**CO2 PROGRAMS**

**1.Program to find the factorial of a number**

**PROGRAM:**

n=int(input("enter the number\n"))

f=1

print("Factorial of",n,"is")

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

f=f\*i

print(f)

**OUTPUT:**

enter the number

5

Factorial of 5 is

120

**2. Generate Fibonacci series of N terms**

**PROGRAM:**

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

f1=0

f2=1

f3=0

print("Fibonacci series:\n")

for i in range(n):

print(f3)

f1=f2

f2=f3

f3=f1+f2

**OUTPUT:**

enter the number :6

Fibonacci series:

0

1

1

2

3

5

**3.Find the sum of all items in a list**

**PROGRAM:**

l1=[2,3,5,15]

print("Sum of elements in the list is:\n")

print(sum(l1))

**OUTPUT:**

Sum of elements in the list is:

25

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

**PROGRAM:**

from math import sqrt as s

print("Numbers are:")

for i in range(999,10000):

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

print(i,end=" ")

**OUTPUT:**

Numbers are:

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

**5.Display the given pyramid with step number accepted from user.**

**PROGRAM:**

n=int(input("enter the limit\n"));

print("The pattern is:");

for i in range(n):

for j in range(1,i+2):

print(j,end="")

print()

OUTPUT:

enter the limit

5

The pattern is:

1

12

123

1234

12345

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

**PROGRAM**

str1=str(input("Enter the string : "))

fq= {}

for i in str1:

if i in fq:

fq[i] += 1

else:

fq[i] = 1

print ("Count of all characters : ",fq)

**OUTPUT**

Enter the string : Anandhu

Count of all characters : {'A': 1, 'n': 2, 'a': 1, 'd': 1, 'h': 1, 'u': 1}

**7.Add ‘ing’ at the end of a given string. If it already ends with ‘ing’, then add ‘ly’**

**PROGRAM**

str=input("enter a string:")

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

str+='ly'

else:

str+='ing'

print("new string is:",str)

**OUTPUT:**

enter a string:Ride

new string is: Rideing

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

**PROGRAM:**

a=[]

n=int(input("Enter the number of elements in list:"))

for x in range(0,n):

s=input("Enter element "+ str(x+1))

a.append(s)

m=len(a[0])

t=a[0]

for i in a:

if(len(i)>m):

m=len(i)

t=i

print("Longest Word is:",t)

print("Length of longest word is:",m)

**OUTPUT:**

Enter the number of elements in list:3

Enter element1Anandhu

Enter element2Hari

Enter element3Athul

Longest Word is: Anandhu

Length of longest word is: 7

**9.Construct following pattern using nested loop**

# \*

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

**PROGRAM:**

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:**

**Enter the limit:5**

**\***

**\* \***

**\* \* \***

**\* \* \* \***

**\* \* \* \* \***

**\* \* \* \***

**\* \* \***

**\* \***

**\***

**10. Generate all factors of a number. def print\_factors(x):**

**PROGRAM**

def fact(a):

print("Factors of",a,"is")

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

if(a%i==0):

print(i)

n=int(input("Enter the Number "))

fact(n)

**OUTPUT**

Enter the Number 20

Factors of 20 is

1

2

4

5

10

20

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

**PROGRAM**

rect=lambda l,b:l\*b

sq=lambda s:s\*s

tri=lambda a,b:1/2\*a\*b

l,b=int(input("Enter the length and breadth of rectangle")),int(input())

print("Area of rectangle is :",rect(l,b))

s=int(input("Enter the side of square"))

print("Area of square is :",sq(s))

l,h=int(input("Enter the breadth and height of triangle")),int(input())

print("Area of triangle is :",tri(l,h))

**OUTPUT**

Enter the length and breadth of rectangle30

20

Area of rectangle is : 600

Enter the side of square15

Area of square is : 225

Enter the breadth and height of triangle10

20

Area of triangle is : 100.0