Python_basic_programming_6

1. Write a Python Program to Display Fibonacci Sequence using Recursion ?

In [1]:
```
def genFibonacci(n,a,b):
    if n == 0:
        return 1
    else:
        result = a+b
        print(result,end=', ')
        genFibonacci(n-1,b,result)
in_num = int(input('Enter the length of Series: '))
print('0, 1',end =', ')
genFibonacci(in_num,1,2)
```

```
Enter the length of Series: 13
0, 1, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987,
```

2. Write a Python Program to Find Factorial of a Number using Recursion ?

In [3]:
```
def factorial(num):
    if(num<1):
        return 1
    else:
        return num*factorial(num-1)
num = int(input('Enter a number: '))
value = factorial(num)
print(f'The Factorial of{num}is{value}')
```

```
Enter a number: 5
The Factorial of5is120
```

3. Write a Python Program to Calculate your Body Mass Index

In [4]:
```
def calculateBMI():
    in_weight = eval(input('Enter your Weight(kgs): '))
    in_height = eval(input('Enter your Height(mts): '))
    calc_bmi = in_weight/pow(in_height,2)
    if(calc_bmi<18.5):
        status = 'Underweight'
    elif(calc_bmi>=18.5 and calc_bmi<24.9):
        status = 'Healthy'
    elif(calc_bmi>= 24.9 and calc_bmi<30):
        status = 'Overweight'
    elif(calc_bmi>=30):
        status ='Suffering from Obesity'
    print(f'Your\'re BMI is{calc_bmi} and status is{status}')
calculateBMI()
```

```
Enter your Weight(kgs): 42
Enter your Height(mts): 1.4
Your're BMI is21.42857142857143 and status isHealthy
```

4. Write a Python Program to Calculate the Natural Logarithm of any Number ?

In [5]:
```
import math
def genNatLog():
    in_num = eval(input("Enter a Number:"))
    print(math.log(in_num))
genNatLog()
```

```
Enter a Number:19
2.9444389791664403
```

5. Write a Python Program for Cube sum of first n Natural Numbers ?

In [6]:
```
def cubeOfNaturalNumbers():
    in_num = int(input("Enter the no of Natural Numbers: "))
    result = pow(((in_num*(in_num+1))/2),2)
    print(f'The Cube Sum of First{in_num} Natural Numbers is{result}')
cubeOfNaturalNumbers()
```

```
Enter the no of Natural Numbers: 10
The Cube Sum of First10 Natural Numbers is3025.0
```