**Programming Assignment 6 Python**

1. Write a Python Program to Display Fibonacci sequence Using Recursion.

# Python Program to Print the Fibonacci sequence using Recursion

def recursion\_fibonacci(num):

   if num <= 1:

       return num

   else:

       return(recursion\_fibonacci(num-1) + recursion\_fibonacci(num-2))

# take input from the user

nterms = int(input(" Enter the terms "))

# check if the number of terms is valid

if nterms <= 0:

   print(" Enter a positive integer")

else:

   print("Fibonacci sequence:")

   for i in range(nterms):

       print(recursion\_fibonacci(i))

**How many terms? 12**

**Fibonacci sequence:**

**0**

**1**

**1**

**2**

**3**

**5**

**8**

**13**

**21**

**34**

**55**

**89**

1. Write a Python Program to Find Factorial of Number Using Recursion.

# a Python Program to Find Factorial of Number Using Recursion.

num = int(input("Enter the value:"))

def recur\_factorial(n):

   if n == 1:

       return n

   else:

       return n\*recur\_factorial(n-1)

# num = 7

if num < 0:

        print("No")

elif num == 0:

        print("The factorial of 0 is 1")

else:

  print("The factorial of", num, "is", recur\_factorial(num))

**Enter the value:4**

**The factorial of 4 is 24**

1. Write a Python Program to calculate your Body Mass Index.

# a Python Program to calculate your Body Mass Index

height = float(input("Enter the value in m:"))

weight = float(input("Enter the value in kg:"))

BMI = weight/(height)\*\*2

print("your Body Mass Index" , BMI)

if BMI <= 18.5:

    print("you are underweight")

elif BMI <= 24.9:

    print("you are Healthy")

elif BMI <= 29.9:

     print("you are overweight")

else:

    print("you are obese")

**Enter the value in m:20.9**

**Enter the value in kg:50**

**your Body Mass Index 0.11446624390467253**

**you are underweight**

1. Write a Python Program to calculate the natural logarithm of any number.

# a Python Program to calculate the natural logarithm of any number.

import math

x = float(input("enter the value:"))

math.log(x)

print("Log value:", math.log(x))

**enter the value:2**

**Log value: 0.6931471805599453**

1. Write a Python Program for cube sum of first n natural numbers

# a Python Program for cube sum of first n natural numbers

def Cubesum(n):

    sum = 0

    for i in range(n+1):

        sum = sum + i \*\* 3

    return sum

n = int(input("Enter the value:"))

print("cube sum of first {} natural number:" .format(n),Cubesum(n))

**Enter the value:3**

**cube sum of first 3 natural number: 36**