

COURSE OUTCOME 2

DATE : 09-10-2023

1. Program to find the factorial of a number.

PROGRAM

```
def fact(x):  
    if x==1:  
        return 1  
    else:  
        return x*fact(x-1)  
x=int(input("Enter the number : "))  
print("Factorial : ",fact(x))
```

OUTPUT

```
Enter the number : 6  
Factorial : 720
```

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2. Generate Fibonacci series of N terms.

PROGRAM

```
n=int(input("Enter the no of terms : "))
a=0
b=1
c=a+b
print(a)
print(b)
print(c)
for i in range(3,n):
    a=b
    b=c
    c=a+b
    print(c)
```

OUTPUT

Enter the no of terms : 10

0

1

1

2

3

5

8

13

21

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

PROGRAM

```
l=[]  
n=int(input("Enter the size of the list : "))  
print("Enter elements : ")  
for i in range(n):  
    i=int(input())  
    l.append(i)  
  
print("Sum : ",sum(l))
```

OUTPUT

Enter the size of the list: 9

Enter elements :

1

2

3

4

5

6

7

8

9

Sum : 45

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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

```
res=[]  
for i in range(1000,10000):  
    if all(int(x)%2==0 for x in str(i)):  
        if int(i**0.5)**2==i:  
            res.append(i)  
print("List of numbers : ",res)
```

OUTPUT

List of numbers : [4624, 6084, 6400, 8464]

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

Eg: N=4

1

2 4

3 6 9

4 8 12 16

PROGRAM

```
N = int(input("Enter the number of steps for the pyramid: "))

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

        value = i * j

        print(value, end=" ")

    print()
```

OUTPUT

Enter the number of steps for the pyramid: 4

1

2 4

3 6 9

4 8 12 16

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

PROGRAM

```
input_string = input("Enter a string: ")
char_count = {}
for char in input_string:
    char_count[char] = char_count.get(char, 0) + 1
for char, count in char_count.items():
    print(f"{char}': {count}")
```

OUTPUT

Enter a string: basil

'b': 1

'a': 1

's': 1

'i': 1

'l': 1

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

PROGRAM

```
str1=input("Enter a string : ")
if str1.endswith('ing'):
    str2=str1+'ly'
else:
    str2=str1+'ing'
print(str2)
```

OUTPUT

Enter a string : play
Playing

Enter a string : playing
playingly

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

PROGRAM

```
n = int(input("Enter the size of the list: "))
a = [input("Enter word: ") for _ in range(n)]

temp = max(a, key=len)

print("Word with max length is", temp, "Its length is", len(temp))
```

OUTPUT

Enter the size of the list: 3

Enter word: ashwin

Enter word: basilbaby

Enter word: beema

Word with max length is basilbaby Its length is 9

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9. Construct following pattern using nested loop

```

*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*

```

PROGRAM

```
n=int(input("Enter the no of rows : "))
for i in range(1,n+1):
    print('*'*i)
for i in range(n-1,0,-1):
    print('*'*i)
```

OUTPUT

Enter the no of rows : 5

```

*
**
***
****
*****
****
***
**
*

```

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10. Generate all factors of a number.

PROGRAM

```
def facts(x):  
    return [i for i in range(1, x + 1) if x % i == 0]  
  
n = int(input("Enter a number: "))  
factors = facts(n)  
  
print(f"Factors of {n} are: {factors}")
```

OUTPUT

Enter a number: 28
Factors of 28 are: [1, 2, 4 , 7, 14, 28]

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

PROGRAM

```
area1=lambda a: a*a
area2=lambda l,b: l*b
area3=lambda b,h: 0.5*(b*h)

s=int(input("Enter the side of square : "))
print("Area of square : ",area1(s))

l=int(input("Enter the length of rectangle : "))
b=int(input("Enter the breadth of rectangle : "))
print("Area of rectangle : ",area2(l,b))

b=int(input("Enter the base of triangle : "))
h=int(input("Enter the height of triangle : "))
print("Area of triangle : ",area3(b,h))
```

OUTPUT

```
Enter the side of square : 25
Area of square : 625
Enter the length of rectangle : 12
Enter the breadth of rectangle : 30
Area of rectangle :360
Enter the base of triangle : 25
Enter the height of triangle :20
Area of triangle : 250
```