21-22/Python/CO_2(10).mv
IDLE Shell 3.9.6
File Edit Shell Debug Options W
Python 3.9.6 (tags/v3.9.6:db
D64) on win32
Type "help", "copyright", "c
>>>
n=5
fa
Enter a number:5
The factors of 5 are:
1
5
>>> |
```

:Program 11

Write lambda functions to find area of square, rectangle and triangle.

```
import math
```

```
t_area = lambda b,h : 1/2*b*h
```

```
r_area = lambda l,b : l*b
```

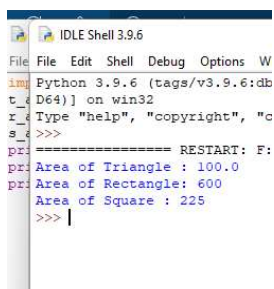
```
s_area = lambda a : a*a
```

```
print("Area of Triangle :", t_area(10,20))
```

```
print("Area of Rectangle:", r_area(30,20))
```

```
print("Area of Square :", s_area(15))
```

OUTPUT:



```
IDLE Shell 3.9.6
File Edit Shell Debug Options W
Python 3.9.6 (tags/v3.9.6:db
D64) on win32
Type "help", "copyright", "c
s_
>>>
pr:
pr: Area of Triangle : 100.0
pr: Area of Rectangle: 600
pr: Area of Square : 225
>>> |
```