# Assignment 6

#### Write a Python Program to Display Fibonacci Sequence using Recursion ?

**Answer:**

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: 20  
0, 1, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657,

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

**Answer:**

**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 of 5 is 120

#### Write a Python Program to Calculate your Body Mass Index ?

**Answer**

**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): 70  
Enter your Height(mts): 1.8  
Your're BMI is 21.604938271604937 and status is Healthy

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

***Answer:***

import math  
def genNatLog():  
 in\_num = eval(input("Enter a Number:"))  
 print(math.log(in\_num))  
  
genNatLog()

Enter a Number:32  
3.4657359027997265

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

***Answer:***

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: 3  
The Cube Sum of First 3 Natural Numbers is 36.0